A REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number

Address _____ Permit Review Team

_____

_____

Contact Name _____ Date Application Received

Contact Phone Number _____ Date Review Completed

			Module A	
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
PART A -APPLICATION	270.11(a) & (d), 270.10(d), 270.13	335-14-8-.02(2) (a) & (d) 335-14-8-.02(1) (d) 335-14-8-.02(4)		
FORM 1				
A-1 Label Items • EPA ID number • Facility name • Facility mailing address • Facility location		335-14-8-.02(4) (a)		
A-2 Pollutant Characteristics				
A-3 Name of Facility		335-14-8-.02(4) (a)		
A-4 Facility Contacts • Name and title • Telephone				
A-5 Facility Mailing Address				
A-6 Facility Location • Hazardous Waste Activities				

A-7 SIC Code(s) • Four digits		335-14-8-.02(4) (c)		
A-8 Operator Information • Name • Address • Ownership status • Phone		335-14-8-.02(4) (d)		
A-9 Indian Lands		335-14-8-.02(4) (f)		
A-10 Existing Environmental Permits • NPDES • UIC • RCRA • PSD • Other		335-14-8-.02(4) (h)		
A-11 Topographical Map • One mile beyond property line • Outline of facility • Location of existing and proposed intake and discharge structures • Hazardous waste treatment, storage, and disposal facilities • Underground injection wells • Springs, rivers, and other surface water bodies • Drinking water wells				
A-12 Nature of the Business				
A-13 Certification Paragraph • Name, title, and date • Acceptable signature				

FORM 3				
A-14 EPA ID Number				
A-15 First or Revised Application • Existing/New • Interim/Permitted		335-14-8-.02(4) (f)		
A-16 Process - Codes and Design Capacities • Process codes • Amount • Unit of measure		335-14-8-.02(4) (i)		
A-17 Description of Hazardous Wastes • EPA hazardous waste number • Estimated annual quantity • Unit of measure • Process code • Process description		335-14-8-.02(4) (j)		
A-18 Facility Drawing		335-14-8-.02(4) (h)		
A-19 Facility Photograph		335-14-8-.02(4) (h)		
A-20 Latitude and Longitude		335-14-8-.02(4) (b)		
A-21 Facility Owner • Name • Address • Telephone				
A-22 Owner Certification • Name, signature, date • Certification paragraph				
A-23 Operator Certification • Name, signature, date • Certification paragraph				

B **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

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Module B

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART B - FACILITY DESCRIPTION				
B-1 General Description A general description of the facility. Include the nature of the business. Off-site facilities should identify the types of industry served; on-site facilities should briefly describe the process(es)involved in the generation of hazardous waste.	270.14(b)(1) Guidance	335-14-8-.02(5) (b)1.		
B-2 Topographic Map	270.14(b)(19)	335-14-8-.02(5) (b)19.		
B-2a General Requirements A topographic map showing the facility and a distance of 1000 feet around it. The following information is required:				

• Scale: 1 in. = 200 ft. • Contours sufficient to show surface water flow • Extend 1000 ft. beyond property • Map scale • Map date • 100-yr floodplain • Surface waters • Surrounding land use • Wind rows • Map orientation • Legal boundaries • Location of access control • Injection and withdrawal wells – on-site – off-site • Buildings • Structures • Sewers • Loading and unloading areas • Fire control facilities • Flood control or drainage barriers • Run-off control systems				

• Location of hazardous waste units • Location of solid waste management units • Access and internal roads For large facilities, the use of other scales may be acceptable on a case-by-case basis.				
B-2b Additional Topographic Requirements for Land Storage, Treatment and Disposal Facilities (See Section E-3 - Topographic Map Requirements.)	270.14(c)(3), & (c)(4)(i), 264.95 264.97	335-14-8-.02(5) (c)3. & (c)4.(i) 335-14-5-.06(6) 335-14-5-.06(8)		
B-3 Location Information	270.14(b)(11)	335-14-8-.02(5) (b)11.		
B-3a Seismic Considerations For new faculties only, applicant must identify the political jurisdiction (county, township, or election district)in which facility will be located in any of the political jurisdictions specified in Part 264 Appendix VI, the applicant must prove that the facility is located at least 3000 ft. from any fault where movement has taken place in Holocene time or that no such faults pass within 200 ft. of the portions of the facility used for treatment, storage, or disposal of hazardous waste. Proof may come from geologic studies, aerial photographs, field observations, or subsurface investigations. All information gathered must be acceptable by a geologist experienced in evaluating seismic activity.	270.14(B)(11) (i)& (ii) 264.18(a) 264 Appendix VI	335-14-8-.02(5) (b)11.(i)& (ii) 335-14-5-.02(9) (a) 335-14-5 Appendix VI		

B-3b Floodplain Standard Documentation of whether or not the facility is located within a 100-yr floodplain including the source of date (Federal Insurance Administration Map or other maps and calculations). If map other than FIA map is used, demonstration of equivalent mapping technique should be provided. If located in 100-yr floodplain, include: • 100-yr floodplain level • Other special flooding factors (e.g., wave action)that must be considered to prevent washout	270.14(b)(11) (iii) 264.18(b)	335-14-8-.02(5) (b)11.(iii) 335-14-5-.02(9) (b)		
B-3b(1)Demonstration of Compliance For facilities located within the 100-yr floodplain, a description of how the facility is designed, constructed, operated, and maintained to prevent washout of any hazardous waste during a flood. Either of the following may be used:	270.14(b)(11) (iv) 264.18(b)	335-14-8-.02(5) (b)11.(iv) 335-14-5-.02(9) (b)		
B-3b(1)(a) Flood Proofing and Flood Protection A structural or other engineering study showing how design of the tanks, containers, or waste piles and the flood proofing and protection devices a the facility will present washout including: • Engineering analysis of hydrodynamic and hydrostatic forces	270.14(b)(11) (iv)(A)& (B)	335-14-8-.02(5) (b)11.(iv)(I)& (II)		

• Structural or other engineering studies of hazardous waste units and flood protection devices				
B-3b(1)(b) Flood Plan Description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. The plan must address the following:	270.14(b)(11)(v)(C) 264.18(b)(1)(i)	335-14-8-.02(5)(b)11.(v)(III) 335-14-5-.02(9)(b)1.(i)		
• Timing related to flood • Levels				
• Estimated time to move the waste				
• Description of the location to which the waste will be moved and proof of the receiving facility's eligibility to receive hazardous waste	264.18(b)(1)(i)	335-14-5-.02(9)(b)1.(i)		
• Procedures, equipment, and personnel to be used and the means to ensure that these resources will be available				
• Potential for accidental discharge of waste				
B-3b(2)Plan for Future Compliance with Floodplain Standard For facilities located within the 100-yr floodplain that do not comply with the floodplain standard, a plan showing how and when the facility will be brought into compliance. A compliance schedule must be included.	270.14(B)(11)(v)	335-14-8-.02(5)(b)11.(v)		

B-3b(3)Waiver for Land Storage and Disposal Facilities (Existing Facilities Only) If a waiver from the Floodplain Standard is requested, the owner or operator must demonstrate that there will be no adverse effects on human health or the environment if washout occurs. The following factors must be considered in this demonstration: • Volume and physical and chemical characteristics of the waste • Concentration of hazardous constituents that would potentially affect surface waters • Impact of such concentration on the current or potential uses of and water quality standard established for the affected surface waters • Impact of hazardous constituents on the sediments of affected surface waters or the soils or the 100-yr floodplain	264.18(b)(1)(ii)	335-14-5-.02(9)(b)1.(ii)		
B-4 Traffic Information A description of the means of transporting hazardous wastes. All facilities should describe movement of waste on the facility. Description must include:	270.14(b)(10)	335-14-8-.02(5)(b)10.		

• Estimated volume • Traffic pattern • Traffic control • Access road(s)surfacing and load-bearing capacity				
Off-site facilities (only should also describe movement of waste to the facility from the point to where it leaves nearest major highway.	Guidance			

C REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

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	Module C	

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART C - WASTE CHARACTERISTICS	270.14(b)(2)	335-14-8-.02(5) (b)2.		
C-1 Chemical and Physical Analysis	266.102(a)(2) (ii) and (b)	335-14-7-.08(3) (a)2.(ii) & (b)		
For each hazardous waste treated, stored, or disposed at the facility, the following information should be provided:	264.13(a) 11/7/86, 6/4/87 Guidance	335-14-5-.02(4) (a)		
• General description of the waste;	Guidance			
• Hazardous characteristics;	Guidance			
• Basis for hazard designation;	Guidance			
• Laboratory report on analyses results; and				
• Existing published or documented data on hazardous waste or hazardous waste from a similar program (new facilities only).				

At a minimum, the analyses should include all the information which must be known to treat, store, or dispose of the waste in accordance with Parts 264, 266, and 268 requirements or conditions of a permit issued under Part 270.		335-15-5, 335-14-7, 335-14-8, 335-14-9		
C-1a Containers Compatibility of waste with container.	Guidance 264.172 264.177 270.15(d)	 335-14-5-.09(3) 335-14-5-.09(8) 335-14-8-.02(6)(d)		
For containers of wastes without a secondary containment system, test procedures and results or other documentation or information which show that wastes do not contain free liquids. A suggested test for free liquids is the Paint Filter Liquids Test (Method 9095 in SW-846).	264.175 270.15(b)(1)	335-14-5-.09(6) 335-14-8-.02(6)(b)1.		
Waste specific parameters based on hazardous designation.	Guidance			
Other information required for safe operation.	Guidance			
C-1b Tanks Specific gravity.	264.191(a)	335-14-5-.10(2)(a)		
Waste specific parameters based on hazardous designation.	Guidance			

Other information required for safe operation.	Guidance			
C-1c Waste Piles For waste piles that are inside or under a structure when an exemption from 264.251 is requested, test procedures and results, or other documentation or information which show that the wastes do not contain free liquids when placed on the pile. A suggested test for free liquids is the Paint Filter Liquids Test (Method 9095 in SW-846).	264.250(c)(1)	335-14-5-.12(1)(c)1.		
Demonstration that the wastes will not generate leachate through decomposition or other reactions while being stored.	264.250(c)(4)	335-14-5-.12(1)(c)4.		
C-1d Incinerators For each waste or mixture of wastes to be burned:	264.341(a)	335-14-5-.15(2)(a)		
• Heating value.				
• Viscosity (liquids).				
• Physical form (nonliquids)				

• Identification of hazardous constituents listed in Appendix VIII Note: The applicant need not analyze for Appendix VIII constituents which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified, and the basis for exclusion stated.				
• Approximate quantification of hazardous constituents identified.				
• Chlorine content.	Guidance			
• Ash content.	Guidance			
C-1e Landfills Results of the Paint Filter Liquids Test (Method 9095 in SW-846) showing that containerized or bulk wastes do not contain free liquids.	264.314	335-14-5-.14(15)		
C-1f Land Treatment Demonstration that waste can be completely degraded, transformed, or immobilized in treatment zone.	264.272(a)	335-14-5-.13(3)(a)		
Percent moisture.	Guidance			
Specific gravity or bulk density.	Guidance			
Conductivity.	Guidance			
Acidity or Alkalinity.	Guidance			

TOC.	Guidance			
Appendix VIII constituents.	264.272(c)(1) (i)	335-14-5-.13(3) (c)1.(i)		
Concentration and identification of volatile hazardous constituents.	Guidance			
Cadmium concentration (when foodchain crops are grown in the treatment zone).	264.276(b)	335-14-5-.13(7) (b)		
C-1g Boilers and Industrial Furnaces For each feed stream, including hazardous waste, other fuels, and industrial furnace feed stocks, as fired:	266.102(b)	335-14-7-.08(3) (b)		
• Heating value.				
• Levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium, total chlorine/chloride, and ash.				
• Viscosity or description of the physical form of the feed stream.				
• Identification of Appendix VIII constituents that would reasonably be expected in the feed. Note: The applicant need not analyze for Appendix VIII constituents which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified, and the basis for exclusion stated.				

• Approximate quantification of the hazardous constituents identified.				
• If blending is to occur prior to firing: – Detailed analysis of the hazardous waste prior to blending and of the material with which it is blended. – Blending ratios. – Description of blending procedures.				
C-2 Waste Analysis Plan A copy of the waste analysis plan required by 264.13(b) and, if applicable, 264.13(c). The waste analysis plan should describe the procedures used to obtain chemical and physical information and data on the wastes to ensure proper storage, treatment, and disposal and compliance with the land disposal restriction program. Minimum requirements include:	270.14(b)(3) 264.13(b) and (c) 11/7/86, 6/4/87 268.7 11/7/86, 6/4/87 7/8/87, 8/17/88 266.102(a)(2)(ii) 266.104(a)(2)	335-14-8-.02(5)(b)3. 335-14-5-.02(4)(b) and (c) 335-14-9-.01(7) 335-14-7-.08(3)(a)2.(ii) 335-14-7-.08(5)(a)2.		

C-2a Parameters and Rationale A list of parameters chosen for analysis and an explanation of the rationale for their selection. At a minimum, the parameters listed above in checklist Section C-1d or C-1g, as applicable, must be chosen for analysis. Additional requirements for boilers and industrial furnaces are listed in checklist Section C-2e.	264.13(b)(1)	335-14-5-.02(4)(b)1.		
C-2b Test Methods A description of the test methods used to test for parameters chosen.	264.13(b)(2) 266, Appendix IX	335-14-5-.02(4)(b)2. 335-14-7, Appendix IX		
C-2c Sampling Methods A list of the sampling methods used to obtain a representative sample of each waste to be analyzed.	264.13(b)(3), Part 261, Appendix I	335-14-5-.02(4)(b)3. 335-14-2, Appendix I		
C-2d Frequency of Analysis A description of the frequency at which the analyses will be repeated. The frequency must be sufficient to ensure that the analysis is accurate and up-to-date. (For an on-site facility, this will be whenever there is a process change. For an incinerator, boiler, or industrial furnace, this will be as often as required to verify consistency of the waste feed to ensure compliance with the feed rate limits.)	264.13(b)(4) Guidance	335-14-5-.02(4)(b)4.		

C-2e Additional Requirements Pertaining to Boiler/Industrial Furnace Facilities	266.102(e)(6)(c)(iii)	335-14-7-.08(3)(e)6.(c)(iii)		
Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the constituent (i.e., metals, chlorine/chloride, and ash) in each feed stream and the flow rate of each feed stream. The owner/operator must submit a methodology for determining all feed rates for which limits must be established. At a minimum, the methodology must describe:				
• Sampling and analysis methods and frequencies for each constituent.				
• Procedures for determining mass flow rates for individual constituents from the raw analytical data.				
C-2f Additional Requirements for Wastes Generated Off Site A description of the procedures used to inspect and/or analyze waste generated off-site that includes: • Procedures to determine waste identification.	264.73(a) and (b) 264.13(b)(5) 264.13(c)	335-14-5-.05(4)(a) and (b) 335-14-5-.02(4)(b)5. 335-14-5-.02(4)(c)		

• Sampling frequency.				
• Sampling methods.				
• Waste analysis information supplied by generator.				
C-2g Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Waste If the facility stores or treats ignitable, reactive, or incompatible waste, a description of methods which will be used to meet the additional waste analysis requirements necessary for complying with the regulatory requirement specified in checklist Section F-5.	264.13(b)(6) 264.17	335-14-5-.02(4)(b)6. 335-14-5-.02(8)		
C-3 Additional Waste Analysis Requirements Pertaining to Land Disposal Restrictions	270.14(b)(3) 264.13(a)(1) 11/7/86, 6/4/87 264.13(b)(6) 11/7/86 266.102(a)(2)(ii) 268.7 11/7/86, 6/4/87, 7/8/87, 8/17/87	335-14-8-.02(5)(b)3. 335-14-5-.02(4)(a)1. 335-14-5-.02(4)(b)6. 335-14-7-.08(3)(a)2.(ii) 335-14-9-.01(7)		

C-3a Waste Characteristics Analytical data must be submitted by the generator to the owner/operator for each waste stored, treated, or disposed at the facility, or information from knowledge of the waste can be used, to determine if the waste is restricted under the 40 CFR Part 268. If generator knowledge is used, all supporting data must be maintained in the operating record.	264.13(a)(1) 268.7 11/7/86, 6/4/87	335-14-5-.02(4)(g)1. 335-14-9-.01(7)		
C-3a(1) Waste Characteristics: Solvent Wastes and Dioxin-Containing Wastes F001-F005 spent solvent wastes are restricted from land disposal under 268.30 and F020-F023 and F026-F028 dioxin-containing wastes are prohibited under 268.31 unless: • Wastes meet standards in Subpart D, or • An exemption has been granted pursuant to 268.6, or • An exemption has been granted pursuant to 268.5	264.13(a)(1) 11/7/86, 6/4/87 268.7(a) 11/7/86, 8/17/88 268.30 268.31 Part 268, Appendix I 11/7/86, 6/4/87, 8/17/88	335-14-5-.02(4)(g)1. 335-14-9-.01(7)(a) 335-14-9-.03(1) 335-14-9-.03(2) 335-14-9, Appendix I		

To determine if a waste is restricted, you must: • Test waste, or an extract developed using the Toxicity Characteristic Leaching Procedure (TCLP), or • Use information from knowledge or chemical and physical characteristics.				
C-3a(2) Waste Characteristics-California List Wastes The following wastes are prohibited from land disposal under 268.32: • Liquid hazardous wastes with a pH less than or equal to 2.0	264.13(a)(1) 268.7(a) 11/7/86 8/17/88 268.32 11/7/86, 7/8/87, 8/17/88	335-14-5-.02(4)(a)1. 335-14-9-.01(7)(a) 335-14-9-.03(3)		
• Liquid waste containing PCBs at concentrations greater than or equal to 50 ppm • Liquid hazardous wastes that are primarily water and contain HOCs in total concentration greater than or equal to 1,000 mg/l • Non-liquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg/kg				

Unless: • An exemption has been granted pursuant to 268.6, or • A case-by-case extension to the effective date has been granted pursuant to 268.5, or • Wastes meet applicable standards in Subpart D or, where treatment standards are not specified, wastes are in compliance with applicable prohibitions in 268 or RCRA Section 3004(d).				
To make the determinations: • Use method 9095 (Paint Filter Liquids Test) in SW-846 to determine if waste is a liquid				
• Initial generator must test waste (not extract or filtrate) in accordance with 261.11(a)(1), or use knowledge of the waste to determine if pH is less than or equal to 2.0 • Initial generator of liquid hazardous waste containing PCBs or a liquid or nonliquid hazardous waste containing HOCs must test waste (not extract or filtrate), or use knowledge of waste, to determine if concentration levels meet the prohibitions above.				

C-3a(3) Waste Characteristics - First Third Wastes Initial generator must test a representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, to determine whether a waste listed in 268.10 meets treatment standards set in 268.41 and 268.43, respectively.	264.13(a)(1) 11/7/86, 6/4/87 268.7(a) 11/7/86, 8/17/88 268.33 11/7/86, 8/17/88	335-14-5-.02(4)(a)1. 335-14-9-.01(7)(a) 335-14-9-.03(4)		
If the waste contains constituents exceeding applicable Subpart D levels, waste is prohibited from land disposal unless: • An exemption has been granted pursuant to 268.6, or • A case-by-case extension has been granted pursuant to 268.5				

C-3b Additional Requirements for Treatment Facilities Treatment facilities must conduct the following testing: • For wastes with treatment standards expressed as concentrations of waste extract (268.41), test treatment residues, or an extract of such residues developed using the TCLP, to assure treatment standards are met. • For wastes with treatment standards expressed as concentrations in the waste 268.43 test treatment residues, not an extract of such residues, to assure residues meet applicable standards. • For California list wastes (268.32) not subject to Subtitle D treatment standards, test treatment residues according to procedures in C-3a(2) to assure residues comply with applicable prohibitions.	264.13(a)(1) 1/7/86, 6/4/87 268.7(b) 11/7/86, 6/4/87, 8/17/88	335-14-5-.02(4)(a)1. 335-14-9-.01(7)(b)		
Not applicable to wastes for which treatment technologies have been specified. If wastes received from an off-site generator, need procedures to assure that treatment is not conducted until required data is provided by the generator.				

C-3c Additional Requirements for Disposal Facilities If wastes or treatment residues are received from an off-site generator or treatment facility, assure wastes will not be disposed without receipt of proper notice and certification as specified in 268.7(a) and (b). Owner/operator of land disposal facility must: • Test waste, or an extract of the waste or treatment residue developed using TCLP, or • Use methods required by generators under 268.32 C-3a(2) to assure waste or treatment residues comply with applicable Subpart D treatment standards and all applicable prohibitions in 268.32.	264.13(a)(1), 11/7/86, 6/4/87 268.7(c) 11/7/86, 7/8/87, 8/17/87	335-14-5-.02(4)(a)1. 335-14-9-.01(7)(c)		
C-3d Additional Requirements for Surface Impoundments Exempted from Land Restrictions For surface impoundments exempted from land disposal restrictions under 268.4(a), address the following:	264.13(b)(7), 268.4(a)	335-14-5-.02(4)(b)7. 335-14-9-.01(4)(a)		

C-3d(1) Sampling and Analysis of Contents Procedures and schedule to be followed to sample and test treatment residues to demonstrate compliance with treatment standards or prohibitions. Note that representative samples of the sludge and the supernatant must be tested separately rather than mixed to form homogeneous samples.	264.13(b)(7)(i) and (ii), 268.4(a)(2)	335-14-5-.02(4)(b)7.(i) and (ii) 335-14-9-.01(4)(a)2.		
C-3d(2) Annual Removal of Residues Procedures and schedule for removing residues which do not meet applicable treatment standards or prohibitions, do not exhibit a characteristic of hazardous waste, and are not delisted under Part 260.22. These residues must be removed at least annually. Note that residues may not be placed in any other surface impoundment for subsequent management.	264.13(b)(7)(iii), 268.4(a)(2) 8/17/88	335-14-5-.02(4)(b)7.(iii) 335-14-9-.01(4)(a)2.		
C-3e Requirements for Land Disposal Facilities With an Approved Exemption or Extension If a case-by-case extension has been approved under 268.5 or a petition has been approved under 268.6, provide a copy of the Notice of Approval.	270.14(b)(21) 11/17/86	335-14-8-.02(5)(b)21.		

D1 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
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Container Storage Standards - Module D-1

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART D - PROCESS INFORMATION				
D-1 Container Design				
D-1a Containers with Free Liquids and/or F020, F021, F023, F026, and F027 Wastes Description of System A description of the containment system to demonstrate compliance with 264.175. Show at least the following:	270.15(a), 264.175(b), 264.175(d)	335-14-8-.02(6)(a) 335-14-5-.09(6)(b) 335-14-5-.09(6)(d)		
D-1a(1)Basic Design Parameters, Dimensions, and Materials of Construction Base must underlie containers which is capable of containing all liquids until the liquid is collected and removed. Information which should be provided to demonstrate this includes the following:	270.15(a)(1) 264.175(b)(1)	335-14-8-.02(6)(a)1. 335-14-5-.09(6)(b)1.		

• Statement that the base is free of cracks or gaps • Demonstration of imperviousness of base to wastes and precipitation • Base design and materials of construction • Engineering evaluation of structural integrity of base • Discussion of compatibility of base with wastes.				
D-1a(2)Description of How Design Promotes Drainage or How Containers Are Kept From Contact With Standing Liquids in Containment System Base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or otherwise protected from contact with accumulated liquids. For this requirement, the applicant should address where applicable: • Stacking practices • Grading of base • Drainage design and removal system	270.15(a)(2), 264.175(b)(2)	335-14-8-.02(6)(a)2. 335-14-5-.09(6)(b)2.		

D-1a(3)Capacity of the Containment System Relative to the Number and Volume of Containers To Be Stored Sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container whichever is greater. Information that should be included to satisfy this requirement is:	270.15(a)(3)	335-14-8-.02(6)(a)3. 335-14-5-.09(6)(b)3.		
• Volume of largest container • Total volume of containers • Containment structure capacity • Capacity of run-off collection system • Geographic storm intensity/frequency data	Guidance			
D-1a(4)Provisions for Preventing or Managing Run-on Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to the 10 percent minimum to contain any run-on which might enter the system.	270.15(a)(4) 264.175(b)(4)	335-14-8-.02(6)(a)4. 335-14-5-.09(6)(b)4.		
The applicant should discuss structures used to control run-on such as: • Containment system auxiliary structures (curbs, dikes, etc.) • Engineering grading design • Collection and removal system design capacity • Potential run-on	Guidance			

D-1a(5)How Accumulated Liquids Can Be Analyzed and Removed to Prevent Overflow Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner as is necessary to prevent overflow of the collection system. Information that must be included is:	270.15(a)(5), 264.165(b)(5) Guidance	335-14-8-.02(6)(a)5. 335-14-5-.09(6)(b)5.		
• How liquids will be analyzed • Removal equipment and methods (sump pump design, piping specifications, location, discharge point, and capacity) • Management of accumulated liquid including prevention of overflow				
D-1b Containers Without Free Liquids or F020, F021, F022, F023, F026, and F027 Wastes For storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with 264.175(c) including:	270.15(b)	335-14-8-.02(6)(b) 335-14-5-.09(6)(c) & (d)		
D-1b(1)Test for Free Liquids Test procedures and results or other documentation or information to show that the wastes do not contain free liquids. Use of the Paint Filter Test, Method 9095 in SW-846, is recommended.	270.15(b)(1)	335-14-8-.02(6)(b)1.		

D-1b(2)Description of Storage Area Design and Operation to Drain and Remove Liquids or How Containers Are Kept From Contact with Standing Liquids Containment system not required if:	270.15(b)(2)	335-14-8-.02(6)(b)2. 335-14-5-.09(6)(b)2.		
• Storage area sloped or otherwise designed and operated to drain and remove liquid resulting from precipitation, or • Containers elevated or otherwise protected from contact with accumulated liquid	264.175(c)(1)	335-14-5-.09(6)(c)1. & 2.		
D-1c Container Management • Type of containers and construction material should include liners (if applicable), manufacturer specifications, dimensions. • Procedures for handling to avoid rupturing or leaking Weekly inspections or deterioration caused by corrosion or other factors	264.171, 264.172, 264.173, 264.174, 270.15(a)(1)	335-14-5-.09(2) 335-14-5-.09(3) 335-14-5-.09(4) 335-14-5-.09(5) 335-14-8-.02(6)(a)1.		
• Machinery, equipment procedures used to move containers • Adequate aisle space for machinery, inspections, and to meet applicable codes (i.e., fire) • Maximum number, height, volume, and types of containers in storage area				

• Waste container always kept closed during storage except when adding or removing waste • Location of ignitable, reactive and incompatible waste • Markings and labels placed on containers				

D2 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Tank Standards - Modules D-2

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D-2 Tank Systems				
Description of: • Types (i.e., aboveground, underground etc.; material of construction), volume and number of tanks, as well as specific location of each • Procedures for handling incompatible, ignitable, or reactive wastes, the use of buffer zones. If buffer zones are employed, provide a description of them and their operation and identify wastes to be buffered • Type of waste contained in tanks • Operating pressure and temperature	270.14(b)(1) 270.16(j) 264.198 264.199 264.191(b)(2) 264.191-.194 270.16(b),(c), (d) and (f)	335-14-8-.02(5) (b)1. 335-14-8-.02(5) (j) 335-14-5-.10(9) 335-14-5-.10(10) 335-14-5-.10(2) (b)2. 335-14-5-.10(2) - .10(5) 335-14-8-.02(7) (b), (c), (d), and (f)		
D-2a Existing Tank System	264.11; 270.16(a)	335-14-5-.02(2) 335-14-8-.02(7) (a)		

D-2a(1)Assessment of Existing Tank System's Integrity Written assessment, reviewed and certified by an independent, qualified, registered professional engineer, on the structural integrity and suitability of each tank system for handling hazardous waste which includes: • Design standard(s), according to which the tank and ancillary equipment were constructed • Hazardous characteristics of the wastes that have been and will be handled				
• Existing corrosion protection measures • Documented age of the tank system or an estimate • Results of a leak test, internal inspection, or other tank integrity examination				
D-2a(2)External Corrosion Protection Specify type and, as appropriate, location of external corrosion protection measures used to ensure continued structural integrity and suitability of each tank system for handling hazardous waste.	264.191(b)(3) [7/14/86]	335-14-5-.10(2)(b)3.		

D-2b New Tank Systems				
D-2b(1)Assessment of New Tank System's Integrity Written assessment, reviewed and certified by an independent, qualified registered professional engineer, on the structural integrity and suitability of each tank system for handling hazardous waste. Assessment must show that the foundation, structural sup-port, seams, connections and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength and compatibility with the waste(s) to be stored or treated to ensure that it will not collapse, rupture, or fail. Assessment includes at a minimum:	264.192(a)	335-14-5-.10(3) (a)		
• Design standard(s) according to which tank(s) and/or ancillary equipment are constructed	264.192(a)(1) [7/14/86]	335-14-5-.10(3) (a)1.		
• Hazardous characteristics of the waste(s) to be handled	264.192(a)(2) [7/14/86]	335-14-5-.10(3) (a)2.		

• Corrosion assessment by a qualified expert for new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water. Include factors such as: – soil moisture content – soil pH – soil sulfides level – soil resistivity – structure to soil potential – influence of nearby underground metal structures (e.g., piping) – existence of stray electric current – existing corrosion-protection measures		335-14-5-.10(3)(a)3.		
• The types and degree of external corrosion protection should consist of one or more of the following: – corrosion-resistant materials of construction – corrosion-resistant coating with cathodic protection – electrical isolation devices		335-14-5-.10(3)(a)3.		

• Determination of design or operation measures that will protect underground tank systems against potential damage due to vehicular traffic	264.192(a)(4) [7/14/86]	335-14-5-.10(3)(a)4.		
• Design considerations to ensure that tank foundations will maintain the load of a full tank and that tanks systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone or is located within a seismic fault zone. Include design considerations to ensure that tank systems will withstand the effects of frost heave.	264.192(a)(5)(i), (ii), and (iii) [7/14/86]	335-14-5-.10(3)(a)5.(i), (ii), and (iii)		
D-2b(2)External Corrosion Protection Describe the design, construction, and operation of corrosion protection systems necessary to ensure the integrity of the tank system. Show that any field-fabricated corrosion protection system will be supervised by an independent corrosion expert.	264.192(f) 270.16(e) [7/14/86]	335-14-5-.10(3)(f) 335-14-8-.02(7)(e)		

D-2b(3)Description of Tank System Installation and Testing Plans and Procedures: Demonstrate that an independent, qualified installation inspector or an independent, qualified registered professional engineer will inspect each new tank system prior to covering, enclosing, or placing a new tank system or component in use. Inspection should determine the presence of: • weld breaks • punctures • scrapes of protective coatings • corrosion • other structural damage or inadequate construction/installation	264.192(b)-(e); 270.16(f) [7/14/86] 264.192(b) [7/14/86]	335-14-5-.10(3)(b)-(e) 335-14-8-.02(7)(f) 335-14-5-.10(3)(b)		
Specify how all discrepancies will be repaired.				
New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogenous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.	264.192(c) [7/14/86]	335-14-5-.10(3)(c)		

New tanks and ancillary equipment will be tested for tightness prior to being covered, enclosed, or placed in use. Repair procedures must be specified if the tank system is found not to be tight.	264.192(d) [7/14/86]	335-14-5-.10(3)(d)		
Ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.	264.192(e) [7/14/86]	335-14-5-.10(3)(e)		
D-2c Dimensions and Capacity of Each Tank: Tank dimensions and capacity	270.16(b) [7/14/86]	335-14-8-.02(7)(b)		
D-2d Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls: Description of the feed systems, safety cutoff, bypass systems, and pressure controls	270.16(c) [7/14/86]	335-14-8-.02(7)(c)		
D-2e Diagram of Piping, Instrumentation, and Process Flow: Diagram of piping instrumentation, and process flow for each tank system.	270.16(d) [7/14/86]	335-14-8-.02(7)(d)		
D-2f Containment and Detection of Releases:	264.193	335-14-5-.10(4)		

D-2f(1)Plans and Description of the Design, Construction, and Operation of the Secondary Containment System: The following information must be provided for the secondary containment system:	264.193(a)-(f); 270.16(g) [7/14/86] 264.193(c)(1) [7/14/86]	335-14-5-.10(4)(a)-(f) 335-14-8-.02(7)(g) 335-14-5-.10(4)(c)1.		
• Age of all existing tank systems. If the age of a tank system cannot be determined, indicate the reason				
• Design, installation, and operation to prevent any migration of waste or accumulated liquid from the tank system to the soil, groundwater, or surface water at any time during its use				
• Materials of construction used to construct or line the system				
• Proof that the materials are compatible with the wastes in the tank system				

• System has sufficient strength and thickness to prevent failure caused by any of the following: – pressure gradients (including static head and external hydrological forces) physical contact with the wastes – climatic conditions – stress of daily operation (including stresses from nearby vehicular traffic)				
Calculations to prove that it is placed on a foundation or base that is capable of providing support, resisting pressure gradients above and below the system, and preventing failure due to settlement, compression, or uplift	264.193(c)(2) [7/14/86]	335-14-5-.10(4)(c)2.		
• Description of the leak detection system, including its operating principle, design features, and operating procedures	264.193(c)(3) [7/14/86]	335-14-5-.10(4)(c)3.		

• Demonstration that the leak detection system will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, then specify the earliest practical time that detection can take place. Indicate why this longer period does not pose a threat to human health and the environment	264.193(c)(4) [7/14/86]	335-14-5-.10(4)(c)4.		
• Show how the secondary containment system is sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation				
• Document how it will be ensured that spilled or leaked wastes and precipitation will be removed from the secondary containment system within 24 hours. If wastes and precipitation cannot be removed within 24 hours, then specify the earliest practice time that removal can take place. Indicate why this longer period does not pose a threat to human health and the environment				

D-2f(1)(c) Requirements for External Liner: Vault, Double-Walled Tank, or Equivalent Device: Secondary containment for each tank must include at least one of the following: a liner external to the tank, a vault, a double-walled tank, or an equivalent device approved by the Regional Administrator. The following design and operation procedures should be given for each device:	264.193(d)-(e) 270.16(g) [7/14/86] 264.193(d) [7/14/86]	335-14-5-.10(4)(d)-(e) 335-14-8-.02(7)(g) 335-14-5-.10(4)(d)		
External liner system: • Calculations to show that it contains 100 percent of the capacity of the largest tank within its boundary	264.193(e)(1)(i) [7/14/86]	335-14-5-.10(4)(e)1.(i)		
• Run-on or infiltration of precipitation is presented. Alternatively, show that the collection system has sufficient excess capacity to contain run-on and precipitation from a 25-year, 24-hour rainfall	264.193(e)(1)(ii) [7/14/86]	335-14-5-.10(4)(e)1.(ii)		
• Free of cracks or gaps	264.193(e)(1)(iii) [7/14/86]	335-14-5-.10(4)(e)1.(iii)		
System surrounds the tank completely and covers all surrounding soil likely to come in contact with the wastes if they were released from the tank(s)	264.193(e)(1)(iv) [7/14/86]	335-14-5-.10(4)(e)1.(iv)		

Vault system: Calculations to show that it contains 100 percent of the capacity of the largest tank within its boundary	264.193(e)(2)(i) [7/14/86]	335-14-5-.10(4)(e)2.(i)		
• Designed or operated to prevent run-on or infiltration of precipitation Alternatively, show that the collection system has sufficient excess capacity to contain run-on and precipitation from a 25-year, 24-hour rainfall	264.193(e)(2)(ii) [7/14/86]	335-14-5-.10(4)(e)2.(ii)		
• Constructed using chemical-resistant water stops in place at any joints. Specify the material used	264.193(e)(2)(iii) [7/14/86]	335-14-5-.10(4)(e)2.(iii)		
• Provided with an impermeable interior coating or lining that is compatible with the stored wastes and that will prevent migration of waste into the vault material. Specify coating or lining used, and provide the manufacturer's data sheet	264.193(e)(2)(iv) [7/14/86]	335-14-5-.10(4)(e)2.(iv)		
• Method used to protect against the formation and ignition of vapors placed in the tank(s) if the wastes are ignitable or reactive	264.193(e)(2)(v)(A) & (B) [7/14/86]	335-14-5-.10(4)(e)2.(v)(I) and (II)		

Exterior moisture barrier used, and provide the manufacturer's data sheet. Alternatively, describe how the vault is designed or operated to prevent the migration of moisture into the vault if the vault is subject to hydraulic pressure	264.193(e)(2)(vi) [7/14/86]	335-14-5-.10(4)(e)2.(vi)		
Double-walled tank: An integral structure so that any release from the inner tank is contained by the outer shell	264.193(e)(3)(i) [7/14/86]	335-14-5-.10(4)(e)3.(i)		
• If the unit is metallic, specify the type(s) of corrosion protection used for both the internal and external shell	264.193(e)(3)(ii) [7/14/86]	335-14-5-.10(4)(e)3.(ii)		
• Description of the leak detection system used including the principle of operation, design, and operating characteristics. It must be a continuously operating unit, capable of detecting a release within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, must specify the earliest practical place and indicate why this longer period does not pose a threat to human health and the environment	264.193(e)(3)(iii) [7/14/86]	335-14-5-.10(4)(e)3.(iii)		

D-2f(1)(d) Secondary Containment and Leak Detection Requirements for Ancillary Equipment: Each tank system's ancillary equipment must be provided with secondary containment such as jacketing, double-walled piping, or a trench. Describe the containment system, and demonstrate that it has been (will be) designed, installed, and operated to prevent any migration of waste or accumulated liquid to the soil, ground water, or surface water at any time during its use. Also, demonstrate that the containment system can detect and collect releases and accumulated liquids. This demonstration must include at least the following:	264.193(f) 270.16(g) [7/14/86]	335-14-5-.10(4)(f) 335-14-8-.02(7)(g)		
• Materials of construction used to construct or line the system. Show that these materials are compatible with the wastes in the tank system				
– Demonstrate that the system has sufficient strength and thickness to prevent failure caused by any of the following:				

– pressure gradients (including static head external hydrological forces) – physical contact with the wastes – climatic conditions – stress of daily operation (including stresses from nearby vehicular traffic)				
Calculations proving that the secondary containment system is placed on a foundation or base that is capable of providing support, resisting pressure gradients above and below the system, and preventing failure due to settlement, compression or uplift				
• Description of the leak detection system, including its operating principle, design features, and operating procedures. The leak detection system must detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours. If the prevailing site conditions or detection technologies will not allow detection of a release within 24 hours, then specify the earliest practical time that detection can take place. Indicate why this longer period does not pose a threat to human health and the environment				

• Secondary containment system must be sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation				
Document how it will be ensured that spilled or leaked wastes and precipitation will be removed from the secondary containment system within 24 hours. If wastes and precipitation cannot be removed within 24 hours, then specify the earliest practical time that removal can take place. Indicate why this longer period does not pose a threat to human health and the environment				
A demonstration need not be made for: Aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected daily	264.193(f)(1)-(4) [7/14/86]	335-14-5-.10(4)(f)1.-4.		
• Welded flanges, joints, and connections that are visually inspected daily				
• Sealless or magnetic coupling pumps that are visually inspected daily				
• Pressurized above-ground piping systems with automatic shut-off devices that are visually inspected daily.				

D-2f(2)Requirements for Tank System Until Secondary Containment is Implemented: Non-enterable underground tanks: results of a leak test (or other tank integrity test approved by the Regional Administrator). Procedure to be repeated at least annually until secondary containment is provided.	264.193(i) [7/14/86] 264.193(i)(1) [7/14/86]	335-14-5-.10(4)(i) 335-14-5-.10(4)(i)1.		
Other than non-enterable underground tanks: results of a leak test or present a schedule and procedures for assessing the overall condition of the tank system by an independent, qualified registered professional engineer until secondary containment is provided.	264.193(i)(2) [7/14/86]	335-14-5-.10(4)(i)2.		
Ancillary equipment: results of a leak test (or other integrity assessment measure approved by the Regional Administrator). Indicate the procedures that will be used to ensure that such test will be repeated at least annually until secondary containment is provided.	264.193(i)(3) [7/14/86]	335-14-5-.10(4)(i)3.		
D-2f(3)Variance from Secondary Containment is Implemented: Provide information for one of the following alternatives:	264.193(g), 270.16(h) [7/14/86]	335-14-5-.10(4)(g) 335-14-8-.02(7)(h)		

• Technology-based variances: detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous waste or hazardous constituents into the ground water or surface water during the life of the facility • Risk-based variances: detailed demonstration that no substantial present or potential hazards will be posed to human health or the environment, should a release enter the environment				
• Demonstration that tanks used to store or treat hazardous waste contain no free liquid as defined by the Paint Filter Test and that such tanks are situated inside a building with an impermeable floor	264.190(a) [7/14/86]	335-14-5-.10(1)(a)		
D-2g Controls and Practices to Prevent Spills and Overflows: Provide adequate information to ensure that the hazardous wastes or treatment reagents placed in a tank system will not cause any element of that system to rupture, leak, corrode, or otherwise fail.	264.194(a) & (b) 270.16(i) [7/14/86]	335-14-5-.10(5)(a) & (b) 335-14-8-.02(7)(i)		
Provide detailed description of controls and practices used to prevent spills and overflows. Include at a minimum:				

• Spill prevention controls (e.g., check valves, dry disconnect couplings) • Overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff or bypass to a standby tank)				
• Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation				
Provide detailed plans for the schedule and procedures for inspecting:	264.195 [7/14/86]	335-14-5-.10(6)		
• Overfill controls	264.195(a) [7/14/86]	335-14-5-.10(6)(a)		
• Aboveground portions of the tank system	264.195(b)(1) [7/14/86]	335-14-5-.10(6)(b)1.		
• Data from monitoring and leak detection equipment	264.195(b)(2) [7/14/86]	335-14-5-.10(6)(b)2.		
Construction materials and the area immediately surrounding the externally accessible portion of the entire tank system	264.195(b)(3) [7/14/86]	335-14-5-.10(6)(b)3.		
Cathodic protection system	264.195(c) [7/14/86]	335-14-5-.10(6)(c)		

D3 REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

				Waste Pile Standards - Module D-3
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
D-3 Waste Pile Design				
D-3a List of Wastes The application must provide a list of all hazardous wastes to be placed or previously placed in waste piles. Information must include:	270.18(a)	335-14-8-.02(9) (a)		
• Analytical and sampling techniques	Guidance			
• Information on ignitability, compatibility, corrosivity, and reactivity	Guidance			
• Appendix VIII constituents	Guidance			
D-3b Exemptions				
D-3b(1)Exemption for Protected Piles From Design and Operating (264.251) and Groundwater Monitoring (Subpart F) Requirements Exemption from 264.251 and Subpart F requirements applies only to waste piles placed inside or under a protective structure so that neither run-off nor leachate is generated. To qualify for the exemption, applicant must demonstrate the following:	270.18(b) 264.150(c)	335-14-8-.02(9) (b)		

• Liquids or materials containing free liquids are not placed in the pile				
• The pile is protected from surface water run-on by the structure or in some other manner				
• The pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting, and				
• The pile will not generate leachate through decomposition or other reactions.				
D-3b(2)Subpart F Exemptions for Piles Which Are Engineering Structures If an exemption from the Subpart F groundwater monitoring requirements is sought, demonstrate the following:	270.18(b) 264.90(b)	335-14-8-.02(9) (b) 335-14-5-.06(1)		
• The unit for which the exemption is sought is an engineered structure				
• No liquid waste or waste containing free liquids will be received by or contained in the pile				
• Liquids, precipitation, and other run-on and run-off will be excluded from the pile				

• A containment system with both inner and outer layer will enclose the waste				
• A leak detection system is built into each containment layer				
• The means of ensuring continuing operation and maintenance of the leak detection systems during the active life of the unit and the closure and post-closure care periods				
• The unit will not allow hazardous constituents to migrate beyond the outer layer of the containment system prior to the end of the post-closure care period (within a reasonable degree of certainty)				
D-3b(3)Liner Exemption From Design and Operation Requirement of 264.251(a) If an exemption from the liner design and operation requirements is requested, the application must demonstrate that alternate design and operating practices, together with location characteristics, will prevent groundwater and surface water contamination at any future time. Information to be submitted includes:	264.251(b) 270.18(c)(1)(i)	335-14-5-.12(2)(b) 335-14-8-.02(9)(c)1.(i)		

• Hydrogeologic setting • Nature and quantity of wastes • Alternative design and operation plans – Attenuative capacity – Thickness of liners – Thickness of soils between the pile and seasonal groundwater or surface water elevations – Other factors which would influence the quantity, quality, and mobility of leachate produced				
D-3c Liner System Requirements Unless a waiver of the liner requirements is requested or unless the waste pile qualifies as an existing portion, a liner is required.	264.251(a)	335-14-5-.12(2)(a)		
D-3c(1)Liner Description If a liner is required, the application must provide detailed plans and an engineering report describing the liner system. The application must demonstrate that the liner system is designed to prevent migration of waste out of the pile into the adjacent subsurface soil or groundwater or surface water at any time during the active life of the waste pile. The following information is needed:	270.18(c)(1) 264.251(a)(1)	335-14-8-.02(9)(c)1. 335-14-5-.12(2)(a)1.		

• Material of construction				
• Chemical properties				
• Physical strength				
• Thickness – synthetic – natural	Guidance Guidance			
• Liner system/waste compatibility testing	264.251(a)(1)(i)	335-14-5-.12(2)(a)1.(i)		
• Liner installation procedures	264.254(a)	335-14-5-.12(5)(a)		
• Liner inspection procedures				
• Subsurface exploration data	Guidance			
• Foundation design	264.251(a)(1)(ii)	335-14-5-.12(2)(a)1.(ii)		
• Size/area covered	264.251(a)(1)(iii)	335-14-5-.12(2)(a)1.(iii)		
• Liner location relative to the seasonal high water table	Guidance			
• Vendor and manufacturer (if synthetic)				
• How the system's integrity will be maintained against: – Internal and external pressure gradients including static head, settlement, compression, uplift – contact with waste/leachate	264.251(a)(1)(i)	335-14-5-.12(2)(a)1.(i)		

– climatic condition – installations stresses – daily operational stresses				
D-3d Leachate Detection, Collection, and Removal Systems Requirements Unless an exemption from leachate detection, collection, and removal system requirements is requested, the application must include detailed plans and engineering report describing:	270.18(c) 264.251(a)(2)	335-14-8-.02(9)(c) 335-14-5-.12(2)(a)2.		
• How the system will be designed and operated to ensure that no more than 30 cm (one foot) of leachate is above the liner				
• Materials of construction				
• Chemical resistance to waste/leachate				
• Provisions to prevent clogging				
• Load-bearing strength and the ability of the system to withstand the pressures exerted by overlaying waste, waste cover materials, and equipment used at the waste pile				
• Methods to be employed to install the leachate collection and detection system				
• Material of construction				
• Chemical properties				

• Physical strength				
• Thickness – synthetic – natural	Guidance Guidance			
• Liner system/waste compatibility testing	264.251(a)(1)(i)	335-14-5-.12(2)(a)1.(i)		
• Liner installation procedures				
• Liner inspection procedures	264.254(a)	335-14-5-.12(5)(a)		
• Subsurface exploration data				
• Foundation design	Guidance			
• Size/area covered	264.251(a)(1)(ii)	335-14-5-.12(2)(a)1.(ii)		
• Liner location relative to the seasonal high water table	264.251(a)(1)(iii)	335-14-5-.12(2)(a)1.(iii)		
• Vendor and manufacturer (if synthetic)	Guidance			
• How the system's integrity will be maintained against: – internal and external pressure gradients including static head, settlement, compression, uplift – contact with waste/leachate – climatic conditions – installations stresses – daily operational stresses	264.251(a)(1)(i)	335-14-5-.12(2)(a)1.(i)		

D-3e Control of Run-On and Run-Off The application must include detailed plans and an engineering report describing the system(s) used to prevent run-on from the peak discharge of a 25-year storm and to prevent run-off from the volume resulting from a 24-hour, 25-year storm.	270.18(c)(2) and (3) 264.251(c) and (d)	335-14-8-.02(9) (c)2. And 3. 335-14-5-.12(2) (c) and (d)		
Information to be submitted may include: • Sizing, design, and installation of system(s), i.e., piles, tanks, surface impoundments, pumps, wet wells, etc.	264.251(c) and (d)	335-14-5-.12(2) (c) and (d)		
• Maintenance procedures to ensure long-term structural integrity	264.254(b)	335-14-5-.12(5) (b)		
D-3f Units Associated With Run-On and Run-Off Control Systems Detailed plans and an engineering report describing: • Collection and holding facilities (e.g., tanks, basins) associated with run-on and run-off control systems • How the holding facilities will be managed and operated to maintain design capacity after storms	270.18(c)(4) 264.251(e)	335-14-8-.02(9) (c)4. 335-14-5-.12(5) (e)		

D-3g Particulate Control The application must demonstrate that the waste pile is managed in such a manner that wind dispersal of wastes is controlled.	270.18(c)(5) 264.251(f)	335-14-8-.02(9)(c)5. 335-14-5-.12(2)(f)		
D-3h Additional Information Required if Treatment is Carried Out On or In the Pile If treatment occurs in or on the waste pile, the application must include:	270.18(e)	335-14-8-.02(9)(e)		
• Details of the process including rate of decomposition, heat of reaction, controls, etc.				
• Equipment used				
• Nature, quality, and quantity of the residuals				
• Monitoring equipment (temperature, pH, explosimeter)	Guidance			
D-3i Piles Containing Wastes F020, F021, F022, F023, F026 and F027 Piles which contain hazardous waste F020, F021, F022, F023, F026, and F027 and are not an enclosed facility [i.e., meeting the requirements of D-3b(1)] must be designed, constructed, operated, and maintained in a manner to protect human health and the environment. In order to evaluate the effectiveness of the design, provide the following information:	270.18(i) 264.259	335-14-8-.02(9)(i) 335-14-5-.12(10)		

• The volume, physical, and chemical characteristics of the wastes including their potential to migrate through the soil or volatize or escape into the atmosphere				
• The attenuative properties of underlying and surrounding soils or other materials				
• The mobilizing properties of other materials co-disposed with these wastes				
• The effectiveness of additional treatment, design, operating, or monitoring techniques				

D4 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Surface Impoundment Standards - Module D-4				
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
D-4 Surface Impoundment Design				
D-4a List of Wastes The application must provide a list of all:	270.17(a)	335-14-8-.02(8)(a)		
• Hazardous wastes in the impoundment				
• Analytical and sampling techniques	Guidance			
• Appendix VIII constituents	Guidance			
• Ignitability, compatibility, reactivity and corrosivity	Guidance			
• Compatibility of liner and wastes	264.221(a)(1)	335-14-5-.11(2)(a)1.		
D-4b Liner System Exemption Requests				

D-4b(1)Exemption Based on Existing Portion Existing portions of surface impoundments which have wastes in place on November 8, 1984 and will have only vertical expansion are exempted from double liner system requirements through November 8, 1988. New units, lateral expansion of existing units, and replacement (i.e., all waste removed from an area and then replaced) units at existing facilities are not exempt. To obtain an exemption, provide a plan indicating the limits of the existing portions.	270.17(b)(1) 264.221(c)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(c)		
D-4b(2)Liner System Exemption Based on Alternative Design and Location If an exemption from the double liner requirements is requested, the application must demonstrate that alternate design and operating practices, together with location characteristics, will prevent groundwater and surface water contamination at least as effectively as a double liner with leachate detection system. Information to be submitted includes:	264.221(d)	335-14-5-.11(2)(d)		
• Nature and quantity of waste				

• Alternative design and operation plans				
• Hydrogeologic setting – attenuative capacity – thickness of liner – thickness of soil between the bottom of the surface impoundment and seasonal groundwater – and surface water elevations				
• Other factors which would influence the quantity, quality, and mobility of any leachate				
D-4c Liner System If an exemption from the double liner requirements is not requested, the application must demonstrate that the double liner system prevents any migration of wastes out of the impoundment to the adjacent subsurface soils or groundwater or surface water at any time during the active life of the impoundment. If an exemption from the double liner requirements is obtained the surface impoundment(s) must be either retrofitted to meet the double liner-leachate detection requirements or closed by November 8, 1988. Therefore, if the impoundment(s) will be operated beyond November 8, 1988, these liner system requirements must be addressed for the retrofit even if an exemption is requested for the present time.				

D-4c(1)General Items				
D-4c(1)(a) Liner System Description The application must provide a detailed description of the liner system, demonstrating (by description and drawing) that the liner system will prevent any migration of wastes out of the impoundment to the adjacent subsurface soils or groundwater or surface water at any time during the active life of the impoundment. For each liner within the system (minimum one synthetic liner and one soil liner), describe the type of liner (i.e., its material and its thickness).	270.17(b)(1)	335-14-8-.02(8)(b)1.		
D-4c(1)(b) Liner System Location Relative to High Water Table Provide data showing seasonal fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the base of the liner system (i.e., groundwater levels and liner foundation elevations should be shown on geological cross sections).	270.17(b)(1) 264.221(a)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)		
D-4c(1)(c) Loads on Liner System The maximum loads or stresses which will be placed on the liner system must be determined and reported in the application. Include all calculations, data, and assumptions for the following conditions:	270.17(b)(1) 264.221(a)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)		

• Both static and dynamic loads				
• Stresses due to installation or construction operations				
• Stresses from operating equipment				
• Stresses due to the maximum quantity of waste, cover, and proposed post-closure land use, as applicable				
• Stresses resulting from settlement, compression, subsidence, or uplift				
• Internal and external pressure gradients				
D-4c(1)(d) Liner System Coverage The liner system must be installed to cover all surrounding earth likely to be in contact with the waste or leachate. Submit information (i.e., construction, as built, or detailed drawings) which demonstrate this.	270.17(b)(1) 264.221(a)(1)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)1.		

D-4c(1)(e) Liner System Exposure Prevention Demonstrate in the application that the liner system will not be exposed to wind or sunlight, or if exposure to any part of the system is to be permitted, that such exposure will not result in unacceptable degradation of that portion of the system (i.e., drawings and/or liner specifications as appropriate). If the liner system will be exposed or located close enough to the surface to be affected by changing temperatures, provide calculations defining the stresses on the liner system due to thermal expansion and contraction.	270.17(b)(1) 264.221(a)(2)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)2.		
D-4c(2)Foundation Upon Which Liner System Is Constructed				
D-4c(2)(a) Foundation Description A description of the foundation for the liner system must be included in the application. The description should include the following:	270.17(b)(1) 264.221(a)(2)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)2.		
• Type of foundation materials				
• Bearing elevations shown on geological and construction drawings				

• Load bearing embankments placed to support the liner system, as applicable				
D-4c(2)(b) Subsurface Exploration Data The engineering characteristics of the liner system foundation materials, including subsurface soil, bedrock, and hydrogeologic conditions should be verified through subsurface explorations. These efforts should be fully described by including location plans and cross sections for these borings, test pits, etc., and descriptions or references for the procedures used. Procedures may include the following:	270.17(b)(1) 264.221(a)(2)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)2.		
• Collection of historical data • Test borings • Test pits • Test trenches • In situ tests • Geophysical methods				

D-4c(2)(c) Laboratory Testing Data Results from sufficient index testing should be provided to classify the site materials. Other lab test data should be provided to evaluate the engineering properties of the foundation materials, particularly for strength, hydraulic conductivity, compressibility, and other important design parameters. Provide copies of the test methods used to test the material or provide references, as appropriate and with any revisions, to standard test procedures.	270.17(b)(1) 264.221(a)(2)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)2.		
D-4c(2)(d) Engineering Analyses Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing program. With the analyses include a discussion of the methods used, assumptions, copies of calculations, and appropriate references. Include the following, as applicable:	270.17(b)(1) 264.221(a)(2)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)2.		
• Settlement potential • Bearing capacity • Potential for excess hydrostatic or gas pressure • Seismic conditions • Subsidence potential • Sinkhole potential				

D-4c(3)Synthetic Liners				
D-4c(3)(a) General Description For each synthetic liner under consideration for use in the system, provide the following general information: • Thickness • Type • Material • Brand name • Manufacturer	270.17(b)(1) 264.221(a) 264.221(c)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a) 335-14-5-.11(2)(c)		
D-4c(3)(b) Strength Provide data showing the synthetic liners and all seams will have sufficient strength after exposure to the waste and waste leachate to support all load/stresses to which they will be subjected.	270.17(b)(1) 264.221(a)(1)(i)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)1.(i)		
D-4c(3)(c) Bedding Demonstrate that sufficient bedding will be provided above and below the synthetic liners to prevent rupture of the synthetic liner during installation and operation.	270.17(b)(1) 264.221(a)(2)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)2.		
D-4c(4)Soil Liners A description of the soil liner must be presented in the application. Include the following information:	270.17(b)(1) 264.221(a) 264.221(c)	335-14-8-.02(8)(b)1. 335-14-5-11(2)(a) 335-14-5-.11(2)(c)		

• Liner thickness				
• Whether the liner will be in place material or borrow material (Note: If in-place materials is to be used describe how it will be reworked.)				
• Material testing data which includes: – index tests – hydraulic conductivity – strength – consolidation – shrink-well				
• Demonstration that the soil liner will wholly contain leachate throughout the unit's operating life and post-closure period				
• Demonstration that the liner has sufficient strength to support all loads/stresses to which it will be subjected				
D-4c(5)Leachate Detection System A description of the leachate detection system must be provided. Information to be submitted includes:	270.17(b)(1) 264.221(c)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(c)		
• Description of how it will function to detect any leakage in a timely manner				

• Description of how liquid can be removed from the system				
• Estimate of drainage capacity (speed and volume)				
• Contour plan for the system which includes the layout and spacing of the piping system				
• Design details of pumps, sumps, etc., used in the system				
• Description of handling procedures for any collected leachate (i.e., testing, disposal, etc.)				
• Demonstration that the system is appropriately graded to assure that leakage at any point in the liner system is detected in a timely manner				
• Demonstration that the pipes and pipe perforations are sized sufficiently to handle the expected flow of leachate				
• Demonstration that all components of the leachate detection system have sufficient strength to support all loads/stresses to which the system will be subjected without jeopardizing the effectiveness of the system by reducing its conductivity				

• Demonstration that the system is designed and operated to prevent clogging of the drainage layer material and the pipes throughout the active life of the surface impoundment				
D-4c(6)Construction and Maintenance Both material and construction specifications must be provided for all liner system components. Construction specifications should include the following:	270.17(b)(1) 264.221(a)	335-14-8-.02(8)(b)1. 335-14-5-.11(2)(a)		
• Preparation of the liner system foundation				
• Procedures for installing the soil liner which include: – method of compaction – degree of compaction and percent moisture that must be achieved – lift thickness – methods to be used to alter the water content of the soil – scarification requirement between lifts – method of amending the soil, if applicable				

• Procedures for installation of the synthetic liners which include: – inspection of the synthetic liner bed for material which could puncture the liner (and removal of that material) – placement procedures – techniques to be utilized to bond the liner seams – procedures for protection of the liner before and during placement of material on top of the liner – any protective layer placed to protect the liner during operations				
• Procedures for placement of all components of the leachate detection system including: – drainage layers – piping – sumps, pumps, etc. – filter layers				
• Details of the quality control program				
• Methods of repairing any damage to the liner which may occur during construction				

D-4d Overtopping Controls The application must describe the design and operating procedures that will provide protection against impoundment overtopping.	270.17(b)(2) 264.221(f)	335-14-8-.02(8)(b)2. 335-14-5-.11(2)(f)		
• Spillway or weirs • Sensors and alarms • Automatic or manual controls • Operating procedures which prevent overtopping • Discharge destination • Minimum freeboard bared (2 foot) (100-year flood event) • Process flow diagram				
If foolproof controls are not employed to prevent overtopping, calculation from a waste balance study must be provided which shows that adequate freeboard will be following a 100-year, 24-hour storm. Also, freeboard requirements associated with normal and extreme wind activity should be determined unless automatic controls are utilized and freeboard equals or exceeds two feet.				

D-4e Dike Design and Structural Integrity The application must demonstrate that dikes are designed, constructed, and maintained with sufficient structural integrity in such a manner that massive failure will not occur.	270.17(b)(3) 270.17(d) 264.221(g) 264.226(c)	335-14-8-.02(8)(b)3. 335-14-8-.02(8)(d) 335-14-5-.11(2)(g) 335-14-5-.11(7)(c)		
• Structural integrity analysis, assuming no functioning liner system				
• Maintenance procedures				
• Erosion protection, inside and outside				
• Stress pressure exerted by wastes				
• Control of scouring and piping without dependence on liner system				
• Engineers' certification – qualifications of certifying engineer – after extended nonuse of surface impoundment (6 months) – after initial construction (new facility) – after repairs				

D-4f Special Waste Management Plan for Surface Impoundments Containing Wastes F020, F021, F022, F023,F026 and F027 Applications for surface impoundment(s) containing hazardous wastes F020, F021, F022, F023, F026, and F027 must contain a plan which describes how the impound(s) are or will be designed, constructed, operated, and maintained in order to protect human health and the environment. The plan should include the following:	270.17(i) 264.231	335-14-8-.02(8)(i) 335-14-5-.11(12)		
• The volume and physical characteristics of the wastes including their potential to migrate through the soil or volatilize or escape into the atmosphere				
• Description of the attenuative properties of underlying and surrounding soils or other materials				
• Description of the mobilizing properties of other materials co-disposed with these wastes				
• Documentation on the effectiveness of additional treatment design, operating, or monitoring techniques				

Facility Name _____ EPA ID Number
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Incinerator Standards - Module D-5

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D-5 Incinerator Design				
D-5a Justification for Exemption Documentation that the waste to be burned is considered hazardous solely because: • It is ignitable and/or corrosive; or • It is reactive and will not be burned when other hazardous wastes are present in the combustion zone [exemptions not allowed for wastes which can react to produce toxic gases as per 261.23(a)(4) and (5)]; or • It is ignitable and/or corrosive, or is reactive subject to the restriction indicated above, and contains insignificant concentrations of Appendix VIII constituents, or documentation that the waste to be burned contains none of hazardous constituents listed in Appendix VIII which would reasonably be expected to be in the waste.	270.19(a), 264.340(b)	335-14-8-.02(10) (a) 335-14-5-.15(1) (b)		
D-5b Trial Burn If the applicant proposes conducting a trial burn to demonstrate compliance or is submitting results from a trial burn already conducted, the permit application must include the following items in accordance with the requirements in	270.19(b), 270.62 264.343 264.345	335-14-8-.02(10) (b) 335-14-8-.06(2) 335-14-5-.15(4) 335-14-5-.15(6)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
260.62:				
D-5b(1) New Incinerator Startup/Shakedown If a trial burn is proposed for a new incinerator, the operations prior to conducting the trial burn must be described including the following:				
D-5b(1)(a) Startup/Shakedown Period Time required to bring the new incinerator to a point of operational readiness for the trial burn (startup/shakedown) must be the minimum necessary and cannot exceed 720 hours, or up to 1440 hours if the applicant shows good cause for requiring an extension.	270.65(a), 264.344, 264.344(c)(1)	335-14-8-.06(4) (a) 335-14-5-.15(5) 335-14-5-.15(5) (c)1.		
D-5b(1)(b) Startup/Shakedown Performance Operating conditions during startup/shakedown must be those most likely to assure compliance with the following requirements: • DRE of 99.9999% for designated POHCs, listed dioxin wastes, and PCBs • If HC1 emissions would be more than 1.8 kg/h (4 lb./h), stack emissions must be controlled to the larger of either 1.8 kg/h, or 1% of HC1 in the exhaust prior to entering pollution control equipment • Particulate emissions corrected for oxygen may not exceed 180 mg/dscm (0.08 grains/dscf)	270.62(a)(1), 264.343, 264.344(c)(1)	335-14-8-.06(2) (a)1. 335-14-5-.15(4) 335-14-5-.15(5) (c)1.		
D-5b(1)(c) Startup/Shakedown	270.65(a)(1),	335-14-8-.06(4) (a)1.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
Conditions Applicants for new incinerators must submit a statement which suggests conditions necessary to achieve compliance during startup/shakedown including, at a minimum, restrictions on: • Waste constituents • Waste feed rates • Carbon monoxide exhaust level (≤ 100 ppm v, day @ 7% O_2) hourly rolling average	264.344(c)(1), 264.345	335-14-5-.15(5) (c)1. 335-14-5-.15(6)		
• Combustion temperatures, upper and lower in both pcc and scc • Combustion gas velocity • Allowable variations in systems design or operating procedures • Air pollution control device(s) permitting perameters • An appropriate indicator of combustion gas velocity • O_2 levels in custer afterburners exhaust or streak				
Fugitive emissions during startup/shakedown must be controlled by: • Totally sealing the combustion zone, or • Maintaining negative pressure in the combustion zone, or • An alternate method demonstrated to be effective in the application	264.345(d)	335-14-5-.15(6) (d)		
Hazardous wastes not exempted per D-5a	264.345(c)	335-14-5-.15(6) (c)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
must not be fed to the incinerator during startup/shakedown unless it is operating within the acceptable limits.				
Automatic waste feed cutoff systems that will stop flow of wastes to the incinerator if operating conditions deviate from established limits must be operational during the startup/shakedown period.	264.345(e)	335-14-5-.15(6) (e)		
D-5b(2) Trial Burn Plan The trial burn plan must include the following information:				
D-5b(2)(a) Incinerator Performance For the duration of the trial burn, the operating conditions must be sufficient to demonstrate: • DRE of 99.9999 for designated POHCs and dioxin/PCBs • If HC1 emissions would be more than 1.8 kg/h (4 lb./h), either stack emissions must be controlled to the larger of either 1.8 kg/h, or 1% of HC1 in the exhaust prior to entering pollution control equipment • O_2 level • CO level • Particulate emissions corrected for oxygen concentration, no greater than 180 mg/dscm (0.08 grains/dscf) • Compliance with emission rante of other emitted compaunds are within limits established e. sher by BIF rules or Health Risk Assessment	264.344(c)(2)	335-14-5-.15(5) (c)2.		
D-5b(2)(b)Detailed Description and/or	270.62(b)(2) (ii)	335-14-8-.06(2) (b)2.(ii)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
Engineering Drawing of the Incinerator Including: • Manufacturer's name and model number • Type of incinerator				
• Linear dimensions of incinerator unit including cross sectional area of combustion chamber • Description of the auxiliary fuel system (type and feed) • Capacity of prime mover • Description of automatic waste feed cut-off system(s) • Stack gas monitoring and pollution control equipment • Nozzle and burner design • Construction materials • Location and description of temperature, pressure, flow indicating, and control devices				
D-5b(2)(c) Sampling and Monitoring Procedures A detailed description of sampling and monitoring procedures including: • Sampling and monitoring equipment • Sampling and monitoring frequency • Analytical procedures • Sampling and monitoring locations • Quality assurance/quality control	270.62(b)(2)(iii)	335-14-8-.06(2) (b)2.(iii)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
programs				
D-5b(2)(d) Test Schedule • Dates when trial burn is planned • The duration of each trial burn • The quantity of waste to be burned during each trial burn • Other relevant factors	270.62(b)(2) (iv)	335-14-8-.06(2) (b)2.(iv)		
D-5b(2)(e) Test Protocols For each waste to be burned, identify variations in: • Ranges of temperature • Waste feed rate • Combustion gas velocity • Use of auxiliary fuel • Other factors that will be varied that will affect the DRE or compliance withestablished emission rates	270.62(b)(2) (v)	335-14-8-.06(2) (b)2.(v)		
D-5b(2)(f) Pollution Control Devices A description of, and planned operation conditions for, any pollution control devices such as the following:	270.62(b)(2) (vi)	335-14-8-.06(2) (b)2.(vi)		
• Scrubbers • ESP • Fabric filter	Guidance Guidance Guidance			
D-5b(2)(g) Shut-down Procedures Procedures to be employed in the event of an equipment malfunction for:	270.62(b)(2) (vii)	335-14-8-.06(2) (b)2.(vii)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Rapidly stopping waste feed • Shutting down incinerator • Controlling emissions				
D-5b(2)(h) Principal Organic Hazardous Constituents (POHC) The Director shall specify as trial POHCs, those constituents for which destruction and removal efficiencies must be calculated during the trial burn.	270.62(b)(4)	335-14-8-.06(2) (b)4.		
D-5b(3) Trial Burn Results If results from a previously conducted trial burn are submitted, the following must be provided: • Description of the sampling and analysis techniques used to demonstrate performance • Methods and results of monitoring temperatures, waste feed rates, carbon monoxide, and combustion gas velocity (including a precision and accuracy statement regarding this measurement)	270.62(b)(6)	335-14-8-.06(2) (b)6.		
• Quantitative analysis of waste feed POHCs • Quantitative analysis of exhaust gas concentrations of trial POHCs, oxygen, and HC1 • Quantitative analysis of any scrubber water, ash residues, or other residues (for use in estimating fate of trial POHCs)				
• Computation of DRE • Computation of HC1 removal efficiency (if HC1 emission rate				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
exceeds 1.8 kg/h) • Computation of particulate emissions • Identification of fugitive emissions and their means of control • Average temperatures - both upper and lower and averaging time • Minimum temperatures • Maximum temperatures • Combustion gas velocity • Continuous-monitoring results of CO and O_2 exhaust gas concentrations • Other information specified in the trial burn plan				
Above results must be accompanied by a certification that the trial burn was carried out in accordance with the approved trial burn plan and signed by an authorized person (per 270.11).	270.62(b)(7)	335-14-8-.06(2) (b)7.		
D-5b(4) Post-Trial Burn Operation For the period of time following completion of the trial burn and prior to final modification of the permit conditions (the post-trial burn period), <u>new</u> incinerators must identify conditions to achieve the following performance: • DRE of 99.99% for designated POHCs • If HC2 emissions would be more than 1.8 kg/h (4 lb./h), stack emissions must be controlled to the larger of either 1.8 kg/h, or 1% of HC1 in the exhaust prior to entering pollution control equipment	270.62(c), 264.343 264.345	335-14-8-.06(2) (c) 335-14-5-.15(4) 335-14-5-.15(6)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Particulate emissions, corrected for oxygen concentration, no greater than 180 mg/dscm (0.08 grains/dscf) • Maintain unit and APCD operating parameters which were established in the trial burn				
These operating conditions should include, at a minimum, restrictions one: • Waste constituents • Waste feed rates • Stack exhaust CO concentrations • Combustion temperature • Combustion gas velocity				
• Allowable variations in system design or operating procedures • Fugitive emissions must be controlled by: • Totally sealing the combustion zone, or • Maintaining negative pressure in the combustion zone, or • An alternative method demonstrated to be effective in the application. • APCD operating parameters				
Hazardous wastes not exempted per D-5a must not be fed to the incinerator unless it is operating within the acceptable limits. Automatic waste feed cutoff systems that will stop flow or wastes to the incinerator, when operating conditions deviate from established limits, must be operational				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
during the post-trial burn period.				
D-5c Trial Burn Substitute Submissions An applicant may submit information to be used in lieu of a trial burn to establish permit conditions (note data required under C-1e). Information submitted in lieu of a trial burn must include the following:	270.19(c)	335-14-8-.02(10) (c)		
D-5c(1) Engineering Description A detailed engineering description including: • Manufacturer's name and model number • Type of incinerator • Linear dimensions including cross sectional area of combustion chamber • Description of auxiliary fuel system (type/feed) • Capacity of prime mover • Description of automatic waste feed cutoff system(s) • Stack gas monitoring and pollution control monitoring system • Nozzle and burner design • Construction materials • Location and description of temperature, pressure, and flow indicating devices and control devices	270.19(c)(2)	335-14-8-.02(10) (c)2.		
D-5c(2)Design and Operating Conditions Design and operating conditions of the	270.19(c)(4)	335-14-8-.02(10) (c)4.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
incinerator unit to be used compared with that for which comparative burn data are available.				
D-5c(3)Description of Results Description of results submitted from previously conducted trial burn(s): • Sampling and analysis techniques used to calculate performance standards in 264.343 • Methods and results of monitoring temperatures, waste feed rates, carbon monoxide and an appropriate indicator of combustion gas velocity.	270.19(c)(5)	335-14-8-.02(10) (c)5.		
D-5c(4) Incinerator Operation Information Expected incinerator operation information including: • Expected CO • Waste feed rate • Combustion zone temperature • Expected stack gas volume, flow rate, and temperature • Computed residence time • Expected HC1 removal efficiency • Expected fugitive emissions and control procedures • Proposed waste feed cut-off limits based on identified significant operating parameters • Indication of combustion gas velocity	270.19(c)(6)	335-14-8-.02(10) (c)6.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D-5d Monitoring The following must be monitored on a continuous basis while incinerating hazardous waste: • Combustion temperature • Waste feed rate • An indicator of combustion gas velocity (to be specified in the permit) • CO and O_2 at a point downstream of the combustion zone and prior to release to atmosphere	264.347	335-14-5-.15(8)		
D-5e Waste Feed Cutoff An incinerator must be operated with a functioning system to automatically cut off waste feed when operating conditions deviate from established limits.	264.345(e)	335-14-5-.15(6) (e)		

D6 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
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			Landfill - Module D-6	
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
D-6 Landfill Design				
D-6a Wastes to be Landfilled A list of all hazardous wastes to be placed in each landfill cell. Applicant should include:	270.21(a)	335-14-8-.02(12)(a)		
• Quantity of each waste • Chemical and physical analysis and a Waste Analysis Plan as described in Items C-1 and C-2, respectively • Ignitability, reactivity, and incompatibility • Appendix VIII constituents compatibility of liner and waste/leachate	Guidance Guidance Guidance Guidance 264.301(a)(1)	335-14-5-.14(2)(a)1.		
D-6b Surveying and Recordkeeping Description of surveying and recordkeeping procedures including a map to be used to show:	264.309 264.73	335-14-5-.14(10) 335-14-5-.05(4)		

• Exact location and dimensions of each cell • Surveyed benchmarks • Contents of each cell • Location of each waste type within the cell				
D-6c Liner System Exemption Requests				
D-6c(1) Exemption Based on Existing Portion Existing portions of landfills which have waste in place on November 8, 1984 and will have only vertical expansion are exempted from liner system requirements. New units, lateral expansion of existing units, and replacement (i.e., all waste removed from an area then replaced) units at existing facilities are not exempt. A plan showing the limits of the existing portion must be included in the application.	270.21(b)(1) 264.301(a) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a) 335-14-5-.14(2)(c)		
D-6c(2) Exemption Based on Alternative Design and Location The applicant must demonstrate that alternate design and operating practices, together with location characteristics, will prevent groundwater and surface water contamination at least as effectively as a double liner with leachate collection/detection systems. Applicant should submit for consideration detailed information on:	270.21(b)(1) 264.301(d)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(d)		

• Nature and quantity of wastes • Alternative design and operation • Landfill location description – hydrogeologic setting – attenuative capacity and thickness of materials between landfill and ground and surface waters • Other factors which would influence the quality and mobility of leachate produced				
D-6c(3) Exemption for Monofills If a landfill is a monofill which receives only wastes from foundry furnace emission controls or metal casting molding sand that are hazardous wastes only based upon extraction procedure toxicity, an exemption from the double liner system may be obtained, if either of the following is demonstrated in the permit application: • The design and operating practices will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time, or • The site is located at least one-quarter mile from a source of drinking water, has at least one non-leaking liner, and meets the requirements of 40 CFR Part 264, Subpart F	270.21(b)(1) 264.301(e)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(e)		

D-6d Subpart F Exemption If an exemption from the Subpart F groundwater monitoring requirements is sought, demonstrate the following: • The unit for which the exemption is sought is an engineer structure • No liquid estates or waste containing free liquids will be received by or contained in the landfill • Liquids, precipitation, and other run-on and run-off will be excluded from the landfill • A containment system with both inner and outer layers will enclose the waste • A leak detection system is built into each containment layer	270.21(c) 264.90(b)(2)	335-14-8-.02(12)(c) 335-14-5-.06(1)(b)2.		
• The means of ensuring continuing operation and maintenance of the leak detection systems during the active life of the unit and the closure and post-closure care periods • The unit will not allow hazardous constituents to migrate beyond the outer layer of the containment system prior to the end of the post-closure care period (within a reasonable degree of certainty)				

D-6e Liner System				
D-6e(1) General Items				
D-6e(1)(a) Liner System Description The application must provide a detailed description of the liner system, demonstrating (by description and drawings) that the liner system will prevent any migration of wastes out of the landfill to the adjacent subsurface soil or groundwater or surface water at any time during the active life of the landfill. For each liner within the system (minimum one synthetic liner and one soil liner), describe the type of liner (i.e., its material and its thickness).				
D-6e(1)(b) Liner System Location Relative to High Water Table Provide data showing seasonal fluctuations in the depth of the wastes table and the location of the seasonal high water table in relation to the base of the liner system (i.e., groundwater levels and liner foundation elevations should be shown on geological cross sections).	270.21(b)(1) 264.301(a)(1)(i) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(i) 335-14-5-.14(2)(c)		
D-6e(1)(c) Loads on Liner System The maximum loads or stresses which will be place on the liner system must be determined and reported in the application. Include all calculations, data, and assumptions for the following conditions:	270.21(b)(1) 264.301(a)(1)(i) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(12)(a)1.(i) 335-14-5-.14(2)(c)		

• Both static and dynamic loads • Stresses due to installation or construction operations • Stresses from operating equipment • Stresses due to the maximum quantity of waste, cover, and proposed post-closure land use, as applicable • Stresses resulting from settlement, compression, subsidence, or uplift • Internal and external pressure gradients				
D-6e(1)(d)Liner System Coverage The liner system must be installed to cover all surrounding earth likely to be in contact with the waste or leachate. Submit information (i.e., construction, as built, or detailed drawings) which demonstrate this.	270.21(b)(1) 264.301(a)(1)(i) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(i) 335-14-5-.14(2)(c)		

D-6e(1)(e)Liner System Exposure Prevention Demonstrate in the application that the liner system will not be exposed to wind or sunlight, or if exposure to any part of the system is to be permitted, that such exposure will not result in unacceptable degradation of that portion of the system (i.e., drawings and/or liner specifications as appropriate). If the inner system will be exposed or located close enough to the surface to be affected by the changing temperatures, provide calculations defining the stresses on the liner system due to thermal expansion and contraction.	270.21(b)(1) 264.301(a)(1)(i)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(i)		
D-6e(2) Foundation Upon Which Liner System Is Constructed	270.21(b)(1)	335-14-8-.02(12)(b)1.		
D-6e(2)(a)Foundation Description A description of the foundation for the liner system must be included in the application. The description should include the following: • Type of foundation materials	264.301(a)(1)(ii) 264.301(c)	335-14-5-.14(2)(a)1.(ii) 335-14-5-.14(2)(c)		
• Bearing elevations shown on geological and construction drawings • Load bearing embankments placed to support the liner system, as applicable				

D-6e(2)(b)Subsurface Exploration Data The engineering characteristics of the inner system foundation materials, including subsurface soil, bedrock, and hydrogeologic conditions, should be verified through subsurface explorations. These efforts should be fully described by including location plans and cross sections for test borings, test pits, etc., and descriptions or references for the procedures used. Procedures may include the following: • Collection of historical data • Test borings • Test pits • Test trenches • In situ tests • Geophysical methods	270.21(b)(1) 264.301(a)(1)(ii) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(ii) 335-14-5-.14(2)(c)		
D-6e(2)(c)Laboratory Testing Data Results from sufficient index testing should be provided to classify the site materials. Other lab test data should be provided to evaluate the engineering properties of the foundation materials, particularly for strength, hydraulic conductivity, compressibility, and other important design parameters. Provide copies of the test methods used to test the material or provide references, as appropriate and with any revisions, to standard test procedures.	270.21(b)(1) 264.301(a)(1)(ii) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(ii) 335-14-5-.14(2)(c)		

D-6e(2)(d)Engineering Analyses Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs. With the analyses include a discussion of the methods used, assumptions, copies of calculations, and appropriate references. Include the following, as applicable: • Settlement potential • Bearing capacity • Stability of the landfill (cut or constructed) slopes • Potential for excess hydrostatic or gas pressure • Seismic conditions • Subsidence potential • Sinkhole potential	270.21(b)(1) 264.301(a)(1)(ii) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(ii) 335-14-5-.14(2)(c)		
D-6e(3) Synthetic Liners				
D-6e(3)(a)General Description For each synthetic liner under consideration for use in the system, provide the following general information: • Thickness • Type • Material • Brand name • Manufacturer	270.21(b)(1) 264.301(a)(1) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1. 335-14-5-.14(2)(c)		

D-6e(3)(b)Strength Provide data showing the synthetic liners and all seams will have sufficient strength after exposure to the waste and wastes leachate to support all loads/stresses to which they will be subjected.	270.21(b)(1) 264.301(a)(1)(i) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(i) 335-14-5-.14(2)(c)		
D-6e(3)(c)Bedding Demonstrate that sufficient bedding will be provided above and below the synthetic liners to prevent rupture of the synthetic liner during installation and operation.	270.21(b)(1) 264.301(a)(1)(ii) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)1.(ii) 335-14-5-.14(2)(c)		
D-6e(4) Soil Liners A description of the soil liner must be presented in the application. Include the following information: • Liner thickness • Whether the liner will be in place material or borrow material (Note: If in-place material is to be used, describe how it will be reworked.)	270.21(b)(1) 264.301(a) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a) 335-14-5-.14(2)(c)		
• Material testing data which includes: – index tests – hydraulic conductivity – strength – consolidation – shrink-swell				

• Demonstration that the soil liner will wholly contain leachate throughout the operating life and post-closure period of the unit • Demonstration that the liner has sufficient strength to support all loads/stresses to which it will be subjected				
D-6e(5) Leachate Collection/Detection Systems Descriptions of the leachate collection and detection systems must be provided. Information to be submitted includes: • Description of how the leachate collection system is designed and operated to remove collected leachate in a timely manner • Description of any protective layer placed over the leachate collection system • Description of how the leachate detection system will function to detect any leakage in a timely manner • Description of how liquid can be removed from the systems • Estimate of the drainage capacity (speed and volume) • Contour plan for the systems which includes the layout and spacing of the piping system	270.21(b)(1) 264.301(a)(2) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a)2. 335-14-5-.14(2)(c)		

• Design details of pumps, sumps, etc., used in the system • Description of handling procedures for any collected leachate (i.e., testing, disposal, etc.) • Demonstration that the leachate detection system is appropriately graded to assure that leakage at any point in the liner system is detected in a timely manner • Demonstration that the pipes and pipe perforations are sized sufficiently to handle the expected flow of leachate • Demonstration that the leachate depth over the top of the primary liner will not exceed one foot • Demonstration that all components of the systems have sufficient strength to support all loads/stresses to which the systems will be subject, without jeopardizing the effectiveness of the system by reducing its conductivity • Demonstration that the systems are designed and operated to prevent clogging of the drainage layer material and the pipes throughout the active live of the landfill				

D-6e(6) Construction and Maintenance Both material and construction specifications must be provided for all liner system components. Construction specifications should include the following: • Preparation of the liner system foundation • Procedures for installing the soil liner which includes: – method of compaction – degree of compaction and percent moisture that must be achieved – lift thickness – methods to be used to alter the water content of the soil – scarification requirement between lifts – method of amending the soil, if applicable • Procedures for installation of the synthetic liners which include: – inspection of the synthetic liner bed for material which could puncture the liner (and removal of that material) – placement procedures	270.21(b)(1) 264.301(a) 264.301(c)	335-14-8-.02(12)(b)1. 335-14-5-.14(2)(a) 335-14-5-.14(2)(c)		

– techniques to be utilized to bond the liner seams – procedures for protection of the liner before and during placement of material on top of the liner – any protective layer placed to protect the liner during operations				
• Procedures for placement of all component of the leachate collection and detection systems including: – any protective layer – drainage layers – piping – sumps, pumps, etc. – filter layers • Details of the quality control program • Methods of repairing any damage to the liner which may occur during construction				
D-6f Run-on Control System Detailed plans and an engineering report describing: • Run-on control system capable of preventing run-on to the active portion(s) of the landfill during peak discharge from a 25-year storm • Sizing, design, and installation of system • Maintenance procedures to ensure long-term structural integrity and timely repairs	270.21(b)(2) 264.301(f)	335-14-8-.02(12) (b)2. 335-14-5-.14(2) (f)		

D-6g Run-off Control System Detailed plans and an engineering report describing: • Run-off control system designed to collect and control water volume from a 24-hour, 25-year storm • Sizing, design, and installation of system • Maintenance procedures to ensure long-term structural integrity and timely repairs	270.21(b)(3) 264.301(g)	335-14-8-.02(12)(b)3. 335-14-5-.14(2)(g)		
D-6h Units Associated with Run-on and Run-off Control Systems Detailed plans and an engineering report describing: • Collection and holding facilities (e.g., tanks, basins) associated with run-on and run-off control systems • How the holding facilities will be managed and operated to maintain design capacity after storms	270.21(b)(4) 264.301(h)	335-14-8-.02(12)(b)4. 335-14-5-.14(2)(h)		
D-6i Particulate Control If landfill contains particulate matter, plans describing how wind dispersal of particulates from a landfill will be controlled.	270.21(b)(5) 264.301(i)	335-14-8-.02(12)(b)5. 335-14-5-.14(2)(i)		

D-6j Bulk or Non-containerized Free Liquids The placement of bulk or non-containerized liquid hazardous waste or waste containing free liquids (whether or not adsorbents have been added) in any landfill is prohibited. To ensure this, the following information must be included in the application: • Description of methods used to prevent placement of bulk or non-containerized liquid hazardous waste or wastes containing free liquids in the landfill • Description of how free liquids in containers to be landfilled will either be removed or stabilized before landfilling • Demonstration that is small containers are to be disposed of in the landfill that the container will be very small (such as ampules) • Description of non-storage containers to show that they are designed to hold free liquids for use other than storage (e.g., batteries, capacitors, etc.)	270.21(h) 264.314	335-14-8-.02(12)(h) 335-14-5-.14(15)		

D-6k Disposal of Small Containers in Overpacked Drums (Lab Packs) • Materials, design of inside container • Compatibility of inside container with waste • Tightly sealed • DOT specifications for both inside container and overpack • Absorbent material, type and quantity • Compatibility of absorbent materials with waste • Incompatible wastes not placed in same outside container • Reactive wastes (other than cyanide-bearing and sulfide-bearing) treated or rendered non-reactive prior to packaging	270.21(h) 264.314(d)(4) 264.316(b)	335-14-8-.02(12)(h) 335-14-5-.14(15)(d)4. 335-14-5-.14(17)(b)		
D-6l Containerized Waste Containerized solid wastes must be at least 90 percent full or the container must be crushed, shredded, or similarly reduced in volume to the maximum practical extent before landfilling.	270.21(i) 264.315	335-14-8-.02(12)(i) 335-14-5-.14(16)		

D-6m Special Waste Management Plan for Landfills Containing Wastes F020, F021, F022, F023, F026, and F027 Applications for landfills containing hazardous wastes F020, F021, F022, F023, F026, and F027 must contain a plan which describes how the landfills are or will be designed, constructed, operated, and maintained in order to protect human health and the environment. The plan should include the following: • The volume and physical and chemical characteristics of the wastes including their potential to migrate through the soil or volatize or escape into the atmosphere	270.21(j) 264.317	335-14-8-.02(12)(j) 335-14-5-.14(18)		
• Description of the attenuative properties of underlying and surrounding soils or other materials • Description of the mobilizing properties of other materials co-disposed with these wastes • Documentation on the effectiveness of additional treatment, design, operating or monitoring techniques				

D7 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number
Address _____ Permit Review Team
_____
_____
Contact Name _____ Date Application Received
Contact Phone Number _____ Date Review Completed

Land Treatment - Module D-7

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D-7 Land Treatment				
D-7a Treatment Demonstration A description of plans to conduct a treatment demonstration. The description must include the following information:	270.20(a) 264.272	335-14-8-.02(11)(a) 335-14-5-.13(3)		
• The wastes and the potential hazardous constituents in the waste	270.20(a)(1) 264.272(a)	335-14-8-.02(11)(a)1. 335-14-5-.13(3)(a)		
• The data sources (e.g., literature, laboratory data, field data, or operating data)	270.20(a)(2) 264.272(b)	335-14-8-.02(11)(a)2. 335-14-5-.13(3)(b)		
• Any specific laboratory or field test that will be conducted, including: – type of test (e.g., column leaching degradation) – materials and methods, including analytical procedures – expected time for completion	270.20(a)(3) 264.272(c)	335-14-8-.02(11)(a)3. 335-14-5-.13(3)(c)		

– characteristics of the unit that will be simulated in the demonstration, including treatment zone characteristics, climatic conditions, and operating practices – characteristics of the waste to be tested – operating and monitoring measurements taken during the course of the test – duration of the test volume of waste used in the test – in the case of field tests, the potential for migration of hazardous constituents to groundwater or surface water				
• A description of how the field test or laboratory analysis conducted will accurately simulate the characteristics and operating conditions for the proposed land treatment unit including: – characteristics of the waste (including the presence of Appendix VIII of Part 261 of this chapter constituents – climate in the area – topography of the surrounding area – characteristics of the soil in the treatment zone (including depth), and – operating practices to be used a the unit	264.272(c)(1)	335-14-5-.13(3)(c)1.		

D-7b Treatment Program A description of a land treatment program must be provided. The land treatment program must address the following items:	270.20(b) 264.271(a)	335-14-8-.02(11)(b) 335-14-5-.13(2)(a)		
• The wastes to be land treated	270.20(b)(1)	335-14-8-.02(11)(b)1.		
• How records will be kept on hazardous waste application dates and rates	264.279 264.73 264.274(a)(2)	335-14-5-.13(10) 335-14-5-.05(4) 335-14-5-.13(5)(a)2.		
• Design measures and operating practices including: – waste application method and rate – measures to control soil pH – enhancement of microbial or chemical reactions – control of moisture content				
• A list of hazardous constituents reasonably expected to be in or derived from, the wastes to be land-treated based on waste analysis	270.20(b)(4) 264.13	335-14-8-.02(11)(b)4. 335-14-5-.02(4)		
• The proposed dimensions of the treatment zone	270.20(b)(5) 264.271(c)	335-14-8-.02(11)(b)5. 335-14-5-.13(2)(c)		
D-7c Unsaturated Zone Monitoring Plan	270.20(b)(3) 264.278	335-14-8-.02(11)(b)3. 335-14-5-.13(9)		

D-7c(1)Soil-Pore Liquid Monitoring A description of the program for sampling and analysis of soil-pore liquid to detect the migration of dissolved constituents below the treatment zone. The description must include the following items:	270.20(b)(3) 264.278	335-14-8-.02(11)(b)3. 335-14-5-.13(9)		
• Identification of the sampling locations, if known, and the rationale used to select these locations	270.20(b)(3)(ii) 264.278(b) & (d)	335-14-8-.02(11)(b)3.(ii) 335-14-5-.13(9)(b) & (d)		
• The sampling frequency and a demonstration that this frequency is adequate considering the potential for migration of hazardous constituents out of the treatment zone	270.20(b)(3)(i) 264.278(d)	335-14-8-.02(11)(b)3.(i) 335-14-5-.13(9)(d)		
• Identification of the sampling equipment used to collect soil-pore liquid samples	270.20(b)(3)(i) 264.278(e)	335-14-8-.02(11)(b)3.(i) 335-14-5-.13(9)(e)		
• A description of the procedures used to install the soil-pore liquid sampling devices	270.20(b)(3)(i) 264.278(e)	335-14-8-.02(11)(b)3.(i) 335-14-5-.13(9)(e)		
• A description of the procedures for sampling soil-pore liquids including methods for sample preparation, preservation, and transport	270.20(b)(3)(i) 264.278(e)(1)&(2)	335-14-8-.02(11)(b)3.(i) 335-14-5-.13(9)(e)1. & 2.		
• Identification of the analytical methods used to determine the concentrations of hazardous constituents in the soil-pore liquid	270.20(b)(3)(iii)	335-14-8-.02(11)(b)3.(iii)		

• A description of the methods to be used to assure sample integrity throughout sampling, transportation, analysis, and reporting	270.20(b)(3) (iv) 264.278(e)(4)	335-14-8-.02(11) (b)3.(iv) 335-14-5-.13(9) (e)4.		
• A description of the sampling and analytical program used to establish background soil-pore liquid concentrations of hazardous constituents, including: – sample locations and depths – verification that the location is representative of active site conditions – frequency of sampling – an indication that background values will be expressed in a form that will permit their comparison with active site values	270.20(b)(3) (v) 264.278(c)	335-14-8-.02(11) (b)3.(v) 335-14-5-.13(9) (c)		
• A description of the statistical method that will be used to determine that significant differences exist between background and treatment zone concentrations of hazardous constituents in soil-pore liquids	270.20(b)(3) (vi) 264.278(f)	335-14-8-.02(11) (b)3.(vi) 335-14-5-.13(9) (f)		
• A justification of any principal hazardous constituents proposed for use in the soil-pore liquid monitoring program				

D-7c(2)Soil Core Monitoring A description of the program for sampling and analysis of soil cores to detect the migration of hazardous constituents below the treatment zone. This description must include the following items:	270.20(b)(3) 264.278	335-14-8-.02(11)(b)3. 335-14-5-.13(9)		
• Identification of the sampling locations, if known, and the rational used to select these locations	270.20(b)(3)(ii) 264.278(b) & (d)	335-14-8-.02(11)(b)3.(ii) 335-14-5-.13(9)(b) & (d)		
• The sampling frequency and demonstration that this frequency is adequate considering the potential for migration of hazardous constituents out of the treatment zone	270.20(b)(3)(i) 264.278(d)	335-14-8-.02(11)(b)3.(i) 335-14-5-.13(9)(d)		
• Identification of the sampling equipment and to collect soil core samples	270.20(b)(3)(i)	335-14-8-.02(11)(b)3.(i)		
• A description of the procedures for sampling soil cores including methods for sample preparation, preservation and shipment	270.20(b)(3)(i) 264.278(e)(1)&(2)	335-14-8-.02(11)(b)3.(i) 335-14-5-.13(9)(e)1. & 2.		
• Identification of the analytical methods used to determine the concentrations of hazardous constituents in the soil cores	270.20(b)(3)(iii) 264.278(e)(3)	335-14-8-.02(11)(b)3.(iii) 335-14-5-.13(9)(e)3.		
• A description of the methods to be used to assure sample integrity throughout sampling, transportation, analysis, and reporting	270.20(b)(3)(iv) 264.278(e)(4)	335-14-8-.02(11)(b)3.(iv) 335-14-5-.13(9)(e)4.		

• A description of the sampling and analytical program used to establish background soil-core concentrations of hazardous constituents, including: – sample locations and depths – verification that the location is representative of active site conditions – frequency of sampling – an indication that background values will be expressed in a form that will permit their comparison with active site values	270.20(b)(3)(v) 264.278(c)	335-14-8-.02(11)(b)3.(v) 335-14-5-.13(9)(c)		
• A description of the statistical methods that will be used to determine if significant differences exist between background and treatment zone concentrations of hazardous constituents in soil cores	270.20(b)(3)(vi) 264.278(f)	335-14-8-.02(11)(b)3.(vi) 335-14-5-.13(9)(f)		
• A justification of any principal hazardous constituents proposed for use in the soil core monitoring program	270.20(b)(3)(vii) 264.278(a)(2)	335-14-8-.02(11)(b)3.(vii) 335-14-5-.13(9)(a)2.		
D-7d Treatment Zone Description An identification of the dimensions of the treatment zone and the soil(s) within the treatment zone, including:	270.20(b)(5) 264.271(c)	335-14-8-.02(11)(b)5. 335-14-5-.13(2)(c)		
• Identification of the horizontal and vertical dimensions of the treatment zone	270.20(b)(5) 264.271(c)	335-14-8-.02(11)(b)5. 335-14-5-.13(2)(c)		

• A map or plot plan delineating the horizontal boundaries of the treatment zone and all soil series occurring within the treatment zone	270.20(b)(2) 264.271(c)(1)(iv)	335-14-8-.02(11)(c)2. 335-14-5-.13(2)(c)1.(iv)		
• A description of each soil series identified within the treatment zone including: – profile description with horizontation – depth – color – USDA texture – structure – thickness – slope – mineralogy – use and vegetation – Atterberg limits – water capacity – shrink-swell potential – erosion factors – salinity	270.20(b)(2) 264.271(c)(1)(iv)	335-14-8-.02(11)(b)2. 335-14-5-.13(2)(c)1.(iv)		
• The results of soil analyses for each treatment zone soil series	270.20(b)(2) 264.271(c)(1)(iv)	335-14-8-.02(11)(b)2. 335-14-5-.13(2)(c)1.(iv)		
• The depth of the seasonal high water table and the source of that data	264.271(c)(2)	335-14-5-.13(2)(c)2.		

D-7e Treatment Design and Operation A description of how the unit is or will be designed, constructed, operated, and maintained. This submission must address the following items:	270.20(c) 264.273	335-14-8-.02(11)(c) 335-14-5-.13(4)		
• Run-on controls system capable of preventing flow onto the treatment zone during the discharge from at least a 25-year storm	270.20(c)(1) 264.273(c)	335-14-8-.02(11)(c)1. 335-14-5-.13(4)(c)		
• How run-off of hazardous constituents from the treatment zone during the active life of the land treatment unit will be minimized	270.20(c)(2) 264.273(b)	335-14-8-.02(11)(c)2. 335-14-5-.13(4)(b)		
• Run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm	270.20(c)(2) 264.273(d)	335-14-8-.02(11)(c)2. 335-14-5-.13(4)(d)		
• Management of collection and holding facilities associated with run-on and run-off control systems	270.20(c)(4) 264.273(e)	335-14-8-.02(11)(c)4. 335-14-5-.13(4)(e)		
• How collection and holding facilities will be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system	264.273(e)	335-14-5-.13(4)(e)		
• Control of wind dispersal of particulate matter, if applicable	270.20(c)(6) 264.273(f)	335-14-8-.02(11)(c)6. 335-14-5-.13(4)(f)		

D-7f Food Chain Crops If food chain crops are to be grown in or on the treatment zone of the land treatment unit, a demonstration that there will be no substantial risk to human health or the environment caused by the growth of these crops must be submitted, including:	270.20(d) 264.276	335-14-8-.02(11)(d) 335-14-5-.13(7)		
• For all hazardous constituents except cadmium, a demonstration that hazardous constituents: will not be transferred to the food or feed portions of the crop nor ingested by food chain animals; or, will not occur in food or feed chain crops in concentrations above background levels	270.20(d) 264.276(a)(1)	335-14-8-.02(11)(d) 335-14-5-.13(7)(a)1.		
• Documentation that the demonstration results will be representative of the unit to be permitted, considering: – soil characteristics – wastes characteristics – application rates and methods – crop characteristics – climate effects	270.20(d)(1)&(2) 264.276(a)(3)(i)	335-14-8-.02(11)(d)1. & 2. 335-14-5-.13(7)(a)3.(i)		
• A description of the procedures used in any tests referenced or conducted, including: – sample selection criteria – sample size – analytical methods – statistical procedures	270.20(d)(3) 264.276(a)(3)(ii)	335-14-8-.02(11)(d)3. 335-14-5-.13(7)(a)3.(ii)		

• If cadmium is present in the waste, the following information must be included: – If crops are to be grown for human consumption, provide soil pH, soil pH controls, cadmium loading rate, and soil action exchange capacity – If only animal feed is to be grown, provide the soil pH and soil pH controls, and a copy of an operating plan demonstrating how animal feed will be distributed to preclude ingestion by humans, including control of alternate land use	270.20(e) 264.276(b)(1) 270.20(e) 264.276(b)(1) 270.20(e)	335-14-8-.02(11)(e) 335-14-5-.13(7)(b)1. 335-14-8-.02(11)(e) 335-14-5-.13(7)(b)1. 335-14-8-.02(11)(e)		
D-7g Special Waste Management Plan for Land Treatment Units Containing Wastes F020, F021, F022, F023, F026 and F027 A description of how land treatment units containing wastes F020, F021, F022, F023, F026, and F027 are or will be designed, constructed, operated, and maintained in order to protect human health and the environment, including:	270.20(i) 264.283	335-14-8-.02(11)(i) 335-14-5-.13(14)		
• Identification of the volume physical and chemical characteristics or the wastes including their potential to migrate through the soil or volatilize into the atmosphere				
• A description of the alternative properties of underlying and surrounding soils or other materials.				

• A description of the mobilizing properties of other materials co-disposed with these wastes				
• Documentation of the effectiveness of additional treatment, design, operating, or monitoring techniques in reducing the migratory potential of these wastes to groundwater, surface water, or air				

D8 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Miscellaneous Units - Module D-8

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D-8 Miscellaneous Units Identify all miscellaneous units which treat, store, or dispose of hazardous waste at the facility, but do not fit the current definition of container, tank, surface impoundment, waste pile, land treatment unit, landfill, incinerator, boiler, industrial furnace or underground injection well. May include (but are not limited to): • Geologic repositories other than injection wells (such as underground salt formations, mines or caves, either for the purpose of disposal or long-term retrievable storage) • Deactivated missile silos, other than injection wells or tanks; • Thermal treatment units other than incinerators, boilers, or industrial furnaces (e.g., combustion and noncombustion units, such as molten salt pyrolysis, calcination, wet-air oxidation, and microwave destruction	264.601 270.23 [12/10/87]	335-14-5-.24(2) 335-14-8-.02(14)		

• Units for open burning or open detonating (OB/OD) explosive wastes • Certain chemical/physical/ biological treatment units • Mobile units using technologies listed above. However, mobile units using technologies that are covered under other subparts of Part 264, such as incineration or treatment in containers, are excluded from this section Examples of units not defined as miscellaneous units include: • Treatment, storage, disposal in units currently regulated under Part 264 • Open burning of nonexplosive hazardous wastes • Units excluded from permitting under Parts 264 and 270 (such as POTW and ocean disposal activities) • Placement of hazardous waste underground that is regulated under Part 146 (UIC program) • RD&D units covered under 270.65				
D-8aDescription of Miscellaneous Units Provide a detailed description of each unit including: • Physical characteristics	270.23(a)1), 270.23(a)(2) [12/10/87]	335-14-8-.02(14)(a)1. 335-14-8-.02(14)(a)2.		

• Materials of construction • Dimensions of the unit • Detailed plans and engineering reports describing how the unit will be located, designed, constructed, aerated, maintained, monitored and inspected				
D-8b Miscellaneous Unit Wastes • Information on the volume and concentration, and the physical and chemical characteristics of the waste • Evaluate the ability of the wastes to be contained, immobilized, degraded or attenuated or to migrate in various soils and materials; and the probability of reactions taking place among wastes or between wastes and liners or other containment structures • Evaluate the potential of the waste to react or evaporate to form gaseous aerosol, or particulate products that enter the atmosphere	264.601(a)(1) 264.601(b)(1) 264.601(c)(1) [12/10/87]	335-14-5-.24(2)(a)1. 335-14-5-.24(2)(b)1. 335-14-5-.24(2)(c)1.		
D-8c Treatment Effectiveness For each treatment unit, a report must be submitted demonstrating the effectiveness of the treatment based on laboratory or field data	270.23(d) [12/10/87]	335-14-8-.02(14)(d)		

D-8d Environmental Performance Standards for Miscellaneous Units Environmental performance standards must be maintained to protect human health and the environment. These performance standards will be based on the following for each media of concern: • Detailed assessment of the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and on the potential magnitude and nature of such exposures • Evaluation of how the migration of waste constituents in the air, surface water, groundwater and soils is prevented • Information on the type of waste managed, type of technologies, types and quantities of emissions or releases, extent of migration or dispersion of the waste in various media	264.601, 270.23(b)&(c) [12/10/87]	335-14-5-.24(2) 335-14-8-.02(14) (b) & (c)		
D-8d(1)Protection of Groundwater and Subsurface Environment	270.23(b),(c) 264.601(a) [12/10/87]	335-14-8-.02(14) (b) & (c) 335-14-5-.24(2) (a)		

D-8d(1)(a) Risk Assessment Environmental performance standards must prevent releases which adversely affect human health or the environment, and be based on a detailed assessment of risks. This assessment must consider:	264.601(a) 270.23(b),(c) [12/10/87]	335-14-5-.24(2)(a) 335-14-8-.02(14)(b) & (c)		
• Waste characteristics and potential for migration through soils, liners or other containing structures • Hydrologic and geologic characteristics of the unit and surrounding area • Existing groundwater quality • Other sources of contamination and their cumulative impact on the groundwater • Quantity and direction of groundwater flow • Proximity to and withdrawal rates of current and potential groundwater users • Regional land use patterns • Potential for deposition or migration of waste constituents subsurface physical structures and root zone of vegetation • Potential for health risks for human exposure • Potential for damage from exposure of domestic animals, wildlife, crops, vegetation, and physical structures to waste constituents				

D-8d(1)(b) Performance Standard Based on the risk assessment, performance standards must be developed and maintained including: • Design and operating requirements • Detection and monitoring requirements • Requirements for responses to releases of hazardous waste or hazardous constituents form the unit	264.601 [12/10/87]	335-14-5-.24(2)		
May include appropriate standards from Part 264 Subpart I through O, Part 270, and Part 146.				
D-8d(2)Protection of the Atmosphere				
D-8d(2)(a) Risk Assessment Environmental performance standards must prevent releases which adversely affect human health or the environment, and be based on detailed assessment of risk. This assessment must include: • Waste characteristics • Effectiveness and reliability of containing, confining, and collecting systems and structures • Hydrologic characteristics of the unit and surrounding area • Topography	264.601(a), 270.23(b),(c) [12/10/87]	335-14-5-.24(2) (a) 335-14-8-.02(14) (b) & (c)		

• Patterns of regional precipitation • Quantity, quality, and direction of groundwater flow • Proximity of the unit to surface water • Current and potential uses of nearby surface waters and established water quality standards • Existing quality of surface waters and surface soils, including other contamination sources and their cumulative impact • Land use patterns • Potential health risk caused by human exposure • Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures from exposure to waste constituents				
D-8d(2)(b) Performance Standard • Based on the risk assessment, performance standards must be developed and maintained including: • Design and operating requirements • Detection and monitoring requirements	264.601 [12/10/87]	335-14-5-.24(2)		

• Requirements for responses to releases of hazardous waste or hazardous constituents from the unit • May include appropriate standards from Part 264 Subpart I through O, Part 270, and Part 146.				
D-8d(3)(a) Risk Assessment Environmental performance standards must prevent releases which adversely affect human health or the environment and be based on a detailed assessment of risk. This assessment must consider: • Waste characteristics, including potential for emission and dispersal of gases, aerosols and particulates • Effectiveness and reliability of systems and structures to reduce or prevent emissions • Operating Characteristics of the unit • Atmospheric, meteorologic, and topographic characteristics of the unit and surrounding area • Existing air quality, including other sources of contamination and their cumulative impact • Potential for health risk to humans	264.601(c) 270.23(b)&(c) [12/110/87]	335-14-5-.24(2)(c) 335-14-8-.02(14)(b) & (c)		

• Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents				
D-8d(3)(b) Performance Standard Based on the risk assessment, performance standards must be developed and maintained including: • Design and operating requirements • Detection and monitoring requirements • Requirements for responses to releases of hazardous waste or hazardous constituents from the units May include appropriate standards from Part 264 Subpart I through O, Part 270, and Part 146.	264.601 [12/10/87]	335-14-5-.24(2)		
D-8e Additional Information Requirement Any additional information requested by EPA necessary for evaluation of compliance of the unit with the environmental performance standard will be submitted.	270.23(e) [12/10/87]	335-14-8-.02(14)(e)		

Facility Name _____ EPA ID Number
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Contact Name _____ Date Application Received
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Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D-9 Boilers and Industrial Furnaces (BIFs) [Note: A summary of emissions standards is included at the end of this checklist Module D-9.]				
D-9a Waivers/Exemptions If applying for a waiver or exemption, provide information demonstrating compliance with the requirements outlined below:				
D-9a(1) Waiver of DRE Trial Burn for Boilers A boiler that is not burning hazardous waste containing F020, F021, F022, F023, F026, and F027 and submits documentation that it operates under the following conditions is considered in compliance with the 266.104(a) DRE Standard and a DRE trial burn is waived:	266.110 270.22(a)(2) (i) 266.104(a)(4)	335-14-7-.08(11) 335-14-8-.02(13) (a)2.(i) 335-14-7-.08(5) (a)4.		
• A minimum of 50% fuel fired to the boiler is fossil fuel, fuels derived from fossil fuels, tall oil, or other non-hazardous fuel with fossil fuel characteristics with Director's approval, with the firing rate determined on a total heat or mass input basis, whichever results in the greater mass feed rate of primary fuel fired.				
• Boiler load is not less than 40%.				
• Primary and hazardous waste fuels have a minimum as-fired heating value of 8,000 Btu/lb.				
• The device operates in conformance with the CO standard of 266.104(b)(1).				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• The boiler is a nonstoker watertube boiler.				
• The hazardous waste is fired directly into the primary fuel flame zone under the conditions specified in 266.110(f).				
D-9a(2) Low Risk Waste Exemption The DRE Standard for a BIF may be waived provided the following information is documented and submitted: • A minimum of 50% of the fuel fired to the device is fossil fuel, fuels derived form fossil fuels, tall oil, or other non-hazardous fuel with fossil fuel characteristics with Director's approval, with the firing rate determined on total heat or mass input basis, whichever results in the greater mass feed rate of primary fuel fired.	266.104(a)(5) 266.109(a) 270.22(a)(2) (ii)	335-14-7-.08(5) (a)5. 335-14-7-.08(10) (a) 335-14-8-.02(13) (a)2.(ii)		
• Primary and hazardous waste fuels have a minimum 8,000 Btu/lb. as-fired heating value.				
• The hazardous waste is fired directly into the fuel flame zone.				
• The device operates in accordance with carbon monoxide controls provided by 266.104(b)(1).				
• Hazardous waste burning will not pose unacceptable, adverse public health effects, as demonstrated in accordance with 266.109(a)(2).				
– Results of analyses of each waste to be burned, including concentrations of Appendix VIII nonmetal constituents, except for those that would not reasonably be expected to be in the waste, explaining the basis for excluding any such nonmetals. – Hazardous waste firing rate of each constituent identified above. – Calculations of reasonable worst-case				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
emission rates of each constituent identified above, based on 99.9% DRE. – Results of emissions dispersion modeling for each Appendix VIII constituent identified above for all stacks (if multiple stacks). – Documentation that the maximum annual average ground level concentration of each constituent identified above does not exceed the allowable level established in Appendices IV or V of Part 266 (carcinogens must be summed).				
D-9a(3) Waiver of Particulate Matter Standard The particulate matter standard of 266.105 and trial burn for PM may be waived if:	266.109(b) 270.22(a)(4)	335-14-7-.08(10) (b) 335-14-8-.02(13) (a)4.		
• The BIF complies with Tier I or Adjusted Tier I metals feed rate screening limits under 266.106(b) or (e) and submits documentation showing conformance with the trial burn waiver under checklist Section D-9a(4) below.				
• The BIF meets the requirements of the low risk waste exemption under checklist Section D-9a(2) above.				
D-9a(4) Waiver of Trial Burn for Metals A trial burn is not required to demonstrate conformance with the metals standards if the BIF is operated under Tier I or adjusted Tier I metals feed rate screening limits and the following documentation is submitted:	266.106(b) and (e) 270.22(a)(3)	335-14-7-.08(7) (b) & (e) 335-14-8-.02(13) (a)3.		
• Feed rate of hazardous waste, other fuels, and industrial furnace feed stocks.				
• Concentrations of each of the 10 toxic metals in the hazardous waste, other fuels, and industrial furnace feed stocks.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Calculation of the total feed rate of each metal.				
• Documentation of how the applicant will ensure the Tier I or Adjusted Tier I feed rate screening limits will not be exceeded during the averaging period under 266.106(b) or (e). (See also checklist Section C-2e.)				
• Determination of the following: – Terrain-adjusted effective stack height. – Good engineering practice stack height. – Terrain type. – Land use.	266.106(b)(3)-(5)	335-14-7-.08(7) (b)3.-5.		
• Documentation that the facility does not fail the criteria provided by §266.106(b)(7) for eligibility to comply with the screening limits.				
• Proposed sampling and metals analysis plan for the hazardous waste, other fuels, and industrial furnace feed stocks.				
D-9a(5) Waiver of Trial Burn for HCl/Cl_2 A BIF is not required to conduct a trial burn to demonstrate conformance with the HCl/Cl_2 standards if the BIF is operated under Tier I or adjusted Tier I feed rate screening limits for HCl/Cl_2 and the following documentation is submitted:	266.107(b)(1) and (e) 270.22(a)(5)	335-14-7-.08(8) (b) 335-14-8-.02(13) (a)5.		
• Feed rate of hazardous waste, other fuels, and industrial furnace feed stocks.				
• Levels of total chloride/chlorine in the feeds and the calculation of total feed rate of total chloride/chlorine.				
• Documentation of how the applicant will ensure the Tier I or Adjusted Tier I feed rate screening limits will not be exceeded during the averaging				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
period under 266.107(b)(1) or (e).(See also checklist Section C-2e).				
• Determination of the following: – Terrain-adjusted effective stack height. – Good engineering practice stack height. – Terrain type. – Land use.	266.107(b)(3)	335-14-7-.08(8) (b)5.		
• Compliance with 266.107(b)(4) for facilities with multiple stacks.				
• Determination that the facility does not fail eligibility criteria under 266.107(b)(3) to comply with screening limits.				
• Proposed sampling and analysis plan for total chloride and chlorine for the hazardous waste, other fuels, and industrial furnace feed stocks.				
D-9b Pretrial Burn Requirements for New BIFs Time required to bring the new boiler or industrial furnace to a point of operational readiness for the trial burn must be the minimum necessary and cannot exceed 720 hours, or up to 1,440 hours if the applicant shows good cause for requiring an extension. The permit application must include:	270.66(b)(1)	335-14-8-.06(5) (b)1.		
• A proposed start-up schedule for the BIF.				
• A description of the system that will be used to monitor operating hours during the pretrial burn period.				
• A statement must be submitted that stipulates the conditions necessary to operate in compliance with 266.104 through 266.107 standards and, at a minimum, include applicable operating restrictions in 266.102(e). [Note: if the applicant is seeking a waiver from a trial	270.66(b)(1) (i) 266.102(d)(4) (i) 266.102(e)	335-14-8-.06(5) (b)1.(i) 335-14-7-.08(3) (d)4.(i) 335-14-7-.08(3) (e)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
burn to demonstrate conformance with a particular emission standard, the operating requirements during this initial period of operating shall include those specified by the applicable provision of 266.104 through 266.107. See checklist Section D-9a.]				
D-9b(1) Pretrial Burn Requirements for New BIFs - Organic Emissions Standards				
For conformance with organic emissions standards in 266.104, the statement must specify the following restrictions:	266.102(e)(2)	335-14-7-.08(3) (e)2.		
• Composition of hazardous waste, including acceptable physical/chemical variations.				
• Feed rate of hazardous waste and other fuels measured per 266.102(e)(6).				
• Minimum device production rate when producing normal product measured per 266.102(e)(6).				
• Maximum device production rate when producing normal product measured per 266.102(e)(6).				
• Appropriate controls of the hazardous waste firing system.				
• Allowable variation in boiler or industrial furnace system design or operating procedures. (Permit writer to specify in permit).				
• Minimum combustion gas temperature measured at a location indicative of combustion chamber temperature per 266.102(e)(6).				
• Appropriate indicator of combustion gas velocity measured per 266.102(e)(6).				
• Such other operating requirements as are necessary to ensure that the DRE performance				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
standard of 266.104(a) is met.				
• Appropriate CO/HC limit(s) as follows: – CO < 100 ppm when complying with 266.104(b)(1). – CO limit based on test burn and HC < 20 ppm when complying with 266.104(c). – CO and HC limits from baseline test for furnaces with organic matter in raw material when complying with 266.104(f).	266.104(d)	335-14-7-.08(5) (d)		
– For furnaces feeding other than ingredient at locations other than the hot end, the 20 ppm HC limit or baseline HC limit as described above applies irrespective of whether CO is < 100 ppm. • Hazardous waste will not be fed to the device during startup/shutdown unless it is fed as an ingredient under Tier I/Adjusted Tier I standards or as a low-risk waste.				
• For boilers and industrial furnaces equipped with dry PM control devices that operate within the 450-750°F temperature range and industrial furnaces operating under the alternative HC limit, the statement must include an evaluation of the site specific risks from emissions of dioxins and furans and demonstrate that the increased cancer risk to the MEI would not exceed 1 in 100,000.	266.104(e) 270.66(b)(1) (i)	335-14-7-.08(5) (e) 335-14-8-.06(5) (b)1.(i)		
D-9b(2) Pretrial Burn Requirements for New BIFs - PM Emissions Standards For conformance with the PM emissions standard in 266.105, the statement must specify the following restrictions:	266.105 270.66(b)(1) (i)	335-14-7-.08(6) 335-14-8-.06(5) (b)1.(i)		
• Total ash feed rate from hazardous waste, other fuels, and industrial furnace feed stocks [except				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
for cement kilns and lightweight aggregate kilns] measured per 266.102(e)(6).				
• Maximum device production rate when producing normal product measured per 266.102(e)(6).				
• Appropriate controls on hazardous waste firing system and air pollution control system.				
• Allowable variation in boiler or industrial furnace system design or operating procedures. (Permit writer to specify in permit.)				
• Such other operating requirements as are necessary to ensure that the particulate standard in 266.105 is met.				
D-9b(3) Pretrial Burn Requirements for New BIFs - Metals Emissions Standards For conformance with the metals emissions standards in 266.106, the statement must specify the applicable restrictions listed below. The facility must also demonstrate that planned feed rate or emission limits are within maximum allowable emission/feed rates. This demonstration must include a complete description of the determination of the maximum allowable emission/feed rate for each metal.	266.106 270.66(b)(1) (i)	335-14-7-.08(7) 335-14-8-.06(5) (b)1.(i)		
• **Tier I or Adjusted Tier I:** Total feed rate of each metal in hazardous waste, other fuels, and industrial furnace feed stocks measured per 266.102(e)(6).	266.102(e)(4) (i) 266.106(b) or (e)			
– Total feed rate of hazardous waste measured per 266.102(e)(6).				
– Metals sampling and analysis program for hazardous waste, other fuels, and industrial furnace feedstocks.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• **Tier II or Tier III:** – Maximum emission rate for each metal.	266.102(e)(4) (ii) 266.106(c) and (d)			
– Feed rate of total hazardous waste and pumpable hazardous waste measured per 266.102(e)(6).				
– Feed rate of each metal in each of the following feed streams measured per 266.102(e(6): -- Total feed streams. -- Total hazardous waste feed. -- Total pumpable hazardous waste feed.				
– Total feed rate of chlorine/chloride in total feed streams measured per 266.102(e)(6).				
– Maximum combustion gas temperature measured per 266.102(e)(6).				
– Maximum flue gas temperature at the inlet to the PM air pollution control system measured per 266.102(e)(6).				
– Maximum device production rate when producing normal product measured per 266.102(e)(6).				
– Appropriate controls on operation and maintenance of the hazardous waste firing system and air pollution control system (APCS).				
– Allowable variation in boiler or industrial furnace system design or operating procedures. (Permit writer to specify in permit.)				
– Such other operating requirements as are necessary to ensure that the metals standards				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
under 266.106(c) or (d) are met: -- Wet scrubbers/wet ionizing scrubbers: Minimum liquid to flue gas ratio. ~~Minimum scrubber blowdown or maximum suspended solids content of scrubber water.~~ Minimum pH of scrubber water.				
-- Venturi scrubbers: Minimum differential gas pressure across the venturi. -- Minimum scrubber blowdown or maximum suspended solids content of scrubber water. Max solids also important for venturis				
-- Dry scrubbers: Minimum caustic feed rate. Maximum flue gas flow rate.				
-- Wet ionizing scrubbers/ electrostatic precipitators: Minimum electrical power (kVA). Maximum flue gas flow rate.				
-- Baghouses: Minimum pressure drop.				
D-9b(4) Pretrial Burn Requirements for New BIFs - Alternative Metals Approach For conformance with the alternative metals approach, the statement must:	266.102(e)(4) (iii) 266.106(f)	335-14-7-.08(3) (e)4.(iii) 335-14-7-.08(7) (f)		
• Describe the approach which will be used to comply.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Specify how the approach ensures compliance with the metals emissions standards of 266.106(c) or (d).				
• Specify how the approach can be effectively implemented and monitored.				
• Provide such other information as necessary to ensure that the standards of 266.106(c) or (d) are met.				
D-9b(5) Pretrial Burn Requirements for New BIFs - Hydrogen Chloride/Chlorine Emissions Standards For conformance with hydrogen chloride/chlorine emissions standards in 266.107, the statement must specify the following applicable restrictions:	266.107 270.66(b)(1) (i)	335-14-7-.08(8) 335-14-8-.06(5) (b)1.(i)		
• **Tier I or Adjusted Tier I:** – Feed rate of total chlorine/chloride in hazardous waste, other fuels, and industrial furnace feedstocks measured 266.102(e)(6).	266.102(e)(5) (i) 266.107(b)(1)	335-14-7-.08(3) (e)5.(i) 335-14-7-.08(8) (b)1.		
– Feed rate of total hazardous waste measured per 266.102(e)(6).				
– Sampling and analysis program for total chlorine/chloride for hazardous waste, other fuels, and industrial furnace feedstocks.				
• **Tier II and Tier III:** – Maximum emission rates of HCl and Cl_2.	266.102(e)(5) (ii) 266.107(b)(2) or (c)	335-14-7-.08(3) (e)5.(ii) 335-14-7-.08(8) (b)2. or (c)		
– Feed rate of total hazardous waste measured per 266.102(e)(6).				
– Total feed rate of chlorine/chloride in total feed streams measured per 266.102(e)(6).				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
– Maximum device production rate when producing normal product measured per 266.102(e)(6).				
– Appropriate controls on operation and maintenance of hazardous waste firing system and APCS.				
– Allowable variation in boiler or industrial furnace system design or operating procedures. (Permit writer to specify in permit).				
– Such other operating requirements as are necessary to ensure that the HCl and Cl_2 standards under §266.107(b)(2) or (c) are met.				
D-9b(6) Pretrial Burn Requirements for New BIFs - Fugitive Emissions The statement must thoroughly describe the method by which fugitive emissions will be controlled. Fugitive emissions must be controlled by:	266.102(e)(7) (i) 270.66(b)(1) (i)	335-14-7-.08(3) (e)7.(i) 335-14-8-.06(5) (b)1.(i)		
• Totally sealing the combustion zone,				
• Maintaining negative pressure in the combustion zone, or				
• An alternative method demonstrated to provide control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.				
D-9b(7) Pretrial Burn Requirements for New BIFs - Automatic Waste Feed Cutoff The statement must specify that the automatic waste feed cutoff will operate as follows:	270.66(b)(1) (i)	335-14-8-.06(5) (b)1.(i)		
• Hazardous waste feed will be cutoff when operating parameters deviate from those specified above for pretrial burn period. At a	266.102(e)(7) (ii)	335-14-7-.08(3) (e)7.(ii)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
minimum, the automatic waste feed cutoff will be tied to all parameters listed under monitoring requirements in checklist Section D-9i.				
• Minimum combustion chamber temperature will be maintained while hazardous waste or its residues remain in the combustion chamber. A description of procedures and controls used to maintain the minimum combustion chamber temperature must be included.				
• Exhaust gases will be ducted to the APCS while hazardous waste or its residues remain in the combustion chamber. A description should be provided with the engineering description. See checklist Section D-9c.				
• Operating parameters will be monitored during the cutoff and hazardous waste feed will not be restarted until the parameters are within allowable limits. For parameters that may be measured on an instantaneous basis, the statement should propose a period of time after waste feed cutoff during which a parameter must not exceed the permit limit before hazardous waste feed may be restarted. The proposed period of time will be subject to the Director's approval.				
• The statement must specify that the BIF will stop burning hazardous waste when changes in combustion properties or feed rates of hazardous waste, other fuels, or industrial furnace feedstocks, or changes in BIF design or operating conditions deviate from those specified above for the pretrial burn period.	266.102(e)(7) (iii) 270.66(b)(1) (i)	335-14-7-.08(3) (e)7.(iii) 334-14-8-.06(5) (b)1.(i)		
D-9b(8) Pretrial Burn Requirements for New BIFs - Monitoring Requirements The statement must specify that the following will be monitored and recorded when burning hazardous waste:	266.102(e)(8) 270.66(b)(1) (i)	335-14-7-.08(3) (e)8. 335-14-8-.06(5) (b)1.(i)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• All parameters listed under monitoring requirements in checklist Section D-9i.				
• Sampling and analysis of hazardous waste (and other fuels and feedstocks), residues, and exhaust emissions will be conducted as necessary to verify that the operating requirements achieve the applicable standards of 266.104 through 266.107.				
• The BIF will be subject to thorough visual inspections when it contains hazardous waste (at least daily) for signs of leaks, spills, fugitive emissions, and tampering.				
• Automatic waste feed cutoff system will be tested at least once every 7 days when hazardous waste is burned unless the applicant demonstrates that weekly inspections unduly upset operations. At a minimum, testing must be conducted once every 30 days. A description of automatic feed cutoff system testing procedures should be included.				
• The statement must specify that operating records will be maintained until closure of the facility.	270.66(b)(1) (i) 266.102(e)(10)	335-14-8-.06(5) (b)1.(i) 335-14-7-.08(3) (e)10.		
D-9c Trial Burn Plan Requirements for all BIFs For the duration of the trial burn, the operating conditions must be sufficient to demonstrate compliance with the performance standards of 266.104 through 266.107. The trial burn plan must include the following information:	270.66(b)(2) 266.102(d)(4) (ii) 270.66(c)	335-14-8-.06(5) (b)2. 335-14-7-.08(3) (d)4.(ii) 335-14-8-.06(5) (c)		
• An analysis of each feed stream, including hazardous waste, other fuels, and industrial furnace feed stocks, as fired, which includes: – Heating value. – Levels of antimony, arsenic, barium,	270.66(c)(1)	335-14-8-.06(5) (c)1.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
beryllium, cadmium, chromium, lead, mercury, silver, thallium, total chlorine/chloride, and ash. – Viscosity or description of the feed stream's physical form.				
• An analysis of each hazardous waste, as-fired: – Identification of Appendix VIII constituents that would reasonably be expected in the feed. [Note: The applicant need not analyze for Appendix VIII constituents which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified, and the basis for exclusion stated.] – Approximate quantification of the hazardous constituents identified. – If blending is to occur prior to firing: --Detailed analysis of the hazardous waste prior to blending and of the material with which it is blended. --Blending ratios. --Description of blending procedures.	270.66(c)(2)	335-14-8-.06(5) (c)2.		
• Detailed engineering description of the boiler and industrial furnace, including: – Manufacturer's name and model number. – Type of boiler or industrial furnace. – Maximum design capacity in appropriate units..	270.66(c)(3)	335-14-8-.06(5) (c)3.		
– Description of the feed system for the hazardous waste and other fuels, and industrial furnace feed stocks – Capacity of hazardous waste feed system. – Description of automatic waste feed cutoff system(s).				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
– Description of any air pollution control system. – Description of stack gas monitoring and pollution control monitoring systems.				
• A detailed description of sampling and monitoring procedures including: – Sampling and monitoring equipment. – Sampling and monitoring frequency. – Sampling and analytical procedures. – Sampling and monitoring locations. – Quality assurance/quality control program.	270.66(c)(4)	335-14-8-.06(5) (c)4.		
• Test schedule for each hazardous waste: – Dates when trial burn is planned. – The duration of each trial burn. – The quantity of waste to be burned during each trial burn. – Other relevant factors.	270.66(c)(5)	335-14-8-.06(5) (c)5.		
• Test protocols for each hazardous waste including the following for each waste to be burned: – Ranges of hazardous waste feed rate. – Feed rates of other fuels and industrial furnace feedstocks.	270.66(c)(6)	335-14-8-.06(5) (c)6.		
• Other parameters that may affect the ability of the BIF to meet: – Organic emission standards. – Metals emissions standards. – PM emissions standards. – HCl/Cl2 emissions standards.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• A description of planned operating conditions for any APCS equipment that will be used.	270.66(c)(7)	335-14-8-.06(5) (c)7.		
• Procedures for stopping the hazardous waste feed and controlling emissions in the event of equipment malfunctions.	270.66(c)(8) 270.66(c)(9)	335-14-8-.06(5) (c)8. 335-14-8-.06(5) (c)9.		
• When a DRE trial burn is required under 266.104(a), the statement should propose principal organic hazardous constituents (POHCs) for which DRE will be calculated during the trial burn. The basis for selecting the POHCs should be described. The proposed POHCs will be subject to the Director's approval.	270.66(e)	335-14-8-.06(5) (e)		
• Other information as the Director finds necessary.				
D-9d Trial Burn Results The following must be submitted within 90 days of the completion of the trial burn. The submittal must be certified on behalf of the applicant by the signature of a person authorized to sign a permit application or a report under 270.11.				
• A statement that the trial burn has been conducted in accordance with the approved trial burn plan.	270.66(d)(3) 270.66(d)(5)	335-14-8-.06(5) (d)3. 335-14-8-.06(5) (d)5.		
• All data collected during any trial burn must be submitted following completion of the trial burn.	270.66(d)(4) 270.66(d)(5)	335-14-8-.06(5) (d)4. 335-14-8-.06(5) (d)5.		
• A quantitative analysis of the levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, thallium, silver, and chlorine/chloride, in the feed streams (hazardous waste, other fuels, and industrial furnace feedstocks).	270.66(f)(1)	335-14-8-.06(5) (f)1.		
• If a DRE trial burn was required under 266.104(a):	270.66(f)(2)	335-14-8-.06(5) (f)2.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
– A quantitative analysis of the trial POHCs in the hazardous waste feed. – A quantitative analysis of the stack gas for the concentration and mass emissions of the trial POHCs. – A computation of destruction and removal efficiency (DRE) in accordance with the DRE formula specified in 266.104(a).				
• If a trial burn for chlorinated dioxins and furans was required under §266.104(e): – A quantitative analysis of the stack gas for the concentration and mass emission rate of the 2,3,7,8chlorinated tetraocta congeners of chlorinated dibenzopdioxins and furans. – A computation showing conformance with the emission standard.	270.66(f)(3)	335-14-8-.06(5) (f)3.		
• If a trial burn for particulate matter, metals, or HCl/Cl_2 was required under §§266.105, 266.106(c) or (d), or 266.107(b)(2) or (c): – A quantitative analysis of the stack gas for the concentrations and mass emissions of particulate matter, metals, or hydrogen chloride (HCl) and chlorine (Cl2). – Computations showing conformance with the applicable emissions performance standards.	270.66(f)(4)	335-14-8-.06(5) (f)4.		
• If a trial burn for DRE, metals, or HCl/Cl_2 was required under §§266.104(a), 266.106(c) or (d), or 266.107(b)(2) or (c), a quantitative analysis of the scrubber water (if any), ash residues, other residues, and products for the purpose of estimating the fate of the trial POHCs, metals, and chlorine/chloride.	270.66(f)(5)			
• An identification of sources of fugitive emissions and their means of control.	270.66(f)(6)	335-14-8-.06(5) (f)6.		
• Records of continuous measurement of carbon monoxide (CO), oxygen, and where required, hydrocarbons (HC) in the stack gas.	270.66(f)(7)	335-14-8-.06(5) (f)7.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Such other information as necessary to ensure that the trial burn will determine compliance with the performance standards in 266.104 through 266.107.	270.66(f)(8)	335-14-8-.06(5) (f)8.		
D-9e Post-Trial Burn Requirements for New BIFs Post-trial burn requirements for new BIFs are the same as the pretrial burn requirements for new BIFs listed in checklist Section D-9b, with the following exceptions:	270.66(b)(3) (ii) 266.102(d)(4) (iii) 266.102(e)	335-14-8-.06(5) (b)3.(ii) 335-14-7-.08(3) (d)4.(iii) 335-14-7-.08(3) (e)		
1. The total length of time during which a facility may burn hazardous waste is not limited after the trial burn. Therefore, no documentation of total burning hours is required.				
2. For the pretrial burn period, a BIF must submit a statement that suggests the conditions necessary to operate in compliance with the standards of 266.104 through 266.107. For the post-trial burn period, a BIF must submit a statement that, based upon the results of the trial burn, identifies the conditions necessary to operate in compliance with the standards of 266.104 through 266.107.				
3. For the post trial burn period, a BIF must submit a statement specifying that the BIF will stop burning hazardous waste when changes in combustion properties or feed rates of hazardous waste, other fuels, or industrial furnace feedstocks, or changes in BIF design or operating conditions deviate from those specified above for the post-trial burn period.				
D-9f Data in Lieu of a Trial Burn A BIF may seek an exemption from trial burn requirements by submitting the following information provided by previous compliance testing of the same device, or from compliance testing or trial or operational burns of similar BIFs burning similar hazardous wastes under similar conditions:	270.22(a)(6)	335-14-8-.02(13) (a)6.		
• A description and analysis of the hazardous				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
waste to be burned compared with the hazardous waste for which data from compliance testing, operational burns, or trial burn(s) are provided to support the contention that a trial burn is not needed.				
• Design and operating conditions of the boiler or industrial furnace to be used compared with that for which data is available and being submitted.				
• A detailed engineering description of the boiler or industrial furnace to be used compared with that for which data is available and being submitted. The following must be described for both BIF units:	270.22(a)(6) 270.66(c)(3)			
– Manufacturer's name and model number of the BIF; – Type of boiler or industrial furnace; – Maximum design capacity; – Description of the feed system for the hazardous waste, other fuels, and industrial furnace feedstocks; – Capacity of hazardous waste feed system; – Description of automatic hazardous waste feed cutoff system(s);				
– Description of APCS; and – Description of stack gas monitoring and air pollution control monitoring systems.				
• Such other information necessary to support the contention that a trial burn is not needed.				
• All data and results from the previous testing. The data and results submitted must include all of the information listed under Trial Burn Results in checklist Section D-9d.				
D-9g Alternative HC Limit for Industrial Furnaces with Organic Matter in Raw Materials	270.22(b) 266.104(f)	335-14-8-.02(13) (b) 335-14-7-.08(5) (f)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
Industrial furnaces requesting the alternative HC limit must submit the following information:				
• Documentation that the furnace is designed and operated to minimize HC emissions from fuels and raw materials.				
• Statement of proposed baseline HC and CO levels. • Basis for the proposed baseline flue gas HC and CO concentrations, including data on HC and CO levels during tests when the facility produced normal products under normal operating conditions from normal raw materials while burning normal fuels and when not burning hazardous waste.				
• Test burn protocol to confirm baseline HC and CO levels, including information on type and flow rate of all feed streams, point of introduction of feed streams, total organic carbon content (or other appropriate measure of organic content) of all nonfuel feed streams and operating conditions that affect combustion of fuel(s) and hydrocarbon emissions from nonfuel sources.				
• Trial burn plan to: – Demonstrate that flue gas HC and CO concentrations when burning hazardous waste do not exceed baseline levels. – Identify types and concentrations of organic compounds listed in Appendix VIII, Part 261, that are emitted when burning hazardous waste.				
• Implementation plan to monitor over time changes in operation that could reduce the baseline HC levels.				
• Procedures to periodically confirm baseline levels.				
• Such other information as necessary to ensure				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
that the requirements of 266.104(f) are met.				
D-9h Alternative Metals Implementation Approach For conformance with an alternative metals implementation approach, the information must:	270.22(c) 266.106(f)	335-14-8-.02(13) (c) 335-14-7-.08(7) (f)		
• Describe the approach which will be used to comply.				
• Specify how the approach ensures compliance with the metals emissions standards of 266.106(c) or (d).				
• Specify how the approach can be effectively implemented and monitored.				
• Provide such other information as necessary to ensure that the standards of 266.106(c) or (d) are met.				
D-9i Monitoring Requirements The following must be monitored on a continuous basis per 266.102(e)(6) while burning hazardous waste. Feed rates for metals, total chlorine and chloride, and ash are continuously monitored by knowing the concentration of the constituent (through periodic waste analyses) in each feed stream and continuously monitoring the flow rate of each feed stream. Data must be maintained in the operating record until closure of the facility.	266.102(e)(6) 266.102(e)(8)	335-14-7-.08(3) (e)6. 335-14-7-.08(3) (e)8.		
• For conformance with the organic emission standards in 266.104: – Feed rate of hazardous waste and other fuels. – Device production rate. – Combustion gas temperature. – Appropriate indicator of combustion gas velocity. – Carbon monoxide and oxygen. – Total hydrocarbons (if complying with				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
266.104(c), (d), or (f)).				
• or, if the waiver of DRE trial burn for boilers applies: – Carbon monoxide and oxygen.				
• or, if the low risk waste exemption applies: – Carbon monoxide and oxygen.				
• For conformance with the particulate emission standard in 266.105, unless the particulate standard is waived under 266.109(b): – Total ash feed rate from hazardous waste, other fuels, and industrial furnace feed stocks [except for cement kilns and lightweight aggregate kilns]. – Device production rate.				
• For conformance with the metal emission standards in 266.106:				
Tier I or adjusted Tier I:				
– Total feed rate of each metal in hazardous waste, other fuels, and industrial furnace feed stocks.				
– Total feed rate of hazardous waste.				
Tier II or Tier III:				
– Feed rate of total hazardous waste.				
– Feed rate of pumpable hazardous waste.				
• Feed rate of each metal in the following feed streams: – Total feed streams. – Total hazardous waste feed. – Total pumpable hazardous waste feed.				
• Total feed rate of chlorine/chloride in total				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
feed streams.				
• Combustion gas temperature.				
• Flue gas temperature at the inlet to the air pollution control system.				
• Device production rate.				
Alternative Metals Approach (including the Kiln Dust Monitoring Approach in 266 Appendix IX):				
(same as Tier II requirements except for feed rate of metals in total feed streams)				
• For conformance with HCl/Cl_2 emission standards in 266.107:				
– Tier I or adjusted Tier I:				
-- Feed rate of total chlorine/chloride in hazardous waste, other fuels, and industrial furnace feed stocks.				
-- Feed rate of total hazardous waste.				
– Tier II or Tier III:				
-- Feed rate of total hazardous waste.				
-- Total feed rate of chlorine/chloride in total feed streams.				
-- Production rate when producing normal product.				
• For other operating requirements as may be necessary to ensure that the performance standards of 266.104 through 266.107 are met:				
– Wet scrubbers/wet ionizing scrubbers. -- Liquid to flue gas ratio. ~~-- Scrubber blowdown or suspended solids content of scrubber water.~~ -- pH of scrubber water.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
– Venturi scrubbers. -- Minimum differential gas pressure. -- Scrubber blowdown or suspended solids content of scrubber water. Also important for venturis				
– Dry scrubbers. -- Caustic feed rate. -- Flue gas flow rate.				
– Wet ionizing scrubbers/electrostatic precipitators. -- Electrical power (kVA). -- Flue gas flow rate.				
– Baghouses. -- Pressure drop.				
D-9j Automatic Waste Feed Cutoff System All facilities must submit a description of the automatic waste feed cutoff system, including any pre-alarm systems that may be used. The description must include:	270.22(d) 266.102(e)(7) (ii)	335-14-8-.02(13) (d) 335-14-7-.08(3) (e)7.(ii)		
• A statement that hazardous waste feed will be automatically cutoff when operating conditions deviate from those established under 266.102.				
• A list of all parameters tied into the automatic waste feed cutoff system. At a minimum, the system must be tied to all parameters listed under monitoring requirements in checklist Section D-9i.				
• A description of procedures and controls used to maintain the minimum combustion chamber temperature while hazardous waste residues remain in the combustion chamber.				
• A statement that exhaust gases will be ducted to the APCS while hazardous waste or its residues				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
remain in the combustion chamber.				
• A statement that operating parameters will be monitored during the cutoff and hazardous waste feed may not be restarted until the parameters are within allowable limits. For parameters that may be measured on an instantaneous basis, the statement should propose a period of time after waste feed cutoff during which a parameter must not exceed the permit limit before hazardous waste feed may be restarted. The proposed period of time will be subject to the Director's approval.				
D-9kDirect Transfer Standards BIFs that directly feed hazardous waste from a transport vehicle to a BIF without the use of a storage unit must submit the following: • A description of direct transfer procedures that will be used. • A statement and description of procedures to ensure that no direct transfer of a pumpable hazardous waste shall be conducted from an open-top container to a boiler or industrial furnace.	266.111 270.22(e) Additional information on containers and tank systems is provided in Subparts I and J of Parts 264 and 265	335-14-7-.08(12) 335-14-8-.02(13) (e)		
• A statement and description of procedures to ensure that direct transfer equipment used for pumpable hazardous waste shall always be closed, except when necessary to add or remove the waste, and shall not be opened, handled, or stored in a manner that may cause any rupture or leak.				
• A description of direct transfer operations, including procedures and controls implemented so that transfer operations do not: – Generate extreme heat or pressure, fire, explosion, or violent reaction. – Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
– Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion. – Damage the structural integrity of the container or direct transfer equipment containing the waste. – Adversely affect the capability of the BIF to meet the standards provided in 266.104 through 266.107. – Threaten human health and the environment.				
• A statement and description of procedures to ensure that hazardous waste shall not be placed in direct transfer equipment if it could cause the equipment or its secondary containment system to rupture, leak, corrode, or otherwise fail.				
• A description of controls and practices which will be used to prevent spills and overflows from the direct transfer equipment or its secondary containment systems including at a minimum: – Spill prevention controls (e.g., check valves, dry discount couplings). – Automatic waste feed cutoff if a leak or spill occurs from the equipment.				
D-9k(1)Direct Transfer Standards - Containment System In areas where direct transfer vehicles are located, a description of the containment system, demonstrating that the containment system is designed and operated as follows (containment system requirements also apply to areas that store containers with F020, F021, F022, F023, F026, or F027 even though the containers may not contain free liquids):	264.175	335-14-5-.09(6)		
• A base underlies the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
detected and removed.				
• The base is sloped or the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.				
• The containment system has sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination.				
• Run-on into the containment system is prevented unless the collection system has sufficient excess capacity to contain any run-on which might enter the system.				
• Spilled or leaked waste and accumulated precipitation is removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.				
• Except for areas with containers storing F020, F021, F022, F023, F026, and F027, storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined above provided that: – The storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation. – The containers are elevated or are otherwise protected from contact with accumulated liquid.				
D-9k(2)Direct Transfer Standards - Condition of Containers (defined in 266.111) Provide a statement and description of procedures to ensure that if a container holding hazardous waste is not in good condition, or if it begins to leak, the	265.171	335-14-6-.09(2)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
owner or operator will transfer the hazardous waste from this container to a container that is in good condition, or manage the waste in some other way that complies with the requirements of this part.				
D-9k(3)Direct Transfer Standards - Compatibility of Waste with Container Provide a statement that the owner or operator will use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.	265.172	335-14-6-.09(3)		
D-9k(4)Direct Transfer Standards - Management of Containers Provide a statement that: • A container holding hazardous waste will always be closed during storage, except when it is necessary to add or remove waste.	265.173	335-14-6-.09(4)		
• A container holding hazardous waste will not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.				
D-9k(5)Direct Transfer Standards - Special Requirements for Ignitable or Reactive Waste Provide documentation of the location of all containers holding ignitable/ reactive waste. Containers holding ignitable/reactive waste must be located at least 50 feet from the facility property line or comply with requirements for the maintenance of distances between waste management areas and any public ways, streets, alleys, or adjacent property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code," (1977 or 1981).	265.176	335-14-6-.09(7)		
D-9k(6)Direct Transfer Standards - Special Requirements for Incompatible Wastes Provide a statement and description of procedures to ensure that:	265.177	335-14-6-.09(8)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Incompatible wastes, or incompatible wastes and materials will not be placed in the same container.				
• Hazardous waste will not be placed in an unwashed container that previously held an incompatible waste or material.				
• A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments will be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.				
D-9k(7)Direct Transfer Standards - Closure Describe how all hazardous waste and hazardous waste residues will be removed from the containment system at closure. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.	264.178	335-14-5-.09(9)		
D-9k(8)Direct Transfer Standards - Secondary Containment Requirements Owners/operators must submit documentation demonstrating conformance with secondary containment requirements of 265.193(b), (c), and (f)-(h):	266.111(e)(1)	335-14-7-.08(12) (e)1.		
• For new direct transfer equipment, prior to their being put into service; and				
• For existing direct transfer equipment, by August 21, 1993.				
Prior to meeting secondary containment requirements, existing direct transfer without such containment must be assessed to determine its fitness for use. The owner shall keep on file a written assessment reviewed and certified by a registered professional engineer that attests to the equipments integrity by August 21, 1992. At a	266.111(e)(2)	335-14-7-.08(12) (e)2.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
minimum, this assessment should consider: • Design standards; • Waste characteristics;				
• Existing corrosion protection measures; • Documented age; • Results of leak test or other integrity determination.				
If leaking or unfit, the requirements of 265.196(a) and (b) must be followed.				
Inspections must be made at least once each hour when hazardous waste is being transferred and records made in accordance with 266.111(e)(3).	266.111(e)(3)	335-14-7-.08(12) (e)3.		
Provide documentation that design and installation of new ancillary equipment meets 265.192.	266.111(e)(4)	335-14-7-.08(12) (e)4.		
Provide documentation that responses to leaks or spills comply with 265.196.	266.111(e)(5)	335-14-7-.08(12) (e)5.		
D-9l Bevill Residues Owners/operators claiming residues are excluded from regulation must submit the following applicable information to demonstrate conformance with 266.112:	266.112 (8/27/91) Part 266, Appendices VII and IX 270.22(f)	335-14-7-.08(13) 335-14-7, Appendices VII and IX 335-14-8-.02(13) (f)		
• Boilers: Boilers must burn at least 50% coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal.	266.112(a)	335-14-7-.08(13) (a)		
• Ore or Mineral Furnaces: Industrial furnaces subject to §261.4(b)(7) must process at least 50% by weight normal, nonhazardous raw materials.				
• Cement Kilns: Cement kilns must process at least 50% by weight normal cement-production raw materials.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Either of the following two criteria must be demonstrated to show that the hazardous waste does not significantly affect the residue: – Comparison of Waste-Derived Residue with Normal Residue -- The waste-derived residue does not contain Appendix VIII, Part 261 constituents (toxic constituents) that could reasonably be attributable to the hazardous waste at concentrations significantly higher than in residue generated without burning or processing of hazardous waste. Toxic constituents include Appendix VIII constituents in the waste and those Appendix VIII constituents that may be generated as products of incomplete combustion.	266.112(b)	335-14-7-.08(13) (b)		
-- Concentrations of toxic constituents of concern in normal residue shall be determined based on analyses of a minimum of 10 samples representing a minimum of 10 days of operation. Composite samples may be used to develop a sample for analysis provided that the compositing period does not exceed 24 hours. The upper tolerance limit (at 95% confidence with a 95% proportion of the sample distribution) of the concentration in the normal residue shall be considered the statistically-derived concentration in the normal residue. The baseline must be revised if changes in the raw material or fuel occur. The statistical procedures in "Statistical Methodology for Bevill Residue Determinations" in Appendix IX shall be used to determine upper tolerance limit.				
-- Waste-derived residue shall be sampled and analyzed as often as necessary to determine whether the residue generated during each 24-hour period has concentrations of toxic constituents that are higher than the concentrations established for the normal residues. If so, the residue shall not be excluded from the definition of a hazardous				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
waste. Concentrations of toxic constituents of concern in the waste-derived residue shall be determined based on analysis of one or more samples obtained over a 24-hour period.				
– Comparison of Waste-Derived Residue Concentrations with Health-Based Limits -- The concentration of each nonmetal toxic constituent of concern in the waste-derived residue does not exceed the health based levels specified in Appendix VII of Part 266. If a health-based limit for a constituent of concern is not listed in Appendix VII of this part, then a limit of 0.002 micrograms per kilogram or the level of detection, whichever is higher, shall be used.				
-- The concentration of each metal in an extract obtained using the Toxicity Characteristic Leaching Procedure of 261.24 does not exceed the levels specified in 266 Appendix VII.				
-- Waste-derived residue shall be sampled and analyzed as often as necessary to determine whether the residue generated during each 24-hour period has concentrations of toxic constituents that are higher than the health-based levels. Concentrations of toxic constituents of concern in the waste-derived residue shall be determined based on analysis of one or more samples obtained over a 24-hour period.				
• Documentation: Records sufficient to document the following shall be retained until closure of the BIF: – Levels of Appendix VIII constituents that are present in the waste-derived residues.	266.112(c)	335-14-7-.08(13) (c)		
– If the waste-derived residue is compared with normal residue: --Levels of Appendix VIII constituents that are present in normal residues.				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
--Data and information obtained to determine if changes in raw materials or fuels would reduce the concentrations of toxic constituents of concern in the normal residue.				

D10 **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

			Containment Buildings - Module D10	
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
PART D10 - CONTAINMENT BUILDINGS	Subpart DD	335-14-5-.30		
D10-1 Design/Operating Standards	265.1101	335-14-5-.30(2)		
D10-1a All Containment Buildings must have:				
• a floor, walls, and roof sufficient to prevent exposure to elements	265.1101(a)(1)	335-14-5-.30(2) (a)1.		
• the unit and materials used to construct it must be of sufficient strength to support the structure, waste, and any equipment or personnel operating within the containment building	265.1101(a)(2)	335-14-5-.30(2) (a)2.		
• Incompatible wastes or treatment reagents must not be placed in the unit or secondary containment system it they could cause leaks, corrosion, or any other failure of the unit	265.1101(a)(3)	335-14-5-.30(2) (a)3.		

D10-a (Cont.) • The unit must have a primary barrier designed to withstand movement of equipment, waste and personnel and be appropriate for the physical and chemical characteristics of the waste to be managed	265.1101(a)(4)	335-14-5-.30(2) (a)4.		
D10-1b Requirements for Containment Buildings used to manage wastes containing free liquids must have:	265.1101(b)	335-14-5-.30(2) (b)		
• A primary barrier designed to prevent migration of contaminant liquids	265.1101(b)(1)	335-14-5-.30(2) (b)1.		
• Liquid collection and removal system to minimize the accumulation of liquids on the primary barrier designed and operated as follows:	265.1101(b)(2)	335-14-5-.30(2) (b)2.		
- Primary barrier must be sloped to drain liquids to the collection system; and	265.1101(b)(a) (i)	335-14-52-.30(2) (b)2.(i)		
- Liquids and waste must be removed in sufficient time to minimize the hydraulic head on the system	265.1101(b)(2) (ii)	335-14-5-.30(2) (b)2.(ii)		
• Secondary containment system and secondary barrier designed to contain liquids, and a leak detection system designed and operated as follows:	265.1101(b)(3)	335-14-5-.30(2) (b)3.		

- Leak Detection System must:				
1. be constructed with a bottom slope of at least 1%; and	265.1101(b)(3) (i)(A)	335-14-5-.30(2) (b)3.(i)(I)		
2. be constructed of a granular drainage material with a hydraulic conductivity at least $1x10^{-2}$ cm/sec and at a thickness of at least 12 inches, or constructed of synthetic or geonet drainage materials with a transmissivity of at least $3x10^{-5}$ m^2/sec	265.1101(b)(3) (i)(B)	335-14-5-.30(2) (b)3.(i)(II)		
- if treatment is to be conducted within the unit, the treatment area must be designed to prevent the release of liquids, wet materials, or liquid aerosols to other parts of the building	265.1101(b)3. (ii)	335-14-5-.30(2) (b)3.(ii)		
- Secondary containment System must be constructed of materials chemically resistant to the waste and of sufficient strength to support the weight of overlaying materials	265.1101(b)(3) (iii)	335-14-5-.30(2) (b)3.(iii)		
D10-1c Addition Requirements • Must provide for:	265.1101(c)	335-14-5-.30(2) (c)		

- The maintenance of the primary barrier free of gaps, cracks, leaks, or corrosion	265.1101(c)(1)(i)	335-14-5-.30(2)(c)1.(i)		
- The maintenance of the level of waste at or below the height of the containment walls	265.1101(c)(1)(ii)	335-14-5-.30(2)(c)2.(ii)		
- Measures to prevent tracking or hazardous waste outside the unit by personnel or equipment - A designated area for decontamination equipment	265.1101(c)(1)(iii)	335-14-5-.30(2)(c)1.(iii)		
- Measures to control fugitive dust emissions at any openings to the unit in accordance with 40 CFR Part 60, Appendix A - All particulate collection devices to be operated in accordance with 40 CFR Part 60 Subpart 292	265.1101(c)(1)(iv)	335-14-5-.30(2)(c)1.(iv)		
• Must provide for certification by a professional engineer that the design meets the requirements of 335-14-5-.30(2)(a)-(c)	265.1101(c)(2)	335-14-5-.30(2)(c)2.		
• Must provide for the detection and repair of any condition which could cause a release of hazardous waste in accordance with the following:	265.1101(c)(3)	335-14-5-.30(2)(c)3.		

- Upon detection of a release, the owner/operator must record the discovery in facility operating record;	265.1101(c)(3)(i)(A)	335-14-5-.30(2)(c)3.(i)(I)		
- Immediately remove the affected portion of the containment building from service;	265.1101(c)(3)(i)(B)	335-14-5-.30(2)(c)3.(i)(II)		
- Determine the necessary steps to repair the containment building, remove leakage, and establish a schedule for cleanup & repairs; and	265.1101(c)(3)(i)(C)	335-14-5-.30(2)(c)3.(i)(III)		
- Notify the director within 7 days after discovery of the condition and the corrective measures to be taken.	265.1101(c)(3)(i)(D)	335-14-5-.30(2)(c)3.(i)(IV)		
• Provide a certification by a qualified, registered professional engineer that repairs were completed in accordance with the written plan.	265.1101(c)(3)(i)(D)	335-14-5-.30(2)(c)3.(iii)		
• Provide for the inspection and recording of data for facility monitoring equipment, the containment building, and the area immediately surrounding the containment building, at least every 7 days, to detect signs of release of hazardous waste.	265.1101(c)(4)	335-14-5-30.(2)(c)4.		

D10-1d Additional Requirements for Containment Buildings that contain area with and without secondary containment.	265.1102(d)	335-14-5-.30(2)(d)		
• Provide design and operating specifications to comply with ADEM Administrative Code 335-14-5-.30(2)(a)-(c) [265.1101(a)-(c)]	265.1101(d)(1)	335-14-5-.30(2)(d)1.		
• Provide measures to prevent release of liquids of wet materials into areas without secondary containment	265.1101(d)(2)	335-14-5-.30(2)(d)2.		
• A description of the operating procedures used to maintain the integrity of the areas without secondary containment to be maintained in the facility operating log	265.1101(d)(3)	335-14-5-.30(2)(d)3.		
Part D10-1e Waiver Demonstration If the owner/operator is requesting a waiver of the secondary containment requirement, he must demonstrate that the only free liquids in the unit are limited amounts of dust suppression fluids required to meet occupational health and safety standards, and that all waste and liquids can be managed without secondary containment	265.1101(e)	335-14-5-.30(2)(e)		

Part D10-2 Closure and Post-Closure Care	265.1102	335-14-5-.30(3)		
Part D10-2a Closure Plan Requirements A description of the procedures to remove and/or decontaminate all waste residues, contaminated containment system components (liner, etc.) contaminated subsoils, and structures and equipment contaminated with waste and leachate, and to manage them as hazardous unless ADEM Administrative Code Rule 335-14-2-.01(3)(d) applies.	265.1102(a)	335-14-5-.30(3) (a)		
A description of all the closure procedures necessary to meet the requirements of AAC Rule 335-14-5-.07 and .08.	265.1102(a)	335-14-5-.30(3) (a)		
Part D10-2b Post Closure Plan Requirements A description of post-closure care meeting the requirements of 335-14-5-.14(11) A description of the post-closure procedure and necessary documentation to show compliance with 335-14-5-.07 and .08.	265.1102(b)	335-14-5-.30(3) (b)		

D11 REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number
Address _____ Permit Review Team
_____
_____
Contact Name _____ Date Application Received
Contact Phone Number _____ Date Review Completed

Boiler and Industrial Furnaces Standards - Module D-9

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D11 - Subpart AA This checklist information to be added at a later date.				

D12 REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number
Address _____ Permit Review Team
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_____
Contact Name _____ Date Application Received
Contact Phone Number _____ Date Review Completed

Boiler and Industrial Furnaces Standards - Module D-9

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D12 - Subpart BB This checklist information to be added at a later date.				

D13 REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number
Address _____ Permit Review Team
_____
_____
Contact Name _____ Date Application Received
Contact Phone Number _____ Date Review Completed

Boiler and Industrial Furnaces Standards - Module D-9

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
D13 - Subpart CC This checklist information to be added at a later date.				

E REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____
Address _____
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Contact Name _____
Contact Phone Number _____

EPA ID Number _____
Permit Review Team _____
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_____
Date Application Received _____
Date Review Completed _____

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART E - GROUNDWATER MONITORING				
E-1 Interim Status Groundwater Monitoring Data Initial Permits Initial permit applications must include a summary of the data obtained in accordance with 335-14-6-.06(1) - (5) during Interim Status or during the groundwater quality assessment. Permit Renewals Applicants for a permit renewal should also provide a summary of the groundwater data collected in accordance with the previous permit. For renewal applications, the applicant is encouraged to include summary trend information for each applicable class of constituents (e.g., metals, VOCs, etc.) for each well including both interim status data and data collected during permit periods. This data should be presented in graphical form in the body of the application. In addition, one paper hardcopy and (if possible) one electronic spreadsheet copy of all individual constituent data for all wells monitored during interim status and/or permit periods should be provided. The electronic spreadsheet should be provided in a format acceptable to the Department (e.g., EXCEL® spreadsheet).	270.14(c)(1) 265.90-265.94	335-14-8-.02(5)(c)1. 335-14-6-.06(1) - (5)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
The individual constituent data may be submitted as an appendix to the application or as a separate document referenced in the application.				
E-1a Description of Wells • Number of wells • Locations • Depths and screened intervals • Casing description • Other well construction details • Identifications of upgradient wells and downgradient wells	265.91	335-14-6-.06(2)		
E-1b Description of Sampling/Analysis Procedures • Sample collection • Sample preservation and shipment • Analytical procedures • Chain-of-custody control	265.92	335-14-6-.06(3)		
E-1c Monitoring Data	265.92	335-14-6-.06(3)		
All interim status monitoring results must be provided, including the following:				
• Copies of each quarterly (from first year) analytical results for each well	265.92(c)(1)	335-14-6-.06(3)(c)1. & 2.		
• Copies of subsequent (annual and/or semi-annual) analytical results for each well	265.92(d)	335-14-6-.06(3)(d)1. & 2.		
• Results of groundwater surface evaluation measurements for each sampling event	265.92(e)	335-14-6-.06(3)(e)		
• Initial background arithmetic mean and variance for each indicator parameter based	265.92(c)	335-14-6-.06(3)(c)2.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
on replicate measurements from upgradient wells during first year				
E-1d Statistical Procedures • Description of the statistical procedures employed to make the required statistical comparisons • Results of statistical comparisons between upgradient and downgradient well sampling results and first year background values for each indicator parameter	265.93	335-14-6-.06(4)(b) 335-14-6-.06(4)(c) & (d)		
E-1e Groundwater Assessment Plan If required, based on statistical comparison results, the specific plan for a groundwater quality assessment program, along with the results obtained from implementation of the plan. Include results of the following determinations, considering (at a minimum) the hazardous constituents listed in Appendix VIII to ADEM Administrative Code 335-14-2. • Whether hazardous waste or hazardous constituents have entered the groundwater • The rate and extent of migration of hazardous waste or hazardous waste constituents in the groundwater • Concentrations of hazardous waters or hazardous waste constituents in the groundwater	265.93(d)(2)	335-14-6-.06(4)(d)2., 3., & 4. 335-14-6-.06(4)(d)4., 5., 6., & 7.		
E-2 General Hydrogeologic Information Identification of uppermost aquifer and aquifers hydraulically interconnected beneath facility, including: • Groundwater flow direction and rate • Basis for identification	270.14(c)(2)	335-14-8-.02(5)(c)2.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
E-3 Topographic Map Requirements Unless exempt from groundwater monitoring requirements, surface impoundments, waste piles, land treatment, and landfill facilities must include the following information on the topographic map: • Groundwater flow direction and rate (isometric graph) • Point of compliance • Groundwater monitoring wells • The extent of any plume (horizontal and vertical) • Hazardous waste management area • Property boundary	270.14(c)(2), (3) & (4)(i)	335-14-8-.02(5)(c)2., 3., & 4.(i)		
The following required information may be incorporated into the topographic map if possible, or at least should be discussed in the text: • Groundwater flow rate • Boundaries of uppermost aquifer • Underlying interconnection between uppermost aquifer and lower aquifer • Hydraulic downgradient limit of waste management units/area • Waste management area • Uppermost aquifer (Although many of these items can be shown on a single map, it is allowable to use additional maps to display some of the information. Presentation of all of this information on a single map may sacrifice clarity.): where multiple maps are submitted all maps should				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
give an outline of units in a similar frame of reference				
E-4 Contaminant Plume Description Description of any plume of contamination that has already entered groundwater from a regulated unit: • Delineation of extent of the plume on the topographic map • Identification and concentrations of Appendix IX constituents throughout the plume or maximum concentrations of these constituents in the plume • Delineation of the vertical extent of the plume in a cross-section	270.14(c)(4) 261, Appendix VIII 270.14(c)(2) 270.14(c)(7)(ii)	335-14-8-.02(5)(c)4. 335-14-5, Appendix IX 335-14-8-.02(5)(c)2. 335-14-8-.02(5)(c)7.(ii)		
E-5 General Monitoring Program Requirements Waiver request - applicant must certify that there will be no migration of liquid to uppermost aquifer during active life and post-closure. If waiver is not requested, applicant must provide detailed plans and an engineering report describing proposed groundwater monitoring program to meet general groundwater monitoring requirements. The following information is required:	270.14(c)(5) 264.97 264.90(b)(4)	335-14-8-.02(5)(c)5. 335-14-5-.06(8) 335-14-5-.06(1)(b)4.		
E-5a Description of Wells • Number of wells • Locations • Depths • Casing description • Assurance of unaffected background water measurement • Assurance of compliance point	264.97(a),(b) 264.97(c)	335-14-5-.06(8)(a) & (b) 335-14-5-.06(8)(c)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
groundwater measurement				
E-5b Description of Sampling/Analysis Procedures • Sample of collection methods • Sample preservation/shipment • Analytical procedures • Chain-of-custody control • Documentation of proper sampling and analysis procedures • Procedure for determination of groundwater elevation with each sample	264.97(d) 264.97(e) 264.97(f)	335-14-5-.06(8)(d) 335-14-5-.06(8)(e) 335-14-5-.06(8)(f)		
E-5c Procedures for Establishing Background Quality • Representative of background quality not affected by the unit • Each hazardous constituent, or monitoring parameters and other constituents • May include wells not hydraulically upgradient of the waste management area where: – upgradient cannot be determined due to hydrogeologic conditions – other wells provide background groundwater quality that is representative or more representative of background than upgradient wells	264.97(a)(1) 264.97(g)	335-14-5-.06(8)(a)1. 335-14-5-.06(8)(g)		
E-5d Statistical Procedures Use one of following statistical methods (E-5d(1)-(5)) to evaluate groundwater monitoring data for each hazardous constituent, consistent with the following:	264.97(h) 264.97(i)(1), (5) & (6)	335-14-5-.06(8)(h) 335-14-5-.06(8)(i)1., 5., & 6.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Conduct test separately for each hazardous constituent in each well • Appropriate for distribution of chemical parameters or hazardous constituents. More than one method necessary if distributions differ • Account for data below the detection limit • Any practical quantification limit (PQL) shall be lowest concentration level within levels of precision and accuracy for routine lab operations • Procedure to control or correct for seasonal and spatial variability and temporal correlation in data				
E-5d(1) Parametric Analysis of Variance (ANOVA) ANOVA followed by multiple comparisons procedures: • Include estimation and testing of contrasts between each compliance well's mean and the background mean levels for each constituent • If using individual well comparison procedure, Type 1 error level of no less than 0.01 shall be maintained. If using multiple comparison procedure, Type 1 error level no less than 0.05 for each testing period must be used.	264.97(h)(1) 264.97(i)(2)	335-14-5-.06-(8)(h)1. 335-14-5-.06(8)(i)2.		
E-5d(2) Non-parametric ANOVA (Based on Ranks) ANOVA based on Ranks followed by multiple comparisons procedures: • Estimation and testing of each compliance well's median and background median	264.97(h)(2), 264.97(i)(2)	335-14-5-.06(8)(h)2. 335-14-5-.06(8)(i)2.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
levels for each constituent • If using individual well comparison procedure, Type 1 error level of no less than 0.01 shall be maintained. If using multiple comparison procedure, Type 1 error level no less than 0.05 for each testing period must be used.				
E-5d(3) Tolerance or Prediction Interval Procedure • Establish interval for each constituent based on distribution of background data • Compare level of each constituent in each compliance well to the upper tolerance or prediction limit • Prepare levels of confidence and/or percentage of the population that the interval must contain considering number of samples in the background data base, data distribution, and range of concentration values for each constituent of concern.	264.97(h)(3), 264.97(i)(4)	335-14-5-.06(8)(h)3. 335-14-5-.06(8)(i)4.		
E-5d(4) Control Chart Approach • Control limits for each constituent • Specify type of control chart and associated parameter values	264.97(h)(4), 264.97(i)(3)	335-14-5-.06(8)(h)4. 335-14-5-.06(8)(i)3.		
E-5d(5) Alternative Approach An alternative approach can be proposed which complies with all performance standards set in 335-14-5-.06(8)(i).	264.97(h)(5), 264.97(i)	335-14-5-.06(8)(h)5. 335-14-5-.06(8)(i)		
E-6 Description of Detection Monitoring Program for Facilities not Detecting the Presence of Hazardous Constituents, Including:	270.14(c)(6) 264.91(a)(4) 264.98	335-14-8-.02(5)(c)6. 335-14-5-.06(2)(a)4. 335-14-5-.06(9)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
E-6a List of Indicator Parameters, Waste Constituents, Reaction Products to be Monitored for, Including: • Type, quantities, concentrations, expected wastes • Mobility, stability, persistence in unsaturated zone • Detectability in groundwater • Concentrations or values and coefficients of variation of proposed parameters in the groundwater background	270.14(c)(6)(i) 264.93 264.98(a)	335-14-8-.02(5)(c)6.(i) 335-14-5-.06(4) 335-14-5-.06(9)(a)		
E-6b Description of Groundwater Monitoring System • Hydraulic downgradient limit per unit/area • Waste management area • Uppermost aquifer	270.14(c)(6)(ii) 264.98(b) 264.95, 264.97(a)(2), (b), (c)	335-14-8-.02(5)(c)6.(ii) 335-14-5-.06(9)(b) 335-14-5-.06(6) 335-14-5-.06(8)(a)2.,(b) & (c)		
E-6c Background Groundwater Concentration Values for Proposed Parameters • Use of an appropriate groundwater monitoring system, to establish background per E-5d specifying number and type of samples for each hazardous constituent appropriate to form of statistical test employed • Sampling procedure shall be a sequence of at least four samples from each well in the entire system at an interval assuring an independent sample relative to the uppermost aquifer's effective porosity, hydraulic conductivity, hydraulic gradient and fate and transport characteristics of the potential contaminants but at least semi-annually; or	270.14(c)(6)(iii) 264.98(c) 264.97(g)(1), (2)	335-14-8-.02(5)(c)6.(iii) 335-14-5-.06(9)(c) 335-14-5-.06(8)(g)1. & 2.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Alternative sampling procedure to be approved				
E-6d Description of Proposed Sampling and Analysis Procedures • Documentation of proper sampling and analysis procedures • Procedures for determining groundwater elevation • Procedures for determining statistically significant increase for any monitored parameter • At least four samples from each compliance and background well semi-annually • Procedure for annual determination of uppermost aquifer flow rate and direction	270.14(c)(6)(iv) 264.97(f) 264.98(f) 264.98(d) 264.98(e)	335-14-8-.02(5)(c)6.(iv) 335-14-5-.06(8)(f) 335-14-5-.06(9)(f) 335-14-5-.06(9)(d) 335-14-5-.06(9)(e) 335-14-5-.06(8)(d) & (e)		
E-6e Procedure to be Implemented if a Statistically Significant Increase in Any Constituent or Parameter is Identified at Any Compliance Point Monitoring Well • Notify ADEM within seven days • Within 90 days, submit to ADEM an application for a permit modification. • Sample all wells for ADEM Administrative Code 335-14-5-Appendix IX constituents • Establish compliance monitoring program • Submit engineering feasibility plan for a corrective action program or request ADEM approval to submit permit schedule for development of plan • May demonstrate that a source other than the regulated unit caused the contamination	270.14(c)(7) 264.98(g)	335-14-8-.02(5)(c)7. 335-14-5-.06(9)(g)		
E-7 Compliance Monitoring Program for	270.14(c)(7)	335-14-8-.02(5)(c)7.		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
Facilities Which Have Detected Presence of Hazardous Constituents	264.99	335-14-5-.06(10)		
E-7a Description of Monitoring Program				
E-7a(1) Description of Wastes Previously Handled at Facility	270.14(c)(7)(i)	335-14-8-.02(5)(c)7.(i)		
E-7a(2) Characterization of Contaminated Groundwater • Hazardous constituents identified • Hazardous constituents concentrations	270.14(c)(7)(ii)	335-14-8-.02(5)(c)7.(ii)		
E-7a(3) List of Hazardous Constituents to be Monitored in Compliance Program May resample within one month and repeat analysis for compounds detected. Constituents identified in both initial and repeat analysis in the decontamination monitoring program will form basis for compliance monitoring program.	270.14(c)(7)(iii) 264.99(a)(1) 264.98(g)(3)	335-14-8-.02(5)(c)7.(iii) 335-14-5-.06(10)(a)1. 335-14-5-.06(9)(g)3.		
E-7a(4) Proposed Concentration Limits for Each Constituent • Justification for establishing alternative limits • Conditions warranting special sampling procedures	270.14(c)(7)(iv) 264.99(a)(2) 264.94	335-14-8-.02(5)(c)7.(iv) 335-14-5-.06(10)(a)2. 335-14-5-.06(5) 335-14-8-.08(1)(d)		
• Importance of statistically significant values • Procedures for establishing background concentration values for constituents that are based on: – use of an appropriate groundwater monitoring system – data that is available prior to permit issuance	264.99(c)(3) 264.97(g), (h)	335-14-5-.06(10)(c)1. & 2. 335-14-5-.06(8)(g) & (h)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
– data that accounts for measurement errors in sampling analysis – data that accounts for seasonal groundwater quality fluctuations – data from a minimum of four samples per well collected at least semi-annually				
E-7a(5) Detailed Plans of an Engineering Report Describing Groundwater Monitoring System	270.14(c)(7)(v) 264.99(b)	335-14-8-.02(5)(c)7.(v) 335-14-5-.06(10)(b)		
• Represent quality of groundwater passing point of compliance	264.97(a)(2)	335-14-5-.06(8)(a)2.		
• Proposed compliance point	264.95	335-14-5-.06(6)		
• Number of wells	264.97(a)(2)	335-14-5-.06(8)(a)		
• Location and depths of wells	264.97(a)(2)	335-14-5-.06(8)(a)		
• Casing and construction of wells	264.97(c)	335-14-5-.06(8)(c)		
E-7a(6) Description of Proposed Sampling and Statistical Analysis Procedures for Groundwater Data	270.14(c)(7)(vi) 264.99(c), (d), (e), (f), & (g)	335-14-8-.02(5)(c)7.(vi) 335-14-5-.06(10)(c), (d), (e), (f), & (g)		
• Compliance period (The Department will specify the compliance period in the permit.)		335-14-5-.06(7)		
• Sample collection methods	264.97(d)	335-44-5-.06(8)(d)		
• Sample preservation/shipment	264.97(d)	335-14-5-.06(8)(d)		
• Analytical procedures	264.97(d)	335-14-5-.06(8)(d)		
• Chain-of-custody control	264.97(d)	335-14-5-.06(8)(d)		
• Documentation of proper sampling and analysis procedures	264.97(e)	335-14-5-.06(8)(e)		
• Procedures for determining groundwater elevation	264.97(f)	335-14-5-.06(8)(f)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Procedures for annual determination of uppermost aquifer flow rate and direction	264.99(e)	335-14-5-.06(10)(e)		
• Annual testing procedures for Appendix IX constituents	264.99(g)	335-14-5-.06(10)(g)		
Procedures for determining a statistically significant increase for any monitored parameters or hazardous constituent:	264.99(d) & (f)	335-14-5-.06(10)(d) & (f)		
• Comparing compliance point using the procedure in ADEM Administrative Code 335-14-5-.06(8)(h) to the concentration limit developed in accordance with 335-14-5-.06(5)				
• At least four samples from each well (compliance and background) must be collected at least semi-annually				
E-7a(7) Procedures to be Implemented if Groundwater Protection Standard is Exceeded at Compliance Point Monitoring Well	264.99(i) 264.99(h)	335-14-5-.06(10)(i) 335-14-5-.06(10)(h)		
• Written notification to ADEM within seven days				
• An application for permit modification to establish a corrective action program, including details of the program to comply with groundwater protection standard and details of groundwater monitoring to demonstrate effectiveness of the corrective action program, or				
• Submit demonstration that concentration limits were exceeded due to source other than regulated unit, or due to statistical error				
E-7b An Engineering Feasibility Plan for Corrective Action Program	270.14(c)(7) 270.14(c)(8)(v)	335-14-8-.02(5)(c)7. 335-14-8-.02(5)(c)8.(v)		
• Engineering feasibility plan for a corrective				

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
action program to meet requirements of 335-14-5-.06(11), or • Request authorization from ADEM to submit schedule for a submittal plan	264.98(g)(5)(ii)	335-14-5-.06(9)(g)5.(ii)		
E-8 Corrective Action Program	270.14(c)(8)(i)	335-14-8-.02(5)(c)8.(i) - (v)		
E-8a Characterization of Contamination • Identification of hazardous constituents detected in groundwater • Concentrations of hazardous constituents		335-14-8-.02(5)(c)8.(i) 335-14-5-.06(11)(a)1.		
E-8b Concentration Limits	270.14(c)(8)(ii) 264.100(a)	335-14-8-.02(5)(c)8.(ii) 335-14-5-.06(11)(a)2.		
E-8b(1) Concentration Limits Established Under ADEM 335-14-5-.06(5)	264.97(a)	335-14-5-.06(11)(a)2.		
E-8b(2) Alternate Concentration Limits • Proposed alternate concentration limits • Justification for proposed alternate limits, including assessment of potential adverse effects on groundwater quality and on the quality of hydraulically connected surface waters, and assessment of the potential for health risks caused by human exposure to waste constituents	264.94(b)	335-14-5-.06(5)(b) 335-14-8-.02(5)(c)8.		
E-8c Corrective Action Plan A corrective action program must prevent hazardous constituents from exceeding their respective concentration limits at the compliance point, and between the compliance point and the downgradient facility property boundary. The corrective action plan must consist of detailed engineering plans and report, and must address the following:	270.14(c)(8)(iii) 264.100	335-14-8-.02(5)(c)8.(iii) 335-14-5-.06(11)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Identification of compliance point • Plans for removing and handling of hazardous wastes (if proposed) • Design and construction plans and specifications from any proposed features to contain groundwater or redirect its flow (e.g., drains, engineered barriers, wells) • A description of the treatment technologies to be employed to remove hazardous constituents from contaminated groundwater • Description of the operation and maintenance plans for the corrective action measures • Description of any additional hydrogeologic data collected for use in designing the corrective action measures • Schedule for implementation of the corrective action measures				
E-8d Groundwater Monitoring Program In conjunction with a corrective action program, a groundwater monitoring program must be implemented to determine compliance with the concentration limits established under 335-14-5-.06(3), and to determine the effectiveness of the corrective action program.	270.14(c)(8) 264.100(d)	335-14-8-.02(5)(c)8.(iv) 335-14-5-.06(11)(d)		
E-8d(1) Description of Monitoring System • Number of wells • Locations • Depths and screened intervals • Casing descriptions • Other well construction details	270.14(c)(8) 270.14(c)(7)(v)	335-14-8-.02(5)(c)8.(iv) 335-14-8-.02(5)(c)7.(v)		

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
• Description of how the groundwater monitoring program will demonstrate the adequacy of the corrective action				
E-8d(2) Description of Sampling and Analysis Procedures Sampling frequency • Sample collection • Sample preservation and shipment • Analytical procedures • Chain-of-custody control • Procedures for determining groundwater elevations • Procedure for annual determination of groundwater flow rate and direction	270.14(c)(8) 270.14(c)(7)(vi)	335-14-8-.02(5)(c)8. 335-14-8-.02(5)(c)7.(vi) 335-14-5-.06(8)		
E-8d(3) Monitoring Data and Statistical Analysis Procedures • Procedure for establishing background concentration values • Statistical procedures for comparing compliance point data to the concentration limits • Statistical procedures for evaluating effectiveness of the corrective action program between the compliance point and the property boundary	270.14(c)(8) 270.14(c)(7)(vi)	335-14-8-.02(5)(c)8. 335-14-8-.02(5)(c)7.(vi) 335-14-5-.06(8)		
E-8d(4) Reporting Requirements • Semi-annual report to Regional Administrator evaluating the effectiveness of the corrective action program	264.100(g)	335-14-5-.06(11)(g)		

F **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

			Hazard Prevention - Module F	
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
PART F - PROCEDURES TO PREVENT HAZARDS				
F-1 Security				
F-1a Security Procedures and Equipment Unless a waiver is granted, the Part B must include a description of the security procedures and equipment required by 264.14:	264.14 270.14(b)(4)	335-14-5-.02(5) 335-14-8-.02(5)(b)4.		
F-1a(1)24-Hour Surveillance Systems A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) that continuously monitors and controls entry onto the active portion of the facility:	264.14(b)(1)	335-14-5-.02(5)(b)1.		
• Procedures and personnel to be used	Guidance			
• Location and description of equipment	Guidance			

F-1a(2)Barrier and Means to Control Entry (In lieu of a 24-hour surveillance system, the applicant may elect to use a barrier and other means to control entry.)	264.14(b)(2)(i)	335-14-5-.02(5)(b)2.(i)		
F-1a(2)(a) Barrier An artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff) that completely surrounds the active portion of the facility:	264.14(b)(2)(i)	335-14-5-.02(5)(b)2.(i)		
• Height	Guidance			
• Material of construction	Guidance			
F-1a(2)(b) Means to Control Entry A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility):	264.14(b)(2)(ii)	335-14-5-.02(5)(b)2.(ii)		
• Procedure and personnel to be used	Guidance			
• Location and description of equipment	Guidance			

F-1a(3)Warning Signs The facility must have a sign with the legend, "Danger - Unauthorized Personnel Keep Out", which must:	264.14(c)	335-14-5-.02(5) (c)		
• Be posted at each entrance to the active portion of the facility				
• Be in sufficient numbers be seen from any approach to the active portion of the facility				
• Legend the be in English and any other language predominating in the area				
• Be legible from a distance of at least 25 feet				
Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion and that entry onto the active portion can be dangerous.				
F-1b Waiver If a waiver of these requirements is requested, the owner or operator must demonstrate the following:	264.14(a)	335-14-5-.02(5) (a)		

F-1b(1)Injury to Intruder Physical contact with the waste, structure, or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock that may enter the active portion of a facility; and	264.14(a)(1)	335-14-5-.02(5) (a)1.		
F-1b(2)Violation Caused by Intruder Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirement of 40 CFR Part 264. Note: To address F-1b(1) and F-1b(2), the applicant should include:	264.14(a)(2)	335-14-5-.02(5) (a)2.		
• Nature and duration of hazardous potential from wastes	Guidance			
• Equipment and structures to minimize potential for an intruder to 1) cause a spill; 2) mix incompatible wastes; 3) ignite ignitable or reactive wastes; 4) damage containment or monitoring systems	Guidance			
• Features that prevent contact with waste	Guidance			

F-2 Inspection Schedule A copy of the general inspection schedule required by 264.15(b) including, where applicable, specific requirements of 264.174, 264.194, 264.226, 264.254, 264.273, 264.303, and 264.347	270.14(b)(5) 264.15	335-14-8-.02(5)(b)5. 335-14-5-.02(6)		
F-2a General Inspection Requirements A description of the facility inspection schedule (schedule must be kept at the facility) for the following equipment:	270.14(b)(5) 264.15(a) & (b)	335-14-8-.02(5)(b)5. 335-14-5-.02(6)(a) & (b)		
• Monitoring equipment	264.15(a) & (b)	335-14-5-.02(6)(a) & (b)		
• Emergency and safety equipment				
• Security devices				
• Operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards				
• Testing as necessary of communications or alarm systems, fire protection equipment, and decontamination equipment.	264.33	335-14-5-.03(4)		

Examples of monitoring equipment that should be inspected at treatment, storage, and disposal facilities are: • Scales • Flow and liquid level monitors • Hazardous gas detectors • pH monitors • Leachate monitors • Pressure sensors • Temperature gauges	Guidance			
Examples of monitoring equipment that should be inspected at facilities with incinerators are: • Waste flow monitors and recorders • Auxiliary fuel flow monitors • Combustion air flow monitors • Temperature monitors • Flame sensors • CO monitors and recorders • Pressure differential indicators • Pressure sensors • pH monitors • Ammeters for measuring blower current draw	Guidance			

Examples of safety and emergency equipment to be inspected at TSD facilities are: • Respirators • Communication systems • Alarm systems • Emergency lighting and power systems • Smoke detectors • Fire protection equipment • First aid equipment and supplies • Decontamination equipment • Protective clothing	Guidance			
Examples of security devices to be inspected at TSD facilities are: • Surveillance system • Barrier surrounding facility • Locking devices	Guidance			
Examples of operating and structural equipment at TSD facilities are: • Spill detection devices • Spill control and collection equipment • Fire and explosion barriers	Guidance			

• Ventilation equipment • Sump pumps • Dikes, bases, and foundations In addition, areas such as waste storage, mixing, loading, and unloading areas, which are subject to spills, must be inspected.				
F-2a(1)Types of Problems The schedule must identify the types of problems to look for during the inspection (e.g., leaks, deterioration, readings out of specified range, missing items or materials, inoperative equipment, etc.)	264.15(b)(3)	335-14-5-.02(6)(b)3.		
F-2a(2)Frequency of Inspection A description of the inspection frequency must be provided for items on the schedule. The frequency of inspection should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.	264.15(b)(4)	335-14-5-.02(6)(b)4.		

All emergency waste feed cut-off valves must be inspected at least prior to operation. All system alarms must also be tested weekly.	264.347(c) (incinerators only)	335-14-5-.15(8)(c)		
F-2b Specific Process Inspection Requirements At a minimum, the inspection schedule must include the terms and frequencies called for in 264.174, 264.194, 264.226, 264.253, 264.254, 264.303, and 264.347, where applicable.	270.14(b)(5) 264.15(b)(4)	335-14-8-.02(5)(b)5. 335-14-5-.02(6)(b)4.		
F-2b(1)Container Inspection A description of the every seven days_inspection of containers and container storage areas for leaks in containers or deterioration of containers and the containment system caused by corrosion or other factors.	264.174	335-14-5-.09(5)		
F-2b(2)Tank System Inspection • A description of the inspection each operating day of overfilling control equipment, monitoring equipment and levels of waste in uncovered tanks.	264.195 [7/14/86]	335-14-5-.10(6)		
• A description of the daily inspection of tank construction materials and the area surrounding the tank including secondary containment system (e.g., dikes)				

• A schedule describing the monitoring of each operating day of monitoring equipment (e.g., pressure and temperature gauges) where present to ensure that the tank is operated according to design specifications				
• A schedule showing the level of waste in uncovered tanks is inspected each operating day				
• A schedule and procedure for assessing the condition of the tank, including detection of leaks, cracks, or wall thinning to less than minimal shell thickness				
• A procedure for emptying a tank to allow entry and inspection when necessary to detect corrosion or erosion of the tank sides and bottom				
• Confirm proper operation of cathodic protection system (if present) within six months after installation and at least annually thereafter				
• Schedule showing all sources of impressed current are inspected and/or tested at least bimonthly.				

F-2b(3)Waste Pile Inspection The application must provide a description of the procedures to: • Inspect liners and covers during construction and immediately after installation for: – uniformity, damage, and imperfections, holes, cracks, thin spots, bulges, root holes, tight seams and joints, permeability, and compaction	270.14(b)(5) 270.18(d) 264.254	335-14-8-.02(5)(b)5. 335-14-8-.02(9)(d) 335-14-5-.12(5)		
• Remove the waste pile and periodically inspect liners for deterioration, cracks, and other imperfections				
• Perform <u>weekly</u> inspections and <u>after storms</u> to detect: – deterioration, malfunctions, or improper operation of run-on and run-off control systems – the presence of liquids in leak detection systems, where installed – proper functioning of wind dispersal control systems, where present – the presence of leachate in and proper functioning of leachate collection and removal systems, where present				

F-2b(4)Surface Impoundment Inspection The application must provide a description of how each surface impoundment, including the liner and cover systems and appurtenances for control of overtopping, will be inspected weekly and after storms to detect evidence of any of the following: • Deterioration, malfunctions, or improper operation of overtopping topping control systems • Sudden drops in the level of the impoundment's contents • The presence of liquids in leak detection systems, where installed • Severe erosion or other signs of deterioration in dikes or other containment devices	270.24(b)(5) 270.17(c) 264.226(b)	335-14-8-.02(15)(b)5. 335-14-8-.02(8)(c). 335-14-5-.11(7)(b)		
For new facilities, a description of how the liners will be inspected during construction and immediately after installation to detect nonuniformity, damages, and imperfections (holes, cracks, thin spots, bulges, root holes, tight seams and joints, permeability, and compaction). See Item D-4b(2) concerning inspection of dikes for structural integrity.	264.226(a)	335-14-5-.11(7)(a)		

F-2b(5)Incinerator Inspection • Incinerator and associated equipment must be inspected visually at least daily for leaks, spills, fugitive emissions and signs of tampering. • Emergency waste feed, cut-off system and associated alarms must be tested weekly unless the applicant demonstrates that weekly frequency is unduly restrictive and that less frequent inspection will be adequate. At minimum, operational testing must be conducted monthly.	264.347	335-14-5-.16(8)		
F-2b(6)Landfill Inspection Landfill owners or operators must provide a description of procedures for:	270.21(d) 264.15(a) 264.303	335-14-8-.02(12)(d) 335-14-5-.02(6)(a) 335-14-5-.14(4)		
• For new facilities, inspection of liners/covers during and immediately after installation				
• Inspections every seven days and after storms for: – operation of run-on/run-off controls – liquids in leak detection system – proper functioning of wind dispersal controls – leachate in and proper operation of leachate collection/removal system				

F-2b(7)Land Treatment Inspection A description of the inspection procedures. Specifically the unit must be inspected <u>weekly</u> and <u>after storms</u> for: • Deterioration, malfunctions, or improper operation of run-on and run-off control systems • Improper functioning of wind dispersal control measures	270.20(c)(5) 264.273(g)	335-14-8-.02(11)(c)5. 335-14-5-.13(4)(g)		
F-2b(8)Miscellaneous Unit Inspections Provide an inspection program which ensures compliance with the standards specified in F-2b(1) through F-2b(7), where applicable.	270.14(b)(5) [11/7/86] 264.602	335-14-8-.02(5)(b)5. 335-14-5-.24(3)		
F-2c Remedial Action A description of procedures for taking remedial actions when inspections reveal problems or when problems are imminent. These may alternately be described in the contingency plan (see 264.194(c), 264.227, 264.171).	264.15(c)	335-14-5-.02(6)(c)		
F-2d Inspection Log A copy or description of the inspection log or summary form including the following:	264.73(b)(5) 264.15(d)	335-14-5-.05(4)(b)5. 335-14-5-.02(5)(d)		

• Dates and times of inspections • Name(s) and inspector(s) • Observations made • Date and nature of repairs or remedial actions taken				
F-3 Waiver of Preparedness and Prevention Requirements A justification of any request for a waiver of preparedness and prevention requirements of Part 264, Subpart C	270.14(b)(6)	335-14-8-.02(5)(b)6.		
F-3a Equipment Requirements Unless it can be demonstrated that none of the hazards posed by waste handled at the facility would require a particular kind of equipment specified below, the facility must have the following equipment: (These requirements are not specifically listed in 270.14-270.29 for inclusion in a Part B).	264.32	335-14-5-.03(3)		
F-3a(1)Internal Communications An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.	264.32(a)	335-14-5-.03(3)(a)		

F-3a(2)External Communications A device such as telephone (immediately available at the scene of operations) or a handheld two-way radio, for summoning emergency assistance from local police departments, or state or local emergency response teams.	264.32(b)	335-14-5-.03(3) (b)		
F-3a(3)Emergency Equipment • Fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals, and portable fire extinguishers) • Spill control equipment • Decontamination equipment	264.32(c)	335-14-5-.03(3) (c)		
F-3a(4)Water for Fire Control One of the following: • Water at adequate volume and pressure to supply water hose streams, or • Foam-producing equipment, or • Automatic sprinklers or water spray systems	264.32(d)	335-14-5-.03(3) (d)		

F-3b Aisle Space Requirements Requests for a waiver of the aisle space requirement must be accompanied by a demonstration that aisle space is not needed to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency.	264.35	335-14-5-.03(6)		
F-4 Preventive Procedures, Structures, and Equipment A description of procedures, structures, or equipment used at the facility for the following must be included:	270.14(b)(8)	335-14-8-.02(5) (b)8.		
F-4a Unloading Operations Prevention of hazardous in unloading operation (e.g., use of ramps or special forklifts).	270.14(b)(8) (i)	335-14-8-.02(5) (b)8.(i)		
F-4b Run-Off Prevention of runoff from hazardous waste handling areas to other areas of the facility or environment, or prevention of flooding (e.g., berms, dikes, trenches).	270.14(b)(8) (ii)	335-14-8-.02(5) (b)8.(ii)		
F-4c Water Supplies Prevention of contamination of water supplies.	270.14(b)(8) (iii)	335-14-8-.02(5) (b)8.(iii)		

F-4d Equipment and Power Failure Mitigation of effects of equipment failure and power outages.	270.14(b)(8) (iv)	335-14-8-.02(5) (b)8.(iv)		
F-4e Personal Protection Equipment Prevention of undue exposure of personnel to hazardous waste (e.g., protective clothing).	270.14(b)(8) (v)	335-14-8-.02(5) (b)8.(v)		
F-5 Prevention of Reaction of Ignitable, Reactive and incompatible Wastes				
F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes A description of the precautions taken by a facility that handles ignitable, reactive, or incompatible waste to demonstrate compliance with 264.17 including documentation demonstrating compliance with 264.17(c). Precautions to prevent actual ignition, including separation from sources of ignition such as:	270.14(b)(9) 264.17(a) & (c)	335-14-8-.02(5) (b)9. 335-14-5-.02(8) (a) & (c)		
• Open flames • Smoking • Cutting and welding • Hot surface				

• Frictional heat • Sparks (static, electrical, or mechanical) • Spontaneous ignition (heat producing chemical reactions) • Radiant heat Demonstrations that when ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specifically designated locations. "No Smoking" signs must be conspicuously placed wherever a hazard exists for ignitable or reactive waste.				
F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste A description of the precautions taken by a facility that treats, stores, or disposes of ignitable or reactive waste, or accidentally mixes incompatible waste or incompatible wastes or other materials, to prevent reactions which:				

– generate extreme heat or pressure, fire or explosions, or violent reactions; – produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; – produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; – damage the structural integrity of the device or facility; – by similar means threaten human health or the environment.				
Documentation to meet requirements of 264.17(a) or (b) may be based on references to published scientific or engineering literature, data from trial tests, waste analyses, or results of treatment of similar wastes by similar treatment processes and under similar operating conditions.	264.17(c)	335-14-5-.02(8) (c)		

F-5c Management of Ignitable or Reactive Wastes in Containers Sketches, drawings, or data demonstrating that containers of ignitable or reactive wastes are located at least 15 meters (50 feet) from the facility's property line.	270.15(c) 264.176	335-14-8-.02(6)(c) 335-14-5-.09(7)		
F-5d Management of Incompatible Wastes in Containers A description of procedures to demonstrate compliance with 264.177(a) and (b) and 264.17(b) and (c):	270.15(d) 264.177	335-14-8-.02(6)(d) 335-14-5-.09(8)		
• The procedures used to ensure that incompatible wastes and materials are not placed in the same container (unless 264.17(b) is complied with) or in an unwashed container that previously held compatible waste	264.177(a) 264.177(b)	335-14-5-.09(8)(a) 335-14-5-.09(8)(b)		
• Dikes, berms, walls, or other devices used to separate containers, holding wastes which are incompatible with wastes or materials stored nearby.	264.177(c)	335-14-5-.09(8)(c)		

F-5e Management of Ignitable or Reactive Wastes in Tanks A description of the procedures for handling compatible, ignitable, or reactive wastes, including the use of buffer zones. 264 requirements include:	270.16(f) 264.198	335-14-8-.02(7)(f) 335-14-5-.10(9)		
• Waste must be created, rendered, or mixed before or immediately after placement in the tank so that it is no longer considered ignitable and complies with 264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; or the tank is used solely for emergencies				
• Facilities that treat or store ignitable or reactive waste in covered tanks must comply with the National Fire Protection Association's buffer zone requirements for tanks				
F-5f Incompatible Wastes in Tanks A statement that incompatible wastes and materials are not stored in the same tank or in an unwashed tank that previously held an incompatible waste or material (unless 264.17(b) is complied with).	270.16(f) 264.199	335-14-8-.02(7)(f) 335-14-5-.10(10)		

F-5g Ignitable or Reactive Wastes in Waste Piles The application must include a description of the procedure for handling ignitable or reactive wastes, including the use of buffer zones. Waste must be treated, rendered, or mixed before or immediately after placement in the wastes pile so that it is no longer considered ignitable and complies with 264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite.	270.18(f) 264.256	335-14-8-.02(9)(f) 335-14-5-.12(7)		
F-5h Incompatible Waste in Waste Piles The applicant must include: • A statement that compatible wastes and materials are not stored in the same waste pile or on the same base that previously held an incompatible waste or material unless 264.17(b) is complied with • A description of the procedures (dikes, beams, walls, distances) utilized to separate a waste pile of hazardous waste that is incompatible with any waste or other material stored nearby.	270.18(g) 264.257	335-14-8-.02(8)(g) 335-14-5-.12(8)		

F-5i Ignitable or Reactive Wastes in Surface Impoundments • The application must include a description of the procedures for handling ignitable or reactive wastes, including the use of buffer zones. Waste must be treated, rendered, or mixed before or immediately after placement in the waste pile so that it is no longer considered ignitable and complies with 264.17(b); or • The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; • The impoundment is used only for emergencies	270.17(g)	335-14-8-.02(8) (g)		
F-5j Incompatible Wastes in Surface Impoundments The application must include: • A statement that incompatible wastes and materials are not stored in the same surface impoundments or in the impoundments that previously held an incompatible waste or material unless 264.17(b) is complied with.	270.17(h) 264.230	335-14-8-.02(8) (h) 335-14-5-.11(11)		

F-5k Ignitable or Reactive Wastes in Landfills Documentation of procedures for: • Rendering wastes nonreactive or prior to or immediately after placement in the landfill • Preventing reactions • Protecting ignitable wastes in containers from materials or conditions that may cause them to ignite	270.21(f) 264.312	335-14-8-.02(12)(f) 335-14-5-.14(13)		
F-5l Incompatible Wastes in Landfills Applicant must provide procedures for insuring that incompatible wastes will not be disposed of in the same landfill cell, unless 264.17(b) is complied with.				
F-5m Ignitable or Reactive Wastes in Land Treatment A description of the management of ignitable or reactive wastes which will be placed in or on the treatment zone, if applicable, and an explanation of how the following requirements will be complied with:	270.20(g)	335-14-8-.02(11)(g)		

• The waste is immediately incorporated into the soil so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste and the requirements of 264.17(b) and complied with, or • The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.				
F-5n Incompatible Wastes in Land Treatment A description of the management of incompatible wastes must be submitted if incompatible wastes, or incompatible wastes and materials, will be placed in or on the same treatment zone, including an explanation of how the requirements of 264.17(b) are complied with.	270.20(h) 264.282	335-14-8-.02(11)(h) 335-14-5-.13(13)		

G REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Contingency Plan - Module G

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART G - CONTINGENCY PLAN A copy of the contingency plan required in Part 264, Subpart D. Include, where applicable, specific requirements in 264.227 and 264.225.	270.14(b)(7) 264.50 through 264.56	335-14-8-.02(5)(b)7. 335-14-5-.04(1) through (7)		
An existing spill prevention control plan can be amended to incorporate hazardous waste management provisions sufficient to comply with 264, Subpart D requirements.	264.52(b)	335-14-5-.04(3)(b)		
G-1General Information • Facility name and location and owner or operator name • Site plan • Description of facility operations	264.52 264.53 265.37	335-14-5-.04(3) 335-14-5-.04(4) 335-14-5-.03(8)		

G-2 Emergency Coordinators • Names, addresses, office and home phone numbers, and duties of primary and alternate coordinators in sequences as alternates • A statement authorizing designated coordinators to commit the necessary resources to implement the contingency plan • Can reach facility in short period of time	264.52(d) 264.55	335-14-5-.04(3)(d) 335-14-5-.04(6)		
G-3 Implementation Criteria for implementation of contingency plan for any potential emergency: • Fires/explosions • Unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water	264.52(a) 264.56(d)	335-14-5-.04(3)(a) 335-14-5-.04(7)(d)		
G-4 Emergency Response Procedures	264.56(a)	335-14-5-.04(7)(a)		
G-4a Notification Methodology for immediate notification of facility personnel and necessary state or local agencies.				

G-4b Identification of Hazardous Materials Available data and/or procedures for identification of hazardous materials involved in the emergency and quantity and areal extent of release. Include information on: • Characteristics of waste • Exact source • Amount • Areal extent of release	264.56(b)	335-14-5-..04(7)(b)		
G-4c Hazardous Assessment • Procedure for assessment of possible hazards to the environment and human health • Procedures for determining the need for evacuation and notification of authorities. The authorities to be notified must include the On-Scene-Coordinator for that area or the National Response Center.	264.56(c) 264.56(d)	335-14-5-.04(7)(c) 335-14-5-.04(7)(d)		
G-4d Control Procedures • Specific responses and control procedures to be taken in the event of a fire, explosion, or release of hazardous waste to air, land, or water.	264.52(a)	335-14-5-.04(3)(a)		

G-4e Prevention of Recurrence or Spread of Fires, Explosions, or Releases During an emergency situation, a description of the necessary steps to be taken to ensure that fires, explosions, or releases do not occur, reoccur, or spread to other hazardous waste at the facility. Steps must include, where applicable:	264.56(e)	335-14-5-.04(7) (e)		
• Shut-down of processes and continued monitoring of them • Collecting, containing, and treating released wastes • Removing and isolating containers • Proper use of fire control structures (e.g., fire doors), systems (e.g., sprinkler systems), and equipment (e.g., extinguishers)	Guidance			
G-4f Storage and Treatment of Released Material	264.56(f) 264.56(g)	335-14-5-.04(7) (f) 335-14-5-.04(7) (g)		
• Provisions to monitor for leaks, pressure buildup, gas generation, or ruptures as appropriate if operations at the facility are stopped in response to a release, fire, or explosion				
• Provisions for treatment, storage, or disposal of any hazardous waste resulting from a release, fire, or explosion at the facility				

• Equipment available	Guidance			
• Procedures for deployment of these resources	Guidance			
• Methods to contain, treat, and clean up a hazardous release and decontaminate the affected area	Guidance			
G-4g Incompatible Waste Provisions for preventing waste which is incompatible with the released material from being treated, stored, or located in the affected areas until cleanup procedures are completed.	264.56(h)(l)	335-14-5-.04(7)(h)1.		
G-4h Post-Emergency Equipment Maintenance Procedures for ensuring that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed. (This includes advising authorities.)	264.56(h)(2) 264.56(i)	335-14-5-.04(7)(h)2. 335-14-5-.04(7)(i)		
G-4i Container Spills and Leakage Procedures for responding to container spills or leakage including removal of spilled waste and repair or replacement of containers.	264.171	335-14-5-.09(2)		
G-4j Tank Spills and Leakage • Procedures for responding to tank spills or leakage including removal of spilled waste and repair of tank	264.194(c), 264.200(a)(2), 264.194(c)(2)	335-14-5-.10(5)(c) 335-14-5-.???????? 335-14-5-.10(5)(c)		

• Procedures for responding to leaks or spills from tanks containing hazardous wastes F020, F021, F022, F023, F026, and F027; and procedures for immediate removal of these wastes from the containment systems and replacement or repair of the leaking tank	264.200(a)(2), 264.194(c)(2)	335-14-5- .?????????? 335-14-5-.10(5) (c)2.		
G-4k Surface Impoundment Spills, Leakage, and Sudden Drops	270.14(b)(7), 264.227	335-14-8-.02(5) (b)7. 335-14-5-.11(8)		
• Procedures for stopping waste additions	264.227(b)(1) 264.227(b)(2)	335-14-5-.11(8) (b)1. 335-14-5-.11(8) (b)2.		
• Procedures for containing any leakage	264.227(b)(3) 264.227(b)(4)	335-14-5-.11(8) (b)3. 335-14-5-.11(8) (b)4.		
• Procedures for stopping leaks and preventing sudden drops and preventing catastrophic failure				
• Procedures and criteria for emptying impoundment	264.227(b)(5)	335-14-5-.11(8) (b)5.		
• Procedures for installing a liner in existing portions of the impoundment or procedures for certification of the liner in other than existing portions when the impoundment is removed from service as the result of a sudden drop in liquid level	264.227(d)(2)	335-14-5-.11(8) (d)2.		

• Obtain qualified engineers certification of repairs and probability of leakage or failure				
G-5 Emergency Equipment Location, description, and capabilities of emergency equipment. This should include:	264.52(e)	335-14-5-.04(3) (e)		
• Spill control equipment • Fire control equipment • Personal protective items such as respirators and protective clothing • First aid and medical supplies • Emergency decontamination equipment • Emergency communication and alarm systems	Guidance			
G-6 Coordination Agreements	264.37 264.52(c)	335-14-5-.03(8) 335-14-5-.04(3) (c)		
• A description of coordination agreement with local police and fire departments, hospitals, contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of emergency				
• A statement indicating that a copy of the contingency plan has been submitted to these organizations	264.53(b)	335-14-5-.04(4) (b)		

• If applicable, document of refusal to enter into a coordination agreement	265.37(b)	335-14-5-.03(8) (b)		
G-7 Evacuation Plan The plan must include: • Criteria for evacuation • A description of signal(s) to be used to begin evacuation • Primary and alternate evacuation routes	264.52(f)	335-14-5-.04(3) (f)		
G-8 Required Reports • Provisions for submission of reports of emergency incidents within 15 days of occurrence • Notation of such incidents in the operating record identifying the time, date, and details of these emergency incidents	264.56(u)	335-14-5-.04(7) (u)		

H **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Personnel Training - Module H

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART H - PERSONNEL TRAINING	270.14(b)(12), 264.16	335-14-8-.02(5) (b)12. 335-14-5-.02(7)		
H-1 Outline of Training Program An outline of both the introductory and continuing training programs by owners or operators to prepare the personnel to operate and maintain the facility in a safe manner as required to demonstrate compliance with 264.16. Include a brief description of how training will be designed to meet actual job tasks in accordance with requirements in 264.16(a)(3). (Note: On-the-job training may be used to comply with these requirements).				

H-1a Job Titles and Duties For each employee whose position at the facility is related to hazardous waste management, the following must be maintained at the facility: • Job title • Job duties • Job description	264.16(d)(1), 264.16(d)(2)	335-14-5-.02(7)(d)1. 335-14-5-.02(7)(d)2.		
H-1b Training Content, Frequency, and Techniques In both introductory and continuing training (including an annual review of the initial training) for each employee, describe: • Training content • Frequency of training • Technique(s) used in training	264.16(a)(3), 264.16(c), 264.16(d)(3)	335-14-5-.02(7)(a)3. 335-14-5-.02(7)(c) 335-14-5-.02(7)(d)3.		
H-1c Training Director Demonstration that the program is directed by a person trained in hazardous waste management:	264.16(a)(2)	335-14-5-.02(7)(a)2.		
• Credentials of training director	Guidance			

H-1d Relevance of Training to Job Position A brief description of how instructions of facility personnel in hazardous waste management procedures (including contingency plan implementation) is relevant to their positions. [To demonstrate compliance with 264.16(a)(2).]	264.16(a)(2)	335-14-5-.02(7)(a)2.		
H-1e Training for Emergency Response Documentation that the training program trains facility personnel to respond effectively to emergencies and trains them to be familiar with emergency procedures, emergency equipment, and emergency systems, include where applicable:	264.16(a)(3)	335-14-5-.02(7)(a)3.		
• Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment	264.16(a)(3)(i)	335-14-5-.02(7)(a)3.(i)		
• Key parameters for automatic waste feed cut-off systems	264.16(a)(3)(ii)	335-14-5-.02(7)(a)3.(ii)		
• Communications or alarm systems	264.16(a)(3)(iii)	335-14-5-.02(7)(a)3.(iii)		
• Response to fires or explosions	264.16(a)(3)(iv)	335-14-5-.02(7)(a)3.(iv)		
• Response to groundwater contamination incidents	264.16(a)(3)(v)	335-14-5-.02(7)(a)3.(v)		
• Shutdown of operations	264.16(a)(3)(vi)	335-14-5-.02(7)(a)3.(vi)		

H-2 Implementation of Training Program • Indication that training has been and will be successfully completed by facility personnel within 6 months of their employment or assignment to a facility, or transfer to a new position at a facility, whichever is later. (Note: Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements).	264.16(d)(4) 264.16(b) 264.16(e)	335-14-5-.02(7) (d)4. 335-14-5-.02(7) (b) 335-14-5-.02(7) (e)		
• Records documenting that the required training has been given to and completed by facility personnel must be maintained				

I REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Closure/Post-Closure and Financial Requirements - Module I

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART I - CLOSURE PLANS, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS	270.14(b)(13) [12/10/87]	335-14-8-.02(5)(b)13.		
	270.14(b)(15) [5/02/86]	335-14-8-.02(5)(b)15.		
	270.14(b)(16), [5/02/86]	335-14-8-.02(5)(b)16.		
	270.14(b)(17)	335-14-8-.02(5)(b)17.		
	270.14(b)(18),	335-14-8-.02(5)(b)18.		
	264.110-264.151,	335-14-5-.07(1) - 335-14-5-.08(12)		
	264.178,	335-14-5-.09(9)		
	264.197,	335-14-5-.10(8)		
	264.228,	335-14-5-.11(9)		
	264.258,	335-14-5-.12(9)		
	264.280,	335-14-5-.13(11)		
	264.310,	335-14-5-.14(11)		
	264.351	335-14-5-.15(12)		

I-1 Closure Plans A copy of the written closure plan required by 264.112 and consistent with Items I-1a through I-1e.	270.14(b)(13), 264.112 [5/02/86]	335-14-8-.02(5)(b)13. 335-14-5-.07(3)		
I-1a Closure Performance Standard A description of how closure: • Minimizes the need for further maintenance • Controls, minimizes, or eliminates post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere	264.111 [264.112 requires consistency with 264.111) [5/02/86]	335-14-5-.07(2)		
• Complies with the closure requirements of Subpart G and unit-specific closure requirements • Estimated expected year of closure for facilities that use trust funds to establish financial assurance and that are expected to close prior to the expiration of the permit				

I-1b Partial Closure and Final Closure Activities Fully describe time and all activities required for: • Partial closure, if applicable • Final closure • Maximum extent of operation which will be active during life of facility. Description must identify how requirements of 264.111, 264.113, 264.114, 264.115 and applicable requirements of 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, and 264.351 will be met	264.112(b), 264.112(b)(1) through 264.112(b)(7) outline minimum acceptable plan acceptable plan [5/02/86]	335-14-5-.07(3) (b)		
I-1c Maximum Waste Inventory A description of the maximum inventory of wastes that could be in storage, treatment, and disposal at any time during the life of the facility. Methods for removing, transporting, treating, storing, or disposing of all hazardous wastes. Identification of the type(s) of off-site hazardous waste management units to be used.	264.112(b)(3) [5/01/86]	335-14-5-.07(3_ (b)3.		

I-1d Schedule for Closure A schedule for final closure including: • Each HWMU and final closure of the facility • Closure schedule with total time to close, time for intervening closure activities, and inspection schedule during closure • Estimated expected year of closure for facilities that use trust funds to establish financial assurance and that are expected to close prior to the expiration of the permit	264.112(b)(6) [5/02/86]	335-14-5-.07(3) (b)6.		
I-1d(1)Time Allowed for Closure The schedule for closure must show: • All hazardous wastes will be treated, removed off-site, or disposed of on-site within 90 days from receipt of final volume of waste at the unit or facility • All closure activities will be completed within 180 days from receipt of final volume of waste at the unit or facility	264.112(b)(2), 264.113(a) & (b) [5/02/86]	335-14-5-.07(3) (b)2. 335-14-5-.07(4) (a) & (b)		

I-1d(1)(a) Extensions for Closure Time A petition made to the Regional Administrator for a schedule for closure which exceeds the 90 days for treatment, removal, or disposal of wastes and/or the 180 days for completion of closure activities made to the Regional Administrator. One of the following must be demonstrated. • Closure activities require longer than 90 or 180 days	264.113(a), 264.113(b) [5/02/86]	335-14-5-.07(4)(a) 335-14-5-.07(4)(b)		
• Unit or facility has capacity to receive additional wastes • There is a reasonable likelihood that another person other than owner or operator will recommend operation of the site within one year • Closure would be incompatible with continued operation Demonstrate that all steps have and will be taken to prevent threats to human health and environment from unclosed but inactive facility.				
I-1e Closure Procedures	264.112, 264.114 [5/02/86], 270.14(b)(13) [5/02/86]	335-14-5-.07(3) 335-14-5-.07(5) 335-14-8-.02(5)(b)13.		

I-1e(1)Inventory Removal, Disposal, or Decontamination of Equipment A description of how all facility equipment and structures will be decontaminated or disposed of when closure is completed. The following should be included:	264.112(b)(4) [5/02/86]	335-14-5-.07(3) (b)4.		
• Decontamination procedures • Criteria for determining decontamination • List of equipment, structures, and soils • Disposal of contaminated soil and residues • Decontamination of cleanup materials and equipment • Demonstrate decontamination has been effective				
A demonstration that any hazardous constituents left will not impact environmental media in excess of agency established exposure levels, and direct contact will not pose a threat to human health and the environment.	264.111(b) [05/02/86] Guidance (Preamble 51 FR 16444, May 2, 1986)	335-14-5-.07(2) (b)		

I-1e(2)Closure of Disposal Units Closure plans for all piles, landfills, surface impoundments, and miscellaneous disposal units in which wastes or contaminated materials are to remain at closure must describe how the unit will be closed, including a description of the final cover to be established and its expected performance. contingent closure plan for tanks, surface impoundments, and waste piles also must provide these descriptions.	270.14(b)(13), 270.17(f), 270.18(h), 270.21(e), 264.228(a)(2), 264.228(c)(1)(i), 264.258(c), 264.310(a), 264.601	335-14-8-.02(5)(b)13. 335-14-8-.02(8)(f) 335-14-8-.02(9)(h) 335-14-8-.02(12)(e) 335-14-5-.11(9)(a)2. 335-14-5-.11(9)(c)1.(i) 335-14-5-.12(9)(c) 335-14-5-.14(11)(a) 335-14-5-.24(2)		
I-1e(3)Closure of Containers A description of how at closure, all hazardous waste residues will be removed from the containment system, and how remaining containers, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed. The description should address the following:	264.178	335-14-5-.09(9)		
• Hazardous waste removal and disposal	Guidance			
• Container decontamination and disposal	Guidance			

• Site decontamination and disposal including linings, soil, and washes	Guidance			
• Verification of decontamination	Guidance			
• Maximum inventory	264.112(b)(3)	335-14-5-.07(3) (b)3.		
I-1e(4)Closure of Tanks A description of how at closure, all hazardous waste residues will be removed from tanks, discharge control equipment, and secondary containment structure, and the facility will be decontaminated. The description should address the following:	264.197(a)	335-14-5-.10(8) (a)		
• Waste removal from tanks and equipment	Guidance			
• Decontamination of all components	Guidance			
• Verification of decontamination	Guidance			
• Disposal of wastes and residues	Guidance			

• Maximum inventory	264.112(b)(3)	335-14-5-.07(3)(b)3.		
If not all contaminated soils can be removed or decontaminated at closure, a closure and post-closure plan for a landfill must be included. If the tank systems do not have secondary containment or are not exempt, the a contingent closure and post-closure plan for a landfill must be provided.	264.197(b) [5/02/86] 264.197(c)	335-14-5-.10(8)(b) 335-14-5-.10(8)(c)		
I-1e(5)Closure of Waste Piles The application must describe how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste.	270.18(h) 264.258 264.112(b)(4)	335-14-8-.02(9)(h) 335-14-5-.12(9) 335-14-5-.07(3)(b)4.		
If any wastes, waste residues, or contaminated materials or soils will remain after closure, provide plans for closing the pile as a landfill [I-1f(6)] and provide post-closure plan [I-2].				

Piles without liners or with liners that do not meet the requirements of D-3e must also provide contingent plans for closing the facility as a landfill [I-1d(6)] and a contingent post-closure [I-2], except for dry, enclosed piles meeting the requirements of D-3b or piles for which a liner exemption is sought in accordance with D-3c. The description should address the following: • Procedure and criteria for determining whether or not decontamination has been successful • Sampling and analytical techniques				
I-1e(6)Closure of Surface Impoundments A description of how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste.	270.17(f) 264.228(a)(1), (2) 264.228(b)	335-14-8-.02(8) (f) 335-14-5-.11(9) (a)1. & 2. 335-14-5-.11(9) (b)		
The description should address the following: • Procedures and criteria for determining whether or not decontamination has been successful	Guidance			

• Sampling and analytical techniques	Guidance			
• Continuance of treatment during closure (if appropriate).	Guidance			
If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the surface impoundment in place and provide post-closure plans [I-2]. Plans for closing a surface impoundment in place must address the following: • Elimination of liquids by removal or solidification				
• Stabilization of wastes to sufficient bearing capacity				
• Final cover designed and constructed to provide long-term minimization of migration of liquids through the closed impoundment, function with minimal maintenance, promote drainage, and minimize erosion of final cover, accommodate settling and subsidence, and have a permeability less than or equal to that of the bottom liner system or natural subsoils present.				

Surface impoundments without liners or with liners that do not meet requirements of D-4c must also provide contingent plans for closure in place and a contingent post-closure plan [I-2], except for impoundments requesting a liner exemption in accordance with D-4b.				
I-1e(7)Closure of Incinerators Description of how at closure all hazardous waste and hazardous waste residues including ash, scrubber waters, and scrubber sludges will be removed from the incinerator, associated duct work, piping, air pollution control equipment, sumps and any other structures or operating equipment such as pumps, valves etc., that have come into contact with the hazardous waste. Alternatively, a description of how the incinerator and associated units and equipment will be dismantled and disposed of as a hazardous waste will suffice.	264.351	335-14-5-.15(12)		
I-1e(8)Closure for Landfills Provide detailed plans and an engineering report which describe the final cover components in detail. Cover installation and construction quality assurance procedures should be thoroughly described. these detailed plans and engineering reports must describe how the final cover will:	270.21(e), 264.310(a), 264.280(b)	335-14-8-.02(12)(e) 335-14-5-.14(11)(a) 335-14-5-.13(11)		

• Provide long-term minimization of migration of liquids through closed landfill				
• Function with minimum maintenance				
• Promote drainage and minimize erosion/abrasion				
• Settle/subside without losing integrity				
• Be less permeable than bottom liners or subsoils				
• Withstand freeze/thaw cycles				
I-1e(9)Closure of Land Treatment During closure of land treatment facilities, the owner or operator must comply with the following:	270.20(f), 264.280(a)	335-14-8-.02(11)(f) 335-14-5-.13(11)(a)		
• Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required, except to the extent such measures are inconsistent with 264.280(a)(8).				
• Continue all operations in the treatment zone to minimize run-off of hazardous constituents				
• Maintain the run-on control system				

• Maintain the run-off management system				
• Control wind dispersal of hazardous waste if required				
• Continue to comply with any prohibitions or conditions concerning growth of food-chain crops				
• Continue unsaturated zone monitoring except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone				
• Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.				
When closure is complete the owner-operator may submit to the Regional Administrator certification by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.				

I-1e(10) Closure of Miscellaneous Units Show that at closure, all hazardous waste and hazardous waste residues will be removed from the treatment process or equipment, discharge control equipment, and discharge confinement structures, and that the facility will be decontaminated. Description of the sampling/test procedures or other means used to ensure that no contamination remains on, in, or around the units and associated equipment and structures. If any wastes, waste residues, or contaminated materials or soils will remain after closure, provide plans for closing the miscellaneous unit as a disposal unit [I-1e(2)] and provide post-closure plans [I-2].	264.601 270.23(a)(2) [12/10/87]	335-14-5-.24(2) 335-14-8-.02(14)(a)2.		

I-2 Post-Closure Plan An owner /operator of a disposal facility must have a written post-closure plan, or, of applicable, a contingent post-closure plan. A copy of the approved plan and all revisions to the plan must be kept at the facility until the post-closure care begins. Landfill, surface impoundment, waste pile, and tank post-closure plans should address items I-2a, b, c, f, g, h; land treatment unit post-closure plan, items I-2d, f, g, and h; miscellaneous units should address items I-2a, b, c, e, f, g, and h.	270.14(b)(13), 270.17(f), 270.18(h), 270.20(f), 270.21(e), 270.23(a)(3), 264.118 [5/02/86], 264.197(b), 264.197(c)(2), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.280(c), 264.310(b), 264.603	335-14-8-.02(5)(b)13. 335-14-8-.02(8)(f) 335-14-8-.02(9)(h) 335-14-8-.02(11)(f) 335-14-8-.02(12)(e) 335-14-8-.02(14)(a)3. 335-14-5-.07(9) 335-14-5-.10(8)(b) 335-14-5-.10(8)(c)2. 335-14-5-.11(9)(b) 335-14-5-.11(9)(c)1.(ii) 335-14-5-.12(9)(b) 335-14-5-.12(9)(c)1.(ii) 335-14-5-.13(11)(c) 335-14-5-.13(11)(b) 335-14-5-.24(4)		

I-2a Inspection Plan A description of the inspections to be conducted during the post-closure care period, their frequency, the inspection procedures, and the logs to be kept. The following items, as applicable, should be included in the inspection plan: • Security control devices • Erosion damage • Cover settlement, subsidence, and displacement • Vegetative cover condition • Integrity of run-on and run-off control measures • Cover drainage system function • Leachate collection/detection and removal system maintenance • Gas venting system • Well condition • Benchmark integrity • The rationale to be used to determine the need for corrective maintenance activities.	264.118(a), [5/12/86] 264.197(b), 264.197(c)(2), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.310(b)	335-14-5-.07(9)(a) 335-14-5-.10(8)(b) 335-14-5-.10(8)(c)2. 335-14-5-.11(9)(b) 335-14-5-.11(9)(c)1.(ii) 335-14-5-.12(9)(b) 335-14-5-.12(9)(c)1.(ii) 335-14-5-.14(11)(b)		

I-2b Monitoring Plan A description of the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting the following operations an evaluating the data gathered should include: – Groundwater monitoring – Leachate collection/detection and removal	264.118(b)(1) [5/02/86] 264.228(b), 264.197(b), 264.197(c)(2), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.310(b)			
I-2c Maintenance Plan A description of preventative and corrective maintenance procedures, equipment procedures, equipment requirements, and material needs. Include the following items in the maintenance plan, as applicable: • Repair of security control devices • Erosion damage repair • Correction of settlement, subsidence, and displacement • Mowing, fertilization, and other vegetative cover maintenance	264.118(b)(2), [5/02/86] 264.197(b), 264.197(c)(2), 264.228(b), 274.228(c)(1)(ii), 264.258(b) 264.258(c)(1)(ii),	335-14-5-.07(9)(b)2. 335-14-5-.10(8)(b) 335-14-5-.10(8)(c)2. 335-14-5-.11(9)(b) 335-14-5-.11(9)(c)1.(ii) 335-14-5-.12(9)(b) 335-14-5-.12(9)(c)1.(ii)		

• Repair of run-on and run-off control structures • Leachate collection/detection system maintenance • Well replacement • The rationale to be used to determine the need for corrective maintenance activities	264.310(b)	335-14-5-.14(11) (b)		
I-2d Land Treatment A description of the operation, inspection, and maintenance programs to be used at the closed facility. Include descriptions of the procedures for conducting the following activities and identify frequencies at which they are to be conducted: • Continuance of land treatment • Vegetative cover maintenance • Maintenance of run-on control system and run-off management systems • Wind dispersal control • Control of food chain crops • Unsaturated zone monitoring	264.280(c)	335-14-5-.13(11) (c)		

I-2e Post-Closure Care for Miscellaneous Units A detailed description of the plans to ensure protection of human health and the environment. Include the prevention of any releases to groundwater or subsurface environment; surface water or wetlands or on the soil surface; or to air. This will include providing related information from [D-8].	270.23(a)(3), 264.603 [12/10/87]	335-14-8-.02(14)(a)3. 335-14-5-.24(4)		
I-2f Post-Closure Security Indicate which security provisions will continue during closure when hazardous wastes will remain exposed after completion of partial or final closure or access by the public or domestic livestock may pose a hazard to human health.	264.117(b) [5/02/86]	335-14-5-.07(8)(b)		
I-2g Post-Closure Contact Provide the name, address, and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period.	264.118(b)(3) [5/02/86]	335-14-5-.07(9)(b)3.		
I-3 Notices Required for Disposal Facilities				

I-3a Certification of Closure A statement by the applicant which indicates that within 60 days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit, and within 60 days of the completion of final closure, closure certification will be submitted to the Regional Administrator. The certification must certify that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications of the approved closure plan. The certification must be signed by the owner/operator and by an independent registered professional engineer (or by independent qualified soil scientist in the case of a land treatment closure).	264.115 [5/02/86], 264.280(b)	335-14-5-.07(6) 335-14-5-13(11)(b)		

I-3b Survey Plat A statement by the applicant which indicates that no later than the submission of certification of closure of each hazardous waste disposal unit, a survey plat indicating the location and dimensions of landfill cells or other disposal units with respect to permanently surveyed benchmarks, will be submitted to the local zoning authority (or authority with jurisdiction over local land use) and to the Regional Administrator. The plat must be prepared and certified by a professional land surveyor and must contain a note, prominently displayed, which states the owner-operator's obligation to restrict disturbance of the disposal unit in accordance with applicable 40 CFR 264 Subpart G regulations.	264.116 [5/02/86]	335-14-5-.07(7)		
I-3c Notice to Local Land Authority Documentation by applicant that within 60 days after closure, a record of the type, location, and quantity of hazardous waste within each cell or disposal area will be submitted to the appropriate local land use authority and to the Regional Administrator.	264.119 [5/02/86]	335-14-5-.07(10)		

I-3d Post-Closure Certification Provide a statement which indicates that within 60 days of completion of the post-closure care period for each hazardous waste disposal unit, certification will be submitted to the Regional Administrator. The certification must certify that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications of the approved post-closure plan. The certification must be signed by the owner/operator and by an independent registered professional engineer.	264.120 [5/02/86]	335-14-5-.07(11)		
I-3e Notice in Deed to Property Documentation by applicant that she/he has or will record a notation on the facility deed, or other instrument examined during a title search, that notifies any potential purchase of the property that: • The property has been used to manage hazardous wastes • Use of the land is restricted to activities that will not disturb integrity of final cover system, or monitoring system during post-closure care period • Requirements stated under I-3a above have been complied with	270.14(b)(14), 264.119 [5/02/86]	335-14-8-.02(5)(b)14. 335-14-5-.07(10)		

I-4 Closure Cost Estimate A copy of the most recent closure or contingent closure cost estimate, prepared in accordance with 264.142.	270.14(b)(15) [5/02/86]	335-14-8-.02(5)(b)15.		
• Cost estimate based on third party costs	264.142(a)(2)	335-14-5-.08(3)(a)2.		
• Fully loaded (most costly)	Guidance			
• No salvage credits	264.142(a)(3), (4)	335-14-5-.08(3)(a)3. & 4.		
• Current year costs	264.142(a)	335-14-5-.08(3)(a)		
• Cost adjusted annually from anniversary date of first cost estimate	264.142(b)	335-14-5-.08(3)(b)		
• Based on point in operating life when extent and manner of operation would make closure most expensive.	264.142(a) [5/02/86]	335-14-5-.08(3)(a)		
I-5 Financial Assurance Mechanism for Closure A copy of the established financial assurance mechanism for facility closure adopted in compliance with 264.143. The mechanism must be one of the following [I-5(a) through I-5(f)] and include due dates and use standard wording.	270.14(b)(15) 264.143 264.151 [5/02/86]	335-14-8-.02(5)(b)15. 335-14-5-.08(4) 335-14-5-.08(12)		

I-5a Closure Trust Fund A copy of the closure trust fund agreement with the wording required in 264.151(a)(1) and a formal certification of acknowledgment. • Bank or approval institution • Mechanics: - pay-in period; life of permit or remaining life of facility, whichever is shorter, - annual payment; unfunded liability divided by years left in pay-in period	264.143(a), 264.151(a)(1)	335-14-5-.08(4)(a) 335-14-5-.08(12)(a)1.		
I-5b Surety Bond A surety bond from a federally acceptable surety company meeting one of the following requirements:	264.143(b) & (c), 264.151(b) & (c) [5/02/86]	335-14-5-.08(4)(b) & (c) 335-14-5-.08(12)(b) & (c)		
• Surety bond guaranteeing payment into a closure trust fund. A copy of the surety bond with the wording required in 264.151(b), a copy of the standby trust fund agreement	264.143(b), 264.151(b) [5/02/86]	335-14-5-.08(4)(b) 335-14-5-.08(12)(b)		
• Surety bond guaranteeing performance of closure. A copy of the surety bond with the wording required in part 264.151(c), guaranteeing that the owner/operator will perform closure according to the closure plan and the requirements of Subpart G.	264.143(c), 264.151(c)	335-14-5-.08(4)(c) 335-14-5-.08(12)(c)		

I-5c Closure Letter of Credit A copy of a closure letter of credit with the wording required in 264.151(d): • Irrevocable letter of credit • At least one year period, automatic renewal • Standby trust fund • Amount reflects current cost estimate	264.143(d), 264.151(d)	335-14-5-.08(4)(d) 335-14-5-.08(12)(d)		
I-5d Closure Insurance To demonstrate that the owner/operator has closure insurance, she/he must submit to the Regional Administrator 60 days before hazardous waste is received a certificate of insurance worded as specified in 264.151(e). • Non-cancelable policy, automatic renewal • Insurer licensed or eligible surplus lines carrier • Certificate of insurance • Funds available whenever final closure occurs	264.143(e) 264.151(e)	335-14-5-.08(4)(e) 335-14-5-.08(12)(e)		

I-5e Financial Test and Corporate Guarantee for Closure To demonstrate that this test is met, an owner/operator must submit a letter signed by the company's chief financial officer that is worded as specified in 264.151(f) and meets the following criteria: • Tangible net worth $10 million • Tangible net worth six times all closure and post-closure costs • U.S. assets at least 90% of total assets or at least six times all closure and post-closure costs • Bond rating requirement or alternative financial ratio tests • Application must include: - copy of a report from the owner's/operator's independent CPA to the owner/operator stating that she/he has examined the data in the letter from the chief financial officer and that it is consistent with the amounts in the independently-audited year-end financial statements for the latest fiscal year and that no matters came to attention to cause her/him to believe that the data should be adjusted	264.143(f), 264.151(f), 264.151(h) [5/02/86]	335-14-5-.08(4)(f) 335-14-5-.08(12)(f) 335-14-5-.08(12)(h)		

In lieu of the above items, the owner/operator may submit a corporate guarantee worded as required by 264.151(h). This guarantee provides that the guarantor must be the parent company of the owner/operator. A copy of these items should be submitted with the Part B for review by the permit writer.	264.143(f)(10)	335-14-5-.08(4) (f)10.		
I-5f Combinations				
I-5f(1)Use of Multiple Financial Mechanisms A copy of a combination of trust fund agreements, surety bond guaranteeing payment into a closure trust fund, letter of credit, or insurance, and state assumption of responsibility, which provide financial assurance for the amount of closure. Combine financial assurance must be at least equal to the adjusted closure cost estimate. Financial assurance instruments must meet requirements 264.143(a),(b),(d), or (e) which include closure trust fund, surety bond guaranteeing payment into a closure trust fund, closure letter of credit, and closure insurance, respectively.	264.143(g)	335-14-5-.08(4) (g)		

I-5f(2)Use of Financial Mechanism for Multiple Facilities A copy of a financial assurance mechanism for more than one facility showing, for each facility, the EPA ID number, name, address, and amount of closure funds assured by the mechanism.	264.143(h)	335-14-5-.08(4)(h)		
Total funding must be no less than the sum required for each facility considered separately. Documents must be submitted to each Region where facilities are located. Financial test applies to sum of closure and post-closure costs for all facilities.	264.143(h)	335-14-5-.08(4)(h)		
I-6 Post-Closure Cost Estimate If landfill, land treatment, surface impoundments, or waste piles are utilized, the application must include a post-closure or a contingent post-closure cost estimate prepared in accordance with 264.144:	270.14(b)(16) 264.144 [5/02/86]	335-14-8-.02(5)(b)16. 335-14-5-.08(5)		
• Fully loaded labor rate (third party)	Guidance			
• No salvage values	Guidance			
• No operation credits (gas, crops, livestock)	Guidance			
• Current year	Guidance			

• Based on the extent of operation most likely to make post-closure most expensive	Guidance			
• Inspection costs	Guidance			
• Administration	Guidance			
• Transportation	Guidance			
I-7 Financial Assurance Mechanism for Post-Closure A copy of the established financial assurance mechanism for post-closure care adopted in compliance with 264.145. the mechanism must be one of the following: [I-7(a) through I-7(f)] and include due dates and use standard wording	270.14(b)(16) 264.145 264.151 [5/02/86]	335-14-8-.02(5)(b)16. 335-14-5-.08(6) 335-14-5-.08(12)		
I-7a Post-Closure Trust Fund A copy of the post-closure trust fund agreement with the wording required in 264.151(a)(1) and a formal certification of acknowledgment: • Bank or approval institution • Mechanics - pay-in period, life of permit or remaining life of facility, whichever is shorter - annual payment; unfunded liability divided by years left in pay-in period	264.145(a), 264.151(a)(1)	335-14-5-.08(6)(a) 335-14-5-.08(12)(a)1.		

I-7b Surety Bond A surety bond from a federally acceptable surety company meeting one of the following requirements:	264.145(b) & (c), 264.151(b) & (c) [5/02/86]	335-14-5-.08(6) (b) & (c) 335-14-5-.08(12) (b) & (c)		
• Surety bond guaranteeing payment into a post-closure trust fund. A copy of the surety bond with the wording required in 264.151(b), a copy of the standby trust fund agreement.	264.145(b), 264.151(b) [5/02/86]	335-14-5-.08(6) (b) 335-14-5-.08(12) (b)		
• Surety bond guaranteeing performance of post-closure activities. A copy of the surety bond with the wording required in Part 264.151(c), guaranteeing that the owner/operator will perform post-closure plan and the requirements of Subpart H.	264.145(c), 264.151(c)	335-14-5-.08(6) (c) 335-14-5-.08(12) (c)		
I-7c Post-Closure Letter of Credit A copy of post-closure letter of credit with the wording required in 264.151(d): • Irrevocable letter of credit • At least one year period, automatic renewal • Standby trust fund • Amount reflects current cost estimate	264.145(d), 264.151(d)	335-14-5-.08(6) (d) 335-14-5-.08(12) (d)		

I-7d Post-Closure Insurance To demonstrate that the owner/operator has post-closure insurance, she/he must submit to the Regional Administrator 60 days before hazardous waste is received a certificate of insurance worded as specified in 264.151(e): • Noncancellable policy, automatic renewal • Insurer licensed or eligible surplus lines carrier • Certificate of insurance • Funds available whenever final post-closure occurs	264.145(e), 264.151(e)	335-14-5-.08(6) (e) 335-14-5-.08(12) (e)		
I-7e Financial Test and Corporate Guarantee for Post-Closure To demonstrate that this test is met, an owner/operator must submit a letter signed by the company's chief financial officer that his worded as specified in 264.151(f) and meets the following criteria:	264.145(f) [5/02/86] 264.151(f) 264.151(h) [11/18/87]	335-14-5-.08(6) (f) 335-14-5-.08(12) (f) 335-14-5-.08(12) (h)		
• Tangible net worth $10 million				
• Tangible net worth six times all closure and post-closure costs				
• U.S. assets at least 90 percent of total assets or at least six times all closure and post-closure costs				

• Bond rating requirements or alternative				
• Application must include: - copy of a report on the company's latest financial statements drafted by an independent certified public accountant (CPA)				
- copy of a report from the owner's/operator's independent CPA to the owner/operator stating that she/he has examined the data in the letter from the chief financial officer and that it is consistent with the amounts in the independently-audited year-end financial statements for the latest fiscal year and that no matters came to attention to cause him to believe that the data should be adjusted				
In lieu of the above items, the owner/operator may submit a corporate guarantee worded as required by 264.151(h). This guarantee provides that the guarantor, which must be the parent company of the owner/operator, will perform post-closure activities in accordance with the post-closure plan if the owner/operator fails to do so or will establish a post-closure trust fund for the owner/operator. A copy of these items should be submitted with the Part B for review by the permit writer.	264.145(f)(10)	335-14-5-.08(6)(f)10.		

I-7f Combinations				
I-7f(1)Use of Multiple Financial Mechanisms A copy of a combination of trust fund agreements, surety bond guaranteeing payment into a post-closure trust fund or letters of credit, insurance, and state assumption of responsibility, which provide financial assurance for the amount of post-closure. Combined financial assurance must be at least equal to the adjusted post-closure cost estimate. Financial assurance instruments must meet the requirements of 264.143(a), (b), (d), or (e) which include post-closure trust fund, surety bond guaranteeing payment into a post-closure trust fund, post-closure letter of credit, and post-closure insurance, respectively.	264.145(g)	335-14-5-.08(6)(g)		
I-7f(2)Use of Financial Mechanism for Multiple Facilities A copy of a financial assurance mechanism for more than one facility showing, for each facility, the EPA ID number, name, address, and amount of closure funds assured by the mechanism. Total funding must be no less than the sum required for each facility considered separately. Documents must be submitted to each Region where facilities are located. Financial test applies to the sum of closure and post-closure costs for all facilities.	264.145(h)	335-14-5-.08(6)(h)		

I-8 Liability Requirements Where applicable, a copy of the insurance policy or other documentation which comprises compliance with the requirements of 264.147. (Coverage is for all facilities owned and operated and applies until certification for closure and post-closure is completed. For facilities in Phase I authorized states, originally signed duplicates of executed instruments or certificates of insurance are not required until the time of permit issuance, except as required by state law.)	270.14(b)(17) 264.147(a) & (b)	335-14-8-.02 (b)17. 335-14-5-.08(8) (a) & (b)		
I-8a Sudden Insurance Hazardous waste treatment, storage, or disposal facilities must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences. • Amount of at least $1 million per occurrence	264.147(a), 264.147(g), 264.151(g),(i) &(j) [5/02/86]	335-14-5-.08(8) (a) 335-14-5-.08(8) (g) 335-14-5-.08(12) (g), (i), & (j)		
• An annual total of at least $2 million, exclusive of legal costs				
• A signed duplicate original of the Hazardous Waste Facility Liability Endorsement worded as specified in ????				

• A Certificate of Liability Insurance worded as specified in 264.151(j), or				
• Financial test - letter from CFO - auditor report - auditor opinion - other information requested by R.A. - acceptable ratios - notification to EPA by Attorneys General or insurance commissioner of guarantors state and facility state that corporate guarantee is legally valid and enforceable				
• A combination of endorsement of certification and financial test or a combination of endorsement or certification and corporate guarantee. Amounts of coverage must total at least the minimum amounts required by 264.147(a).				
I-8b Nonsudden Insurance This applies to high-risk storage facilities (designated by Regional Administrator), surface impoundments, land disposal and land treatment.	264.147(b) & (d) 264.151(i) & (j) 264.147(f)	335-14-5-.08(8) (b) & (d) 335-14-5-.08(12) (i) &(j) 335-14-5-.08(8) (j)		

• At least $3 million per occurrence				
• An annual total of at least $6 million is required, exclusive of legal costs				
• Same endorsement or certification requirements as for sudden insurance coverage, or				
• Financial test - letter from CFO (264.151(g)) - auditor's report - auditor's opinion - other information requested by R.A.				
• Corporate guarantee - guarantor must be parent corporation - certified copy of corporate guarantee with wording as specified in 264.151(h)(2) - financial test for guarantor	264.147(b)(2) 264.147(g)(2)(i), 264.151(h)(2) [11/18/87]	335-14-5-.08(8)(b)2. 335-14-5-.08(8)(g)2.(i) 335-14-5-.08(12)(h)2.		

I-8c Variance Procedures and R.A. Adjustments Evaluation of degree and duration of risk sufficient to allow R.A. to make a judgment on reduction of required liability. The financial responsibility levels specified above for liability insurance for sudden accidental occurrences may be adjusted downward if the owner/operator can prove to the Regional Administrator that these levels are not consistent with the degree and duration of risk at the owner's/operator's facility. Conversely, the Regional Administrator may adjust the levels of financial responsibility up or down, based on the administrator's assessment of the degree and duration of risk associated with the facility.	264.147(c) & (d)	335-14-5-.08(8) (c) & (d)		
I-9 State Financial Mechanism Where appropriate, proof of coverage by a state financial mechanism in compliance with 264.149 or 264.150.	270.14(b)(18)	335-14-8-.02(5) (b)18.		

I-9a Use of State-Required Mechanisms Where a state has hazardous waste regulations with equivalent or greater liability requirements for financial assurance for closure and post-closure care, evidence of establishment of the state-required financial mechanisms, including the facility EPA ID number, name, address, and required mechanisms do not satisfy amount of funds required, funds may be made available through the state-required mechanisms or by using additional mechanisms specified in 264.143.	264.149(a) 264.149(b)	335-14-5-.08(10)(a) 335-14-5-.08(10)(b)		
I-9b State Assumption of Responsibility If a state assumes legal responsibility for compliance with closure, post-closure, or liability requirements or the state assures that state funds are available to cover those requirements, then facility is in compliance and must include a copy of a letter from the state describing the state assumption of responsibility and a letter from the owner/operator requesting that the state's assumption of responsibility be considered acceptable in meeting the financial coverage requirements, and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state.	264.150	Not In State Code		

J **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Other Federal Laws - Module J

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART J - OTHER FEDERAL LAWS Demonstration of compliance with the requirements of other applicable federal laws such as the Wild and Scenic rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, Fish and Wildlife Coordination Act.	270.14(b)(20) 270.3	335-14-8-.02(5)(b)20. 335-14-8-.01(3)		

K **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____
Address _____

_____

_____

Contact Name _____
Contact Phone Number _____

EPA ID Number _____
Permit Review Team _____

_____

_____

Date Application Received _____
Date Review Completed _____

Certification - Module K	

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART K - CERTIFICATION • Certification of application by a principal executive of the company of at least the level of vice president • Certification by a general partner or proprietor for a partnership or sole proprietorship, respectively. • Certification by a principal executive officer or ranking elected official for a municipality, state, federal, or other public agency	270.11	335-14-8-.02(2)		

L **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Corrective Action - Module L

Subject Requirement	40 CFR Section Nos.	ADEM Regulation Nos.	Location in Application	Comments
PART L - INFORMATION REQUIREMENTS FOR SOLID WASTE MANAGEMENT UNITS				
L-1 Description of Solid Waste Management Units A description of each solid waste management unit at the facility including: • Location of the unit on the topographic map required under 270.14(b)(19) • Type of unit • General dimensions and structural description (provide drawings if available) • Dates of operation of the unit • Description of all wastes that have been managed at the unit	270.14(d)(1) [12/01/87]	335-14-8-.02(5)(d)1.		
L-2 Information Pertaining to Releases The applicant must provide all available information pertaining to releases of hazardous wastes or hazardous constituents from solid waste management units at the facility.	270.14(d)(2) [12/01/87]	335-148-.02(5)(d)2.		

L-3 Sampling and Analysis The applicant must provide the results of sampling and analysis of groundwater, land surface and subsurface strata, surface water, and air which has been conducted (voluntarily, or) at the request of the Agency to complete a RCRA Facility Assessment.	270.14(d)(3) [12/01/87]	335-14-8-.02(5)(d)3.		

M **REGULATORY COMPLETENESS CHECKLIST FOR HAZARDOUS WASTE STORAGE, TREATMENT AND DISPOSAL FACILITIES**

Facility Name _____ EPA ID Number _____
Address _____ Permit Review Team _____
_____ _____
_____ _____
Contact Name _____ Date Application Received _____
Contact Phone Number _____ Date Review Completed _____

Closure Equivalency Determination - Module M				
Subject Requirement	**40 CFR Section Nos.**	**ADEM Regulation Nos.**	**Location in Application**	**Comments**
PART M - CLOSURE EQUIVALENCY DETERMINATION Owners/operators of surface impoundments, land-fills, land treatment units, and waste piles that received wastes after July 26, 1982 or certified closure according to 265.115 after January 26, 1983 must do one of the following: • Obtain post-closure permits for those units • Demonstrate closure by removal in accordance with 260.1(c)(5) and (6)	270.1(c) [12/01/87]	335-14-8-.01(1) (c)		
M-1 Closure by Removal Basic information requirements: • List of contaminants managed in the closed unit • List of cleanup levels for each contaminant • List of 40 CFR Part 264 acceptable cleanup level for each contaminant	270.1(c)(5) [12/01/87] 270.1(c)(6)	335-14-8-.01(1) (c)5. 335-14-8-.01(1) (c)6.		

M-1a Requirement for Closure Equivalency Determination Demonstrate that the closure met the standards for closure by removal or decontamination in 264.228, 264.258, or 264.280(e): • If a Part B application for a post-closure permit has been submitted, the applicant may request a determination, based on information in the application, that the 264 closure standards were met				
Or • If a Part B application for a post-closure permit has not been submitted, the owner/operator may petition the R.A. for a determination that the closure met the 264 standards and a permit is not required. The petition must include: - data demonstrating closure standards were met Or - data demonstrating that the unit closed under equally or more stringent state requirements.				

M-1b Denial of Closure Equivalency If the R.A. determines that closure does not meet 264 standards, the owner/operator must submit a Part B application for a post-closure permit. Note: If an equivalency determination is requested, a very tight regulatory schedule applies: 1. R.A. determines within 90 days whether Part 265 closure met 264 closure by removal or decontamination requirements within 90 days. 2. If the R.A. finds the Part 265 closure did not meet Part 264 standards, owner/operator has 30 days to submit additional supporting information after receipt of notice. 3. The R.A. will review additional submittal and make final determination within 60 days.	270.1(c)(6)(iii) [12/01/87]	335-14-8-.01(1)(c)6.(iii)		
M-2 Post-Closure Permit Application Requirements • Checklist items I-2, I-6, and I-7, post-closure requirements • Checklist item E, groundwater monitoring requirements	270.1(c)(6)(iii) [12/01/87]	335-14-8-.01(1)(c)6.(iii)		