Part B

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:
5HW-13

NOV 30 1984

Mr. Richard O'Hara
Wisconsin Department of Natural
Resources
Box 8094
Madison, Wisconsin 53708

Re: Part B Application
Hamilton Industries
WID000608398

Dear Mr. O'Hara:

This letter is to inform you that under separate cover, a response to a October 11, 1984, Notice of Deficiency was sent to Ed Lynch of your staff by Hamilton Industries.

Your agency is requested to review this information and provide a response to this office by December 19, 1984.

Please contact Rich Traub, of my staff at (312) 886-6138 if you have any questions regarding the application.

Sincerely,

Daniel J. Barnaszek, for

William H. Miner, Chief
Technical, Permits and Compliance Section

HAMILTON INDUSTRIES

P.O. Box 137 - Telephone 414 793-1121
Two Rivers Wisconsin 54241 - Telex 026-9536

RECEIVED
NOV 15 1984
WMD-RAIU
EPA, REGION V

November 9, 1984

RCRA ACTIVITIES
Part B Permit Application
U.S. EPA, Region V
P.O. Box A3587
Chicago, IL 60690-3587

ATTN: MR. RICHARD TRAUB

RE: WID 000608398

Dear Mr. Traub:

Enclosed are the original and one copy each of Pages 3 of 5, and 4 of 5 of the revised Part A and the additional information for Part B requested by Mr. William H. Miner in his "Notice of Deficiency" dated October 11, 1984.

These pages will replace the corresponding numbered pages in our Part A and Part B applications. In some cases, there have been additional pages added. These have been numbered and can be placed in sequence.

Please note that Page 31 AT referred to in Enclosure #19 has been changed to 31 AU.

Asterisks (*) have been placed in the margins where changes were made due to corrections or additional information which became available.

The term "Enclosure" with a number following, i.e., "Enclosure 8" found in the margin refers to the number of the request for additional information in the enclosure submitted with the Notice.

We have not received the Certificate of Liability for sudden accidental occurrences (Enclosure #22). It will be forwarded when received.

Sincerely,

David L. Tice
Superintendent Maintenance

DLT/jr

Enclosure

COPY

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program
(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F W I D 0 0 0 6 0 8 3 9 8 — T/A: D

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

LABEL ITEMS

I. EPA I.D. NUMBER: WID000608398

III. FACILITY NAME: Hamilton Industries, Inc.

V. FACILITY MAILING ADDRESS: 1316 - 18th Street, Two Rivers, WI 54241

VI. FACILITY LOCATION: 1316 - 18th Street, Two Rivers, WI 54241

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold—faced terms.**

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP HAMILTON INDUSTRIES, INC.

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 TICE, DAVID, SUPT. MAINTENANCE	414 793 1121

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 1316 - 18TH STREET

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 TWO RIVERS	WI	54241

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 1316 - 18TH STREET

B. COUNTY NAME: MANITOWOC

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 TWO RIVERS	WI	54241	36

CONTINUE ON REVERSE

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER: F W I D 0 0 0 6 0 8 3 9 8 1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

C 8 — YR. 7 4 — MO. 0 6 — DAY 2 0 — FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

[ ] 2. NEW FACILITY *(Complete item below.)*

YR. — MO. — DAY — FOR NEW FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[X] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code*(s)* in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C).*

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below):* A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 2	2504	G		7				
2	S 0 1	1925	G		8				
3					9				
4					10				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
S W W 1 D 0 0 0 6 0 8 3 9 8 T/A C 1	S W DUP T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F003	1300	T	S01 S02	
2	F005	1650	T	S01 S02	
3	D001	3100	T	S01 S02	
4					
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24					
25					
26					

Continued from page 4.

V. FACILITY DRAWING *(see page 4)*

Hamilton INDUSTRIES

Two Rivers Wisconsin 54241 Telephone 414 793-1121
Telex 026-9536

August 9, 1984

Bureau of Solid Waste
Wisconsin Dept. of Natural Resources
Box 7921
Madison, WI 53707

RECEIVED

Attention: Mr. Ed Lynch

Re: WID000608398

Dear Mr. Lynch:

Enclosed are three copies of our Part B application, and one original and 2 copies of our revised Part A for our hazardous waste facility.

Item I-8b(1), a Certificate of Liability Insurance, did not arrive in time and will be forwarded when received.

Sincerely,

David L. Tice
Superintendent, Maintenance

DLT:rak

Enclosures

COPY 1

Hamilton INDUSTRIES

Two Rivers Wisconsin 54241 Telephone 414 793-1121
Telex 026-9536

Changes to Part "A" EPA General information application form 3510-1 from the original submitted.

Form 1 General

Name Change from AMERICAN HAMILTON to HAMILTON INDUSTRIES, INC.

Form 3 RCRA

Page 1 of 5

III. Processes

Line No.	A	B1	B2		A	B1	B2
1-	S02	3000	G	To Read	S02	2504	G
2-	T03	30	E	" "	S01	1925	G

Page 3 of 5

IV. Description of Hazardous Waste

Line No.	A	B	C	1. Process Code
1	F017	11	T	D 80
2	K078	182	T	T 03

Change to read:

Line No.	A	B	C	1. Process Code	
1	F003	244	T	S01	S02
2	F005	309.5	T	S01	S02
3	D001	384	T	S01	S02

During our meeting in Chicago, May 29, 1984, with R. Traub and B. Munow, the following items in the outine were selected to be included in this application.

B-1
B-2
B-2a
B-3b
B-3b (1)
B-3b (1)(a)
B-3b (1)(b)
B-3b (3)
B-4
C-1
C-1a
C-1b
C-2
C-2a
C-2b
C-2c
C-2d
C-2e
C-2f
D-1a (1)
D-1a (2)
D-1a (3)
D-1a (3)(a)
D-1a (3)(b)
D-1a (3)(c)
D-1a (3)(d)
D-1a (4)
D-1b (1)
D-1b (2)
D-1b (3)
D-1b (4)
D-2a
D-2b
D-2c
F-1a
F-1a (1)
F-1a (2)(a)
F-1a (2)(b)
F-1a (3)
F-1b
F-1b (1)
F-1b (2)
F-2a
F-2a (1)
F-2a (2)
F-2b (1)
F-2b (2)
F-2b (2)(a)
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F-3a (1)
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F-4c
F-4d
F-4e
F-5a
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F-5c
F-5d
F-5e
F-5f
G-
G-1
G-2
G-3
G-4a
G-4b
G-4c
G-4d
G-4e
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G-6
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H-1
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H-1b
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H-1e (1)
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H-1e (3)
H-1e (4)
H-1e (6)
H-2
I
I-1
I-1a
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I-1c
I-1d
I-1d (1)
I-1d (2)
I-1g
I-1h
I-4
I-5
I-5b
I-5b (2)
I-8
I-8a
I-8a (1)
I-8b (1)
I-9a
J
K

During our meeting in Chicago, May 29, 1984, with R. Traub and B. Munow, the following items in the outline were eliminated from this application as they did not apply to our facility.

B-2b
B-3b (2)
C-1c
C-1d
C-1e
C-1f
D-3a
D-3b (1)
D-3b (1)(a)
D-3b (1)(b)
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E-7e (2)
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E-7f (3)(i)
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SUBJECT REQUIREMENT: 40 CFR Section Nos.

A. PART A APPLICATION: 270.10, 270.13

B-1 General Description: 270.14(b)(1)

Describe the facility, including 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.

B-2 Topographic Map: 270.14(b)(19), 270.14(c)(3), 270.25(c)(4), 264.95, 264.97

B-2a General Requirements: 270.14(b)

Show the facility and a distance of 1,000 feet around it, at a scale of 1 inch equal to not more than 200 feet. The map must include: contours sufficient to show surface water flow around facility unit operations, map date, 100-year floodplain area, surface waters, surrounding land uses, a wind rose, map orientation, and legal boundaries of facility site. The map should also indicate location of access control, injection and withdrawal wells, buildings, structures, sewers, loading and unloading areas, fire control facilities, flood control or drainage barriers, run-off control systems, and location of hazardous waste operation units.

B-2b Additional Requirements for Land Disposal Facilities: 270.14(c)(3), 270.25(c)(4), 264.95, 264.97

The topographic map must also indicate the waste management area boundaries, property boundaries, proposed point of compliance, proposed groundwater monitoring well locations, the locations of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility (including flow direction and rate), and if present, the extent of the plume of contamination that has entered the groundwater from a regulated unit.

B-3b Floodplain Standard: 270.14(b)(11)(iii), 264.18(b)

Document whether or not the facility is located within a 100-year floodplain, and include the source of data (Federal Insurance Administration Map or equivalent maps and calculations).

B-3b(i) Demonstration of Compliance: 270.14(b)(11)(iv), 264.18(b)

For facilities located within the 100-year floodplain, describe how the facility is designed, constructed, operated, and maintained to prevent washout of any hazardous waste during a flood.

B-3b(i)(a) Flood Proofing and Flood Protection Measures: 270.14(b)(11)(iv)(A) and (B)

Provide a structural or other engineering study showing how the design of the hazardous waste units and the flood proofing and protection devices at the facility will prevent washout.

B-3b(i)(b) Flood Plan: 270.14(b)(11)(iv)(C)

Describe the procedures to be followed to remove hazardous waste to safety before the facility is flooded, including timing related to flood levels, estimated time to move the waste, the location to which the waste will be moved, demonstration that those facilities will be eligible to receive hazardous waste, the planned procedures, equipment, and personnel to be used, and the potential for accidental discharge of the waste during movement.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

B-3b(2) Waiver for Land Storage and Disposal Facilities: 264.18(b)(11)

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: the volume and physical and chemical characteristics of the waste; the concentration of hazardous constituents that would potentially affect surface waters; the impact of such concentrations on the current or potential uses of and water quality standards established for the affected surface waters; and the impact of hazardous constituents on the sediments of affected surface waters or the soils of the 100-year floodplain.

B-3b(3) Plan for Future Compliance With Floodplain Standard: 270.14(b)(11)(v)

For facilities located within the 100-year floodplain that do not comply with the floodplain standard, show how and when the facility will be brought into compliance.

B-4 Traffic Information: 270.14(b)(10)

Describe the traffic pattern on-site, including estimated volume, traffic control, access road surfacing, load-bearing capacity, and traffic control signals.

C-1 Chemical and Physical Analyses: 270.14(b)(2), 264.13(a)

For each hazardous waste stored, treated or disposed at the facility, describe the waste, the hazard characteristics, the basis for hazard designation, and provide a laboratory report detailing the chemical and physical analyses of representative samples.

C-1a Containerized Waste: 270.14(b)(1)

For owners and operators that store containers of wastes without a secondary containment system, provide the test procedures and results, or other documentation or information, which show that the wastes do not contain free liquids (see D-1b(1)).

C-1b Waste in Tanks: 264.191

Provide the maximum specific gravity of wastes to be stored in tanks.

C-1c Waste in Piles: 264.250(c)(1)

For owners and operators requesting a waiver from the waste pile requirements, provide the test procedures and results, or other documentation or information, which show that the wastes do not contain free liquids when placed on the pile and that the wastes will not generate leachate through decomposition or other reactions while being stored.

C-1d Landfilled Wastes: 264.314

Provide the test procedures and results, or other documentation or information, showing that wastes do not contain free liquids if a liner and leachate collection and removal system is not employed.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

C-1e **Wastes Incinerated and Wastes Used in Performance Tests:** 270.62(2)(ii)(A)

Analyses must be provided for each waste or waste mixture to be burned during operation and for the waste feed (to be) used in the performance tests, including: heat value; viscosity of liquids; physical form of nonliquids; identification of Appendix VIII hazardous organic constituents reasonably expected to be present; chlorine concentration; and ash content. If data is submitted in lieu of a trial burn, applicant must quantify potential POHCs and provide a comparison of wastes used in performance tests and those for which permit is sought demonstrating similarity.

C-1f **Wastes to be Land Treated:** 270.20(b)(4), 264.271(a)(2)

N/A

Provide the vapor pressure of all hazardous constituents of wastes to be land treated. Provide the concentration of cadmium in all wastes.

C-2 **Waste Analysis Plan:** 270.14(b)(3), 264.13(b) and (c)

Provide a copy of the waste analysis plan that describes the methodologies for conducting the analyses required to properly treat, store, or dispose of hazardous wastes.

C-2a **Parameters and Rationale:** 264.13(b)(1)

List parameters chosen for analysis and explain the rationale for their selection.

C-2b **Test Methods:** 264.13(b)(2)

Describe the test methods used to test for parameters chosen.

C-2c **Sampling Methods:** 264.13(b)(3), 261 Appendix I

List the sampling methods used to obtain a representative sample of each waste to be analyzed.

C-2d **Frequency of Analyses:** 264.13(b)(4)

Describe the frequency at which the analyses will be repeated.

C-2e **Additional Requirements for Wastes Generated Off-Site:** 264.13(c)

Describe the procedures used to inspect and/or analyze wastes generated off-site, including procedures to determine their identity and sampling methods used.

C-2f **Additional Requirements for Ignitable, Reactive or Incompatible Wastes:** 264.13(b)(6), 264.17

Describe the methods used to meet additional waste analysis requirements necessary for treating, storing, or disposing of ignitable, reactive or incompatible wastes.

D-1a(1) **Description of Containers:** 264,171, 264.172

Describe the facility's primary containment devices, including basic design parameters, dimensions, materials of construction, and compatibility of waste with containers.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-1a(2) Container Management Practices: 264.173

Describe container management practices used to ensure that hazardous waste containers are always kept closed during storage, except when adding or removing waste, and are not opened, handled, or stored in a manner that may cause them to rupture or to leak.

D-1a(3) Secondary Containment System Design and Operation: 270.15(b)(1), 264.175(a)

Describe the design and operation of the container storage area containment system showing the capability of the system to hold spills, leaks, and precipitation. This secondary containment system must have the following documented characteristics:

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids: 264.175(a)(1)

The base under the containers must be free of cracks or gaps and sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.

D-1a(3)(b) Containment System Drainage: 270.15(a)(2), 264.175(a)(2)

The 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 are otherwise protected from contact with accumulated liquids.

D-1a(3)(c) Containment System Capacity: 270.15(a)(3), 264.175(a)(3)

The containment system must have sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container, whichever is greater.

D-1a(3)(d) Control of Run-on: 270.15(a)(4), 264.175(b)(4)

Run-on into the containment system must be prevented, unless the collection system has sufficient excess capacity in addition to that required in the above paragraph to contain any run-on that might enter the system.

D-1a(4) Removal of Liquids from Containment System: 270.15(a)(5), 264.175(b)(5)

Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner to prevent overflow of the containment system.

D-1b(1) Test for Free Liquids: 270.15(b)(1)

For areas that store containers of wastes that do not contain free liquids, the test procedures and results or other documentation or information must show that the wastes do not contain free liquids.

D-1b(2) Description of Containers: 264.171, 264.172

Describe the facility primary containment devices, including basic design parameters, dimensions, materials and construction, and demonstration of compatibility of waste with containers.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-1b(3) Container Management Practices: 264.173

Describe container management practices used to ensure that hazardous waste containers are always kept closed during storage except when adding or removing waste, and are not opened, handled, or stored in a manner that may cause the container to rupture or to leak.

D-1b(4) Container Storage Area Drainage: 270.15(b)(2), 264.175(c)

Describe how the storage area is designed or operated to drain and remove liquids unless containers are otherwise kept from contact with standing liquids.

D-2a Description of Tanks: 270.16, 264.191

Provide a review of tank design specifications to assure that the tanks will not collapse or rupture. The specifications to be reviewed include existing shell thickness, capacity, width, height and material of construction, pressure controls, foundation, structural support, and seams.

D-2b Tank Corrosion and Erosion: 270.16(b), 264.192(a)

Provide a review of the pertinent characteristics of the tank construction material and lining materials to determine corrosion or erosion effects with wastes and other materials (i.e., treatment reagents).

D-2c Tank Management Practices: 270.16(d) and (e), 264.192(b)

Describe the tank owner's or operator's operating practices and controls to prevent overfilling (such as a waste feed cut-off system or bypass system to a standby tank) and to maintain sufficient freeboard to prevent overtopping of uncovered tanks by wave or wind action or by precipitation.

D-3a List of Wastes: 270.18(a)

N/A. Provide a list of all hazardous wastes placed or to be placed in waste piles.

D-3b(1) Enclosed Dry Piles: 270.18(b), 264.250(c)

N/A If an exemption is requested from the requirements to install a liner and leak detection system and the Subpart F groundwater monitoring requirements, demonstrate that neither run-off nor leachate is generated from the pile.

D-3b(1)(a) Protection From Precipitation: 270.18(b), 264.250(c)

Demonstrate that the pile is inside or under a structure that provides complete protection from precipitation.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3b(1)(b) Free Liquids: 270.18(b), 264.250(c)(1)

Demonstrate that neither liquids nor materials containing free liquids are placed in the pile.

D-3b(1)(c) Run-on Protection: 270.18(b), 264.250(c)(2)

Demonstrate that the pile is protected from surface water run-on by the structure or in some other manner.

D-3b(1)(d) Wind Dispersal Control: 270.18(b), 264.250(c)(3)

Demonstrate how the pile design and operation controls wind dispersal of wastes.

D-3b(1)(e) Leachate Generation: 270.18(b), 264.250(c)(4)

Demonstrate that the pile will not generate leachate through decomposition or other reactions.

D-3b(2) Liner Exemption Request: 270.18(c)(1), 264.251(b)

If an exemption is requested from only the liner requirement, document the design and operating practices that will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time.

D-3c Liner Engineering Report: 270.18(c)(1), 264.251(a)(1)

Provide a description of the liner system, demonstrating that the flow of liquids through the liner(s) will be prevented. Only existing portions of existing facilities are exempt from the liner requirements.

D-3c(1) Liner Description: 270.18(c)(1), 264.251(a)(1)

Describe the type of liner, its material, SCS-type data for soil liners, the liner's thickness and, for synthetics, the manufacturer and the product's name.

D-3c(2) Liner Location Relative to High Water Table: 270.18(c)(1), 264.251(a)(1)

Provide data from at least a 12-month period showing fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the liner system.

D-3c(3) Calculation of Required Soil Liner Thickness: 270.18(c)(1), 264.251(a)(1)

For units utilizing a primary soil liner, demonstrate that the thickness of the soil liner is sufficient to retard liquid flow through it such that leachate would be wholly contained throughout the active life of the unit. Calculations using either numerical simulation techniques (unsaturated flow conditions) or D'arcy Law-derived transit time equations (saturated flow conditions) should be provided.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3c(4) Liner Strength Requirements: 270.18(c)(1), 264.251(a)(1)

Provide the results of calculations defining the minimum strength requirement for liners considering:

- Internal and external pressure gradients;
- Stresses resulting from settlement, compression or uplift;
- Climatic conditions (freeze-thaw stress);
- Installation stresses; and
- Operating stresses.

D-3c(5) Liner Strength Demonstration: 270.18(c)(1), 264.251(a)(1)

Provide data showing that the liner exceeds the calculated minimum strength requirement.

D-3c(6) Liner/Waste Compatibility Testing Results: 270.18(c)(1), 264.251(a)(1)

Provide the results of liner/waste compatibility testing demonstrating that liner strength and performance are still adequate after exposure to waste leachates. Both primary and secondary leachates should be used in this testing.

D-3c(7) Liner Installation: 270.18(c)(1), 264.251(a)(1)

Describe the procedures for installing the liner(s).

D-3c(7)(a) Synthetic Liner Seaming: 270.18(c)(1), 264.251(a)(1)

Describe the techniques to be utilized to bond membrane liner seams and the strength and chemical compatibility of the seams.

D-3c(7)(b) Soil Liner Compaction: 270.18(c)(1), 264.251(a)(1)

Describe the procedures for installing the soil liner and compacting the liner to achieve the desired permeability. Include the maximum height of lifts to be placed.

D-3c(7)(c) Installation Inspection/Testing Programs: 270.18(c)(1), 264.254(a)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during liner installation to assure that the liner system as installed meets the design requirements.

D-3c(8) Liner Coverage: 270.18(c)(1), 264.251(a)(1)(iii)

Demonstrate that the liner will be installed to cover all surrounding earth likely to be in contact with the waste or leachate.

D-3c(9) Liner Exposure Prevention: 270.18(c)(1), 264.251(a)(1)

Demonstrate that the liner will not be exposed to wind or sunlight or, if exposure is to be permitted, that such exposure will not result in unacceptable liner degradation.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3c(10) Synthetic Liner Bedding: 270.18(c)(1), 264.251(a)(1)

Demonstrate that sufficient bedding will be provided above and below the liner to prevent rupture during installation and operation.

D-3d(1) Liner Foundation Design Description: 270.18(c)(1), 264.251(a)(1)(ii)

Describe the liner foundation design and materials of construction. Determine the capability of the foundation to support any expected static and dynamic loadings.

D-3d(2) Subsurface Exploration Data: 270.18(c)(1), 264.251(a)(1)(ii)

The engineering characteristics of the foundation materials should be verified through subsurface explorations. These efforts should be described and may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-3d(3) Laboratory Testing Data: 270.18(c)(1), 264.251(a)(1)(ii)

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.

D-3d(4) Engineering Analyses: 270.18(c)(1), 264.251(a)(1)(ii)

Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs.

D-3d(4)(a) Settlement Potential: 270.18(c)(1), 264.251(a)(1)(ii)

Provide estimates of the total and differential settlement, including immediate settlement, primary consolidation and secondary consolidation. Stresses imposed by liners, wastes and equipment should be considered.

D-3d(4)(b) Bearing Capacity and Stability: 270.18(c)(1), 264.251(a)(1)(ii)

Provide estimates of the bearing capacity and stability of the foundation, demonstrating that allowable bearing capacity will not be exceeded.

D-3d(4)(c) Potential for Bottom Heave or Blow-out: 270.18(c)(1), 264.251(a)(1)(ii)

Provide estimates of the potential for bottom heave or blow-out due to unequal hydrostatic or gas pressures.

D-3d(4)(d) Construction and Operational Loading: 270.18(c)(1), 264.251(a)(1)(ii)

Demonstrate that the foundation is capable of providing adequate support for construction equipment and operating equipment (e.g., dredges).

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D-3d(5) Foundation Installation Procedures: 270.18(c)(1), 264.251(a)(1)(ii)

For installed foundations, provide a description of the foundation installation procedures.

D-3d(6) Foundation Installation Inspection Program: 270.18(c)(1), 264.251(a)(1)(ii)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during foundation installation to assure that the foundation as installed meets the design requirements.

D-3e Leachate Collection and Removal System: 264.251(a)(2)

Provide information describing the design and operation of a system to collect and remove leachate from new portions of waste piles.

D-3e(1) System Design and Operation: 264.251(a)(2)

Describe the design features of the leachate collection and removal system and how the system will function to remove collected leachate in a timely manner.

D-3e(2) Maximum Leachate Head: 264.251(a)(2)

Describe the design and operating features that will prevent leachate depth over the liner from exceeding one foot.

D-3e(3) Chemical Resistance: 264.251(a)(2)

Demonstrate that the leachate collection and removal system components are chemically resistant to the waste managed in the pile and the leachate expected to be generated.

D-3e(4) Strength of Materials: 264.251(a)(2)

Demonstrate that system components are of sufficient strength and thickness to prevent collapse under expected static and dynamic loadings.

D-3e(5) Prevention of Clogging: 264.251(a)(2)

Demonstrate that the system design and operation will prevent clogging throughout the active life of the pile.

D-3e(6) Installation: 264.251(a)(2)

Describe the methods to be employed to install the leachate collection and removal system. Include a description of the inspection program to be implemented to assure installation in accordance with design requirements.

D-3e(7) Maintenance: 264.251(a)(2)

Describe anticipated maintenance activities that will be used to assure proper system operation throughout the pile's

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3f(1) Calculation of Peak Flow: 270.18(c)(2), 264.251(c)

Identify the peak surface water flow expected to result from a 25-year design storm. Describe the data sources and methods used to make the peak flow calculation.

D-3f(2) Design and Performance: 270.18(c)(2), 264.251(c)

Describe the run-on control system design. Demonstrate that system design will prevent run-on from reaching active portions of the unit.

D-3f(3) Construction: 270.18(c)(2), 264.251(c)

Describe the methods to be employed to construct the run-on control system. Include descriptions of any construction inspection program to be utilized to assure construction in accordance with design requirements.

D-3f(4) Maintenance: 270.18(c)(2), 264.251(c)

Describe any maintenance activities required to assure continued proper run-on system operation throughout the unit's active life.

D-3g Run-off Control System: 270.18(c)(3), 264.251(d)

Describe the run-off control system to be used to collect and control run-off from active portions.

D-3g(1) Calculation of Peak Flow: 270.18(c)(3), 264.251(d)

Identify the total run-off volume expected to result from a 24-hour 25-year storm. Describe data sources and methods used to make the peak flow calculation.

D-3g(2) Design and Performance: 270.18(c)(3), 264.251(d)

Describe the run-off collection and control system design. Demonstrate that the system has sufficient capacity to collect and hold the total run-off volume calculated in D-3g(1).

D-3g(3) Construction: 270.18(c)(3), 264.251(d)

Describe the methods to be employed to construct the run-off collection and control system. Include descriptions of any construction inspection program to be employed to assure construction in accordance with design requirements.

D-3g(4) Maintenance: 270.18(c)(3), 264.251(d)

Describe any maintenance activities required to assure continued proper run-off system operation throughout the unit's active life.

D-3h Management of Collection and Holding Units: 270.18(c)(4), 264.251(e)

Describe how collection and holding facilities associated with run-on and run-off control systems will be emptied or otherwise managed expeditiously after storms to maintain system design capacity.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3i Control of Wind Dispersal: 270.18(c)(5), 264.251(f)

If the pile contains any particulate matter which may be subject to wind dispersal, describe how the pile is covered or otherwise managed to control wind dispersal.

D-3j Double-Liner Exemption: 270.18(d), 264.252

If an exemption from the Subpart F groundwater monitoring requirements is sought, provide design data for a double-liner system incorporating a leak detection system between liners and a leachate collection and removal system above the top liner (liners should be described in D-3c and leachate collection/removal systems in D-3e).

D-3j(1) Leak Detection System Design: 270.18(d), 264.252(a)(3)

Describe the design of the leak detection system and the materials of construction.

D-3j(1)(a) Grading: 270.18(d), 264.252(a)(3)

Demonstrate that the leak detection points are appropriately located. Show that the drainage media in which the leak detection system is to operate is appropriately graded to assure that leakage at any point in the liner system could be detected.

D-3j(1)(b) Pipe Network Spacing: 270.18(d), 264.252(a)(3)

If a pipe network is utilized to collect leakage, describe the layout and spacing of that network.

D-3j(1)(c) Pipe Material Strength: 270.18(d), 264.252(a)(3)

Demonstrate that any piping utilized between the liners will have sufficient strength to prevent collapse from anticipated static and dynamic loadings.

D-3j(1)(d) Pipe and Pipe Perforation Sizes: 270.18(d), 264.252(a)(3)

If a piping network is utilized, demonstrate that pipe and pipe perforation sizes are sufficient to allow free liquid access to the drainage system yet avoid clogging of the perforations and pipes by the drainage media.

D-3j(1)(e) Drainage Media Specifications and Performance: 270.18(d), 264.252(a)(3)

Demonstrate sufficient gradation of drainage media and filter materials to allow free liquid access to leak detection points or piping system. Demonstrate that drainage media thickness and hydraulic conductivity allow sufficient head to promote drainage.

D-3j(2) Leak Detection System Operation: 270.18(d), 264.252(a)(3)

Demonstrate that the leak detection system operation will provide for timely detection of liquids entering the space between the liners. Describe automated system features and any required operator interactions or monitoring.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3k Subpart F Exemption for Inspectable Piles: 270.18(d), 264.253

If an exemption from the Subpart F groundwater monitoring requirements is sought for an inspectable pile, provide design data for a liner and a leachate collection and removal system (described in D-3c and D-3e, respectively).

Describe the procedures for periodic removal of wastes from the pile to allow for inspection of the liner.

D-3l Treatment Within the Pile: 270.18(f)

If any treatment is accomplished in the pile, provide the following descriptions.

D-3l(1) Treatment Process Description: 270.18(f)

Describe the process by which wastes are treated and the effect of the treatment on the wastes.

D-3l(2) Equipment Used: 270.18(f)

Describe any equipment or other materials required to initiate or promote treatment.

D-3l(3) Residuals Description: 270.18(f)

Describe the nature and quantity of the wastes remaining in the pile after treatment is complete.

D-4a List of Wastes: 270.17(a)

Provide a list of all hazardous wastes placed or to be placed in surface impoundments.

D-4b Liner Exemption Request: 270.17(b)(1), 264.221(b)

Document the design and operating practices that will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time.

D-4c Liner Engineering Report: 270.17(b)(1), 264.221(a)(1)

Provide a description of the liner system, demonstrating that the flow of liquids through the liner(s) will be prevented. Only existing portions of existing facilities are exempt from the liner requirements.

D-4c(1) Liner Description: 270.17(b)(1), 264.221(a)(1)

Describe the type of liner, its material, SCS-type data for soil liners, the liner's thickness and, for synthetics, the manufacturer and the product's name.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4c(2) Liner Location Relative to High Water Table: 270.17(b)(1), 264.221(a)(1)

Provide data from at least a 12-month period showing fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the liner system.

D-4c(3) Calculation of Required Soil Liner Thickness: 270.17(b)(1), 264.221(a)(1)

For units utilizing a primary soil liner, demonstrate that the thickness of the soil liner is sufficient to retard liquid flow through it such that leachate would be wholly contained throughout the active life of the unit. Calculations using either numerical simulation techniques (unsaturated flow conditions) or D'arcy Law-derived transit time equations (saturated flow conditions) should be provided.

D-4c(4) Liner Strength Requirements: 270.17(b)(1), 264.221(a)(1)

Provide the results of calculations defining the minimum strength requirement for liners considering:

- Internal and external pressure gradients;
- Stresses resulting from settlement, compression or uplift;
- Climatic conditions (freeze-thaw stress);
- Installation stresses; and
- Operating stresses.

D-4c(5) Liner Strength Demonstration: 270.17(b)(1), 264.221(a)(1)

Provide data showing that the liner exceeds the calculated minimum strength requirement.

D-4c(6) Liner/Waste Compatibility Testing Results: 270.17(b)(1), 264.221(a)(1)

Provide the results of liner/waste compatibility testing demonstrating that liner strength and performance are still adequate after exposure to waste leachates. Both primary and secondary leachates should be used in this testing.

D-4c(7) Liner Installation: 270.17(b)(1), 264.221(a)(1)

Describe the procedures for installing the liner(s).

D-4c(7)(a) Synthetic Liner Seaming: 270.17(b)(1), 264.221(a)(1)

Describe the techniques to be utilized to bond membrane liner seams and the strength and chemical compatibility of the seams.

D-4c(7)(b) Soil Liner Compaction: 270.17(b)(1), 264.221(a)(1)

Describe the procedures for installing the soil liner and compacting the liner to achieve the desired permeability. Include the maximum height of lifts to be placed.

D-4c(7)(c) Installation Inspection/Testing Programs: 270.17(b)(1), 264.226(a)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during liner installation to assure that the liner system as installed meets the design requirements.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4c(8) Liner Coverage: 270.17(b)(1), 264.221(a)(3)

Demonstrate that the liner will be installed to cover all surrounding earth likely to be in contact with the waste or leachate.

D-4c(9) Liner Exposure Prevention: 270.17(b)(1), 264.221(a)(1)

Demonstrate that the liner will not be exposed to wind or sunlight or, if exposure is to be permitted, that such exposure will not result in unacceptable liner degradation.

D-4c(10) Synthetic Liner Bedding: 270.17(b)(1), 264.221(a)(1)

Demonstrate that sufficient bedding will be provided above and below the liner to prevent rupture during installation and operation.

D-4d(1) Liner Foundation Design Description: 270.17(b)(1), 264.221(a)(2)

Describe the liner foundation design and materials of construction. Determine the capability of the foundation to support any expected static and dynamic loadings.

D-4d(2) Subsurface Exploration Data: 270.17(b)(1), 264.221(a)(2)

The engineering characteristics of the foundation materials should be verified through subsurface explorations. These efforts should be described and may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-4d(3) Laboratory Testing Data: 270.17(b)(1), 264.221(a)(2)

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.

D-4d(4) Engineering Analyses: 270.17(b)(1), 264.221(a)(2)

Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs.

D-4d(4)(a) Settlement Potential: 270.17(b)(1), 264.221(a)(2)

Provide estimates of the total and differential settlement, including immediate settlement, primary consolidation and secondary consolidation. Stresses imposed by dikes, liners, wastes and equipment should be considered.

D-4d(4)(b) Bearing Capacity and Stability: 270.17(b)(1), 264.221(a)(2)

Provide estimates of the bearing capacity and stability of the foundation, demonstrating that allowable bearing capacity will not be exceeded.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4d(4)(c) Potential for Bottom Heave or Blow-out: 270.17(b)(1), 264.221(a)(2)

Provide estimates of the potential for bottom heave or blow-out due to unequal hydrostatic or gas pressures.

D-4d(4)(d) Construction and Operational Loading: 270.17(b)(1), 264.221(a)(2)

Demonstrate that the foundation is capable of providing adequate support for construction equipment and operating equipment (e.g., dredges).

D-4d(5) Foundation Installation Procedures: 270.17(b)(1), 264.221(a)(2)

For installed foundations, provide a description of the foundation installation procedures.

D-4d(6) Foundation Installation Inspection Program: 270.17(b)(1), 264.221(a)(2)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during foundation installation to assure that the foundation as installed meets the design requirements.

D-4e Prevention of Overtopping: 270.17(b)(2), 264.221(c)

Describe the design and/or operating procedures that will provide protection against impoundment overtopping/overflow.

D-4e(1) Design Features: 270.17(b)(2), 264.221(c)

Describe the design features utilized to prevent overtopping, such as:

- Spillways or weirs
- Automatic or manual controls
- Sensors and alarms.

D-4e(2) Operating Procedure: 270.17(b)(2), 264.221(c)

If operating procedures are instrumental to preventing overtopping, provide a description of those procedures.

D-4e(3) Water Balance Study: 270.17(b)(2), 264.221(c)

Unless foolproof controls such as weirs are employed to prevent overtopping, provide the results of water balance studies showing that adequate freeboard will be available following a 100-year 24-hour storm.

D-4e(4) Freeboard Requirements: 270.17(b)(2), 264.221(c)

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(5) Outflow Destination: 270.27(b)(2), 264.221(c)

Describe the fate of liquids released through flow control devices. Identify the location to which wastes would be moved in the event of an emergency.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4f(1) Engineer's Certification: 270.17(e), 264.226(c)

Provide written certification by a qualified engineer attesting to the structural integrity of all dikes. For new units, submit a statement from a qualified engineer that such a certification will be provided upon completion of the new dikes.

D-4f(2) Dike Design Description: 270.17(b)(3), 264.221(d)

Provide data and/or drawings specifying design layout of the dikes and their components including materials of construction. Determine the capability of the dikes to withstand failure from expected static and dynamic loadings and the effects of erosion.

D-4f(3) Erosion Protection: 270.17(b)(3), 264.221(d)

Provide demonstration that dikes are designed and constructed to minimize erosion and prevent failure due to excessive erosion. These demonstrations should consider the erosion potential from rainfall, surface water run-off, any contact between impounded wastes and the dikes, and potential leakage through the dikes. Describe procedures for correcting erosion problems identified during the unit's operating life.

D-4f(4) Subsurface Soil Conditions: 270.17(b)(3), 264.221(d)

The engineering characteristics of the dike foundation materials should be verified through testing and subsurface explorations, as necessary. These explorations may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-4f(5) Stability Analysis: 270.17(b)(3), 264.221(d)

Provide a description of, and the results from, stability analyses for the following conditions, as appropriate:

- Foundation soil bearing failure or settlement;
- Failure in the dike slopes;
- Build-up of hydrostatic pressure due to failure of drainage system, dike cover, and liner; and
- Rapid drawdown.

D-4f(6) Strength and Compressibility Test Results: 270.17(b)(3), 264.221(d)

Provide results of strength and compressibility tests on the dike materials together with a description of the sampling procedures and test methods.

D-4f(7) Dike Construction Procedures: 270.17(b)(3), 264.221(d)

Describe the methods to be used to construct dikes at new units.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4f(8) Dike Construction Inspection Program: 270.17(b)(3), 264.221(d)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during dike construction to assure that new dikes meet their design requirements.

D-4g Request for Subpart F Exemption: 270.17(c), 264.222(a)

If an exemption from the Subpart F groundwater monitoring requirements is sought, provide design data for a double-liner system incorporating a leak detection system between liners (liners should be described in D-4c).

D-4g(1) Leak Detection System Design: 270.17(c), 264.222(a)(3)

Describe the design of the leak detection system and the materials of construction.

D-4g(1)(a) Grading: 270.17(c), 264.222(a)(3)

Demonstrate that the leak detection points are appropriately located and that the drainage media in which the leak detection system is to operate is appropriately graded to assure that leakage at any point in the liner system could be detected.

D-4g(1)(b) Pipe Network Spacing: 270.17(c), 264.222(a)(3)

If a pipe network is utilized to collect leakage, describe the layout and spacing of that network.

D-4g(1)(c) Pipe Material Strength: 270.17(c), 264.222(a)(3)

Demonstrate that any piping utilized between the liners will have sufficient strength to prevent collapse from anticipated static and dynamic loadings.

D-4g(1)(d) Pipe and Pipe Perforation Sizes: 270.17(c), 264.222(a)(3)

If a piping network is utilized, demonstrate that pipe and pipe perforation sizes are sufficient to allow free liquid access to the drainage system yet avoid clogging of the perforations and pipes by the drainage media.

D-4g(1)(e) Drainage Media Specifications and Performance: 270.17(c), 264.222(a)(3)

Demonstrate sufficient gradation of drainage media and filter materials to allow free liquid access to leak detection points or piping system. Demonstrate that drainage media thickness and hydraulic conductivity allow sufficient head to promote drainage.

D-4g(2) Leak Detection System Operation: 270.17(c), 264.222(a)(3)

Demonstrate that the leak detection system operation will provide for timely detection of liquids entering the space between the liners. Describe automated system features and any required operator interactions or monitoring.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-5a Justification for Exemption: 270.19(a)

Document the following: (1) waste contains no or insignificant concentrations of Part 261, Appendix VIII materials; and (2) waste is considered hazardous solely because it is ignitable and/or corrosive or reactive. Exempted reactive wastes are limited to materials that will not liberate toxic fumes or vapors per Sections 261.23(a)(4) and (5) and shall not be burned when other hazardous wastes are present in combustion zone.

Demonstrate that insignificant quantities of Appendix VIII materials can be based on either: (1) risk assessment which considers dispersion rates, local receptors, and toxicological effects; or (2) relationship of emission to prevalent ambient concentrations; or (3) detectability of contaminants in stack gases.

D-5b Trial Burn: 270.19(b) or (c)

Performance may be demonstrated through either a trial burn (in which event the trial burn plan should be included in this section) or through the submission of data in lieu of a trial burn (see D-5c).

D-5b(1) New Incinerator Start-up/Shakedown Conditions (Reserved)

D-5b(2)(a) Detailed Engineering Description of Incinerator: 270.62(b)(2)(ii)

Describe, at a minimum: manufacturer's name and model, if available; incinerator type; linear dimensions of incinerator unit, including the cross-sectional area of the combustion chamber; description of auxiliary fuel system (type and feed); prime mover capacity and type; description of the automatic waste feed cut-off system(s); stack gas monitoring and pollution control equipment; nozzle and burner design; construction materials; and location and description of temperature, pressure, and flow indicating and control devices. (A process and instrumentation diagram should be included.)

D-5b(2)(b) Sampling and Monitoring Procedures: 270.62(b)(2)(iii)

Describe sampling and monitoring procedures during the trial burn (i.e., waste feed, fuel feed rate, combustion gas velocity and emissions), including sampling and monitoring locations, equipment, frequency, and analytical procedures. EPA approved sampling and analysis methods must be employed or, alternatively, a demonstration of equivalence with EPA approved methods must be made.

Quality assurance/quality control programs must be described. Statistical analyses of trial burn data must utilize 95 percent confidence limits.

D-5b(2)(c) Trial Burn Schedule: 270.62(b)(2)(iv)

Submit a detailed schedule for each waste for which a trial burn is proposed, including: dates when trial burn(s) are planned; the duration of each trial burn; the quantity of waste to be burned during each trial burn; and any other relevant factors.

D-5b(2)(d) Test Protocols: 270.62(b)(2)(v)

For each waste to be burned, describe ranges in operating conditions that will be tested, including: waste constituents; combustion temperature ranges; waste feed rates; combustion gas velocity; and auxiliary fuel use.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-5b(2)(e) Pollution Control Equipment Operation: 270.62(b)(2)(vi)

Describe any emission control equipment identified in D-5b(2)(a) and include the planned operating conditions for each.

D-5b(2)(f) Shutdown Procedures: 270.62(b)(2)(vii)

Describe procedures for rapidly stopping waste feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.

D-5b(2)(g) New Incinerator Post-Trial Burn Operation (Reserved)

D-5c(1) Detailed Engineering Description of Incinerator: 270.19(c)(2)

Describe, at a minimum: manufacturer's name and model, if available; incinerator type; linear dimensions of incinerator unit, including the cross-sectional area of the combustion chamber; description of auxiliary fuel system (type and feed); prime mover capacity and type; description of the automatic waste feed cut-off system(s); stack gas monitoring and pollution control equipment; nozzle and burner design; construction materials; and location and description of temperature, pressure, and flow indicating and control devices. (A process and instrumentation diagram should be included.)

D-5c(2) Expected Incinerator Operation: 270.19(c)(6)

Submit information on the expected incinerator operation to demonstrate conformance with 264.343 and 264.345 including: expected carbon monoxide level in the stack exhaust gas; waste feed rate; combustion zone temperature; expected stack gas volume, flow rate and temperature; computed residence time for waste in the combustion zone; expected HCl removal efficiency; expected fugitive emissions and their control procedures; and proposed waste feed system cut-off limits based on identified significant operating parameters.

D-5c(3) Design and Operating Conditions: 270.19(c)(4)

Provide design and operating conditions of the incinerator unit compared with similar information from the unit used to develop data in lieu of trial burn. Information contained in D-5c(1) and D-5c(2) should be used as a basis for comparison.

D-5c(4) Previous Trial Burn Results: 270.19(c)(5)

Describe the results from all previously conducted, approved trial burns.

D-5c(4)(a) Sampling and Analysis Techniques: 270.19(c)(5)(i)

Describe the sampling and analysis techniques used to demonstrate performance in past trial burn(s). Unless EPA approved methods are used, the methods must be described and demonstrated to be equivalent with EPA approved methods.

D-5c(4)(b) Methods and Results: 270.19(c)(5)(ii)

Describe the methods and results of monitoring temperatures, waste feed rates, carbon monoxide, and combustion gas velocity during past trial burn(s) (including a precision and accuracy statement regarding this measurement).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-5d **Determinations:** 270.62(b)(6)

If approved trial burn has already been conducted, or if data in lieu of trial burn is submitted, provide the following determinations: quantitative analysis of waste feed POHCs; quantitative analysis of exhaust gas concentrations of trial POHCs, oxygen and HCl; computation of DRE; quantitative analysis of any scrubber water, ash residues and other residues (for use in estimating fate of trial POHCs); computation of HCl removal efficiency (if HCl emission rate exceeds 1.8 kg/hr); identification of fugitive emissions and their means of control; average temperatures; minimum temperatures; combustion gas velocity; and continuous-monitoring results of CO exhaust gas concentrations.

D-6a **List of Wastes:** 270.21(a)

Provide a list of all hazardous wastes placed or to be placed in landfills.

D-6b **Exemption Request:** 270.21(b)(1), 264.301(b)

If an exemption is requested from the requirements to install a liner and leak detection system, document the design and operating practices that will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time.

D-6c **Liner Engineering Report:** 270.21(b)(1), 264.301(a)

Provide a description of the liner system, demonstrating that the flow of liquids through the liner(s) will be prevented. Only existing portions of existing facilities are exempt from the liner requirements.

D-6c(1) **Liner Description:** 270.21(b)(1), 264.301(a)

Describe the type of liner, its material, SCS-type data for soil liners, the liner's thickness and, for synthetics, the manufacturer and the product's name.

D-6c(2) **Liner Location Relative to High Water Table:** 270.21(b)(1), 264.301(a)

Provide data from at least a 12-month period showing fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the liner system.

D-6c(3) **Calculation of Required Soil Liner Thickness:** 270.21(b)(1), 264.301(a)

For units utilizing a primary soil liner, demonstrate that the thickness of the soil liner is sufficient to retard liquid flow through it such that leachate would be wholly contained throughout the active life of the unit. Calculations using either numerical simulation techniques (unsaturated flow conditions) or D'arcy Law-derived transit time equations (saturated flow conditions) should be provided.

D-6c(4) **Liner Strength Requirements:** 270.21(b)(1), 264.301(a)

Provide the results of calculations defining the minimum strength requirement for liners considering:

- Internal and external pressure gradients;
- Stresses resulting from settlement, compression or uplift;
- Climatic conditions (freeze-thaw stress);
- Installation stresses; and
- Operating stresses.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6c(5) Liner Strength Demonstration: 270.21(b)(1), 264.301(a)

Provide data showing that the liner exceeds the calculated minimum strength requirement.

D-6c(6) Liner/Waste Compatibility Testing Results: 270.21(b)(1), 264.301(a)

Provide the results of liner/waste compatibility testing demonstrating that liner strength and performance are still adequate after exposure to waste leachates. Both primary and secondary leachates should be used in this testing.

D-6c(7) Liner Installation: 270.21(b)(1), 264.301(a)

Describe the procedures for installing the liner(s).

D-6c(7)(a) Synthetic Liner Seaming: 270.21(b)(1), 264.301(a)

Describe the techniques to be utilized to bond membrane liner seams and the strength and chemical compatibility of the seams.

D-6c(7)(b) Soil Liner Compaction: 270.21(b)(1), 264.301(a)

Describe the procedures for installing the soil liner and compacting the liner to achieve the desired permeability. Include the maximum height of lifts to be placed.

D-6c(7)(c) Installation Inspection/Testing Programs: 270.21(b)(1), 264.303(a)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during liner installation to assure that the liner system as installed meets the design requirements.

D-6c(8) Liner Coverage: 270.21(b)(1), 264.301(a)(1)(iii)

Demonstrate that the liner will be installed to cover all surrounding earth likely to be in contact with the waste or leachate.

D-6c(9) Liner Exposure Prevention: 270.21(b)(1), 264.301(a)(1)(i)

Demonstrate that the liner will not be exposed to wind or sunlight or, if exposure is to be permitted, that such exposure will not result in unacceptable liner degradation.

D-6c(10) Synthetic Liner Bedding: 270.21(b)(1), 264.301(a)(1)(i)

Demonstrate that sufficient bedding will be provided above and below the liner to prevent rupture during installation and operation.

D-6d(1) Liner Foundation Design Description: 270.21(b)(1), 264.301(a)(1)(ii)

Describe the liner foundation design and materials of construction. Determine the capability of the foundation to support any expected static and dynamic loadings.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6d(2) Subsurface Exploration Data: 270.21(b)(1), 264.301(a)(1)(ii)

The engineering characteristics of the foundation materials should be verified through subsurface explorations. These efforts should be described and may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-6d(3) Laboratory Testing Data: 270.21(b)(1), 264.301(a)(1)(ii)

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.

D-6d(4) Engineering Analyses: 270.21(b)(1), 264.301(a)(1)(ii)

Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs.

D-6d(4)(a) Settlement Potential: 270.21(b)(1), 264.301(a)(1)(ii)

Provide estimates of the total and differential settlement, including immediate settlement, primary consolidation and secondary consolidation. Stresses imposed by liners, wastes and equipment should be considered.

D-6d(4)(b) Bearing Capacity and Stability: 270.21(b)(1), 264.301(a)(1)(ii)

Provide estimates of the bearing capacity and stability of the foundation, demonstrating that allowable bearing capacity will not be exceeded.

D-6d(4)(c) Potential for Bottom Heave or Blow-out: 270.21(b)(1), 264.301(a)(1)(ii)

Provide estimates of the potential for bottom heave or blow-out due to unequal hydrostatic or gas pressures.

D-6d(4)(d) Construction and Operational Loading: 270.21(b)(1), 264.301(a)(1)(ii)

Demonstrate that the foundation is capable of providing adequate support for construction equipment and operating equipment (e.g., dredges).

D-6d(5) Foundation Installation Procedures: 270.21(b)(1), 264.301(a)(1)(ii)

For installed foundations, provide a description of the foundation installation procedures.

D-6d(6) Foundation Installation Inspection Program: 270.21(b)(1), 264.301(a)(1)(ii)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during foundation installation to assure that the foundation as installed meets the design requirements.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6e Leachate Collection and Removal System: 270.21(b)(1), 264.301(a)(2)

Provide information describing the design and operation of a system to collect and remove leachate from new portions of landfills.

D-6e(1) System Design and Operation: 270.21(b)(1), 264.301(a)(2)

Describe the design features of the leachate collection and removal system and how the system will function to remove collected leachate in a timely manner.

D-6e(2) Maximum Leachate Head: 270.21(b)(1), 264.301(a)(2)

Describe the design and operating features that will prevent leachate depth over the liner from exceeding one foot.

D-6e(3) Chemical Resistance: 270.21(b)(1), 264.301(a)(2)

Demonstrate that the leachate collection and removal system components are chemically resistant to the waste managed in the landfill and the leachate expected to be generated.

D-6e(4) Strength of Materials: 270.21(b)(1), 264.301(a)(2)

Demonstrate that system components are of sufficient strength and thickness to prevent collapse under expected static and dynamic loadings.

D-6e(5) Prevention of Clogging: 270.21(b)(1), 264.301(a)(2)

Demonstrate that the system design and operation will prevent clogging throughout the active life of the landfill.

D-6e(6) Installation: 270.21(b)(1), 264.301(a)(2)

Describe the methods to be employed to install the leachate collection and removal system. Include a description of the inspection program to be implemented to assure installation in accordance with design requirements.

D-6e(7) Maintenance: 270.21(b)(1), 264.301(a)(2)

Describe anticipated maintenance activities that will be used to assure proper system operation throughout the landfill's expected active life.

D-6f Run-on Control System: 270.21(b)(2), 264.301(c)

Describe the system that will be used to prevent run-on onto active portions of landfills.

D-6f(1) Calculation of Peak Flow: 270.21(b)(2), 264.301(c)

Identify the peak surface water flow expected to result from a 25-year design storm. Describe the data sources and methods used to make the peak flow calculation.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6f(2) Design and Performance: 270.21(b)(2), 264.301(c)

Describe the run-on control system design. Demonstrate that system design will prevent run-on from reaching active portions of the unit.

D-6f(3) Construction: 270.21(b)(2), 264.301(c)

Describe the methods to be employed to construct the run-on control system. Include descriptions of any construction inspection program to be utilized to assure construction in accordance with design requirements.

D-6f(4) Maintenance: 270.21(b)(2), 264.301(c)

Describe any maintenance activities required to assure continued proper run-on system operation throughout the unit's active life.

D-6g Run-off Control System: 270.21(b)(3), 264.301(d)

Describe the run-off control system to be used to collect and control run-off from active portions.

D-6g(1) Calculation of Peak Flow: 270.21(b)(3), 264.301(d)

Identify the total run-off volume expected to result from a 24-hour 25-year storm. Describe data sources and methods used to make the peak flow calculation.

D-6g(2) Design and Performance: 270.21(b)(3), 264.301(d)

Describe the run-off collection and control system design. Demonstrate that the system has sufficient capacity to collect and hold the total run-off volume calculated in D-3g(1).

D-6g(3) Construction: 270.21(b)(3), 264.301(d)

Describe the methods to be employed to construct the run-off collection and control system. Include descriptions of any construction inspection program to be employed to assure construction in accordance with design requirements.

D-6g(4) Maintenance: 270.21(b)(3), 264.301(d)

Describe any maintenance activities required to assure continued proper run-off system operation throughout the unit's active life.

D-6h Management of Collection and Holding Units: 270.21(b)(4), 264.301(e)

Describe how collection and holding facilities associated with run-on and run-off control systems will be emptied or otherwise managed expeditiously after storms to maintain system design capacity.

D-6i Control of Wind Dispersal: 270.21(b)(5), 264.301(f)

If the landfill contains any particulate matter which may be subject to wind dispersal, describe how the landfill is covered or otherwise managed to control wind dispersal.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6j Double-Liner Exemption: 270.21(c), 264.302

If an exemption from the Subpart F groundwater monitoring requirements is sought, provide design data for a double-liner system incorporating a leak detection system between liners and a leachate collection and removal system above the top liner (liners should be described in D-6c and leachate collection/removal systems in D-6e).

D-6j(1) Leak Detection System Design: 270.21(c), 264.302(a)(3)

Describe the design of the leak detection system and the materials of construction.

D-6j(1)(a) Grading: 270.21(c), 264.302(a)(3)

Demonstrate that the leak detection points are appropriately located. Show that the drainage media in which the leak detection system is to operate is appropriately graded to assure that leakage at any point in the liner system could be detected.

D-6j(1)(b) Pipe Network Spacing: 270.21(c), 264.302(a)(3)

If a pipe network is utilized to collect leakage, describe the layout and spacing of that network.

D-6j(1)(c) Pipe Material Strength: 270.21(c), 264.302(a)(3)

Demonstrate that any piping utilized between the liners will have sufficient strength to prevent collapse from anticipated static and dynamic loadings.

D-6j(1)(d) Pipe and Pipe Perforation Sizes: 270.21(c), 264.302(a)(3)

If a piping network is utilized, demonstrate that pipe and pipe perforation sizes are sufficient to allow free liquid access to the drainage system yet avoid clogging of the perforations and pipes by the drainage media.

D-6j(1)(e) Drainage Media Specifications and Performance: 270.21(c), 264.302(a)(3)

Demonstrate sufficient gradation of drainage media and filter materials to allow free liquid access to leak detection points or piping system. Demonstrate that drainage media thickness and hydraulic conductivity allow sufficient head to promote drainage.

D-6j(2) Leak Detection System Operation: 270.21(c), 264.302(a)(3)

Demonstrate that the leak detection system operation will provide for timely detection of liquids entering the space between the liners. Describe automated system features and any required operator interactions or monitoring.

D-6k Bulk or Noncontainerized Free Liquids: 270.21(h), 264.314(a)

If bulk or noncontainerized free liquids are to be placed in the landfill, demonstrate that the requirements of either D-6m(1) or D-6m(2) are met.

D-6k(1) Leachate Collection and Removal System: 270.21(h), 264.314(a)(1)

A leachate collection and removal system must be installed and operated (see D-6e).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6k(2) Free Liquid Elimination: 270.21(h), 264.314(a)(2)

Describe how, before landfilling, the wastes are treated or stabilized so that free liquids are no longer present.

D-6l Containers Holding Free Liquids: 270.21(h), 264.314(b)

If containers holding free liquids are to be landfilled, describe how the requirements of D-6n(1), or D-6n(2), or D-6n(3), or D-6n(4) will be met for all landfilled containers with free liquids.

D-6l(1) Removal of Free-Standing Liquid: 270.21(h), 264.314(b)(1)

Describe how all free-standing liquid will be removed, eliminated, absorbed or solidified.

D-6l(2) Restriction to Small Containers: 270.21(h), 264.314(b)(2)

Demonstrate that containers will be very small.

D-6l(3) Nonstorage Containers: 270.21(h), 264.314(b)(3)

Demonstrate that the containers are designed to hold free liquids for use other than storage (e.g., batteries, capacitors).

D-6l(4) Labpacks: 270.21(h), 264.314(b)(4)

Describe how it will be assured that labpacks to be landfilled containing free liquids meet the following requirements.

D-6l(4)(a) Inside Containers: 270.21(h), 264.314(b)(4), 264.316(a)

Demonstrate how it will be assured that inside containers:

- Are securely sealed and not leaking;
- Will not react with, be decomposed by, or ignited by the waste; and
- Meet DOT specifications.

D-6l(4)(b) Overpack: 270.21(h), 264.314(b)(4), 264.316(b)

Demonstrate that overpacking consists of:

- Metal, DOT containers, with open heads no larger than 110 gallons; and
- Sufficient absorbent material.

D-6l(4)(c) Absorbent Materials: 270.21(h), 264.314(b)(4), 264.316(c)

Demonstrate that the absorbent materials used are not capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers.

D-6l(4)(d) Incompatible Wastes: 270.21(h), 264.314(b)(4), 264.316(d)

Demonstrate that incompatible wastes will not be placed in the same outside containers.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6l(4)(e) Reactive Wastes: 270.21(h), 264.314(b)(4), 264.316(e)

Demonstrate how reactive wastes, other than cyanide-bearing and sulfide-bearing wastes, will be treated or rendered nonreactive prior to packaging.

D-6m Containerized Wastes: 270.21(i)

If containerized wastes are to be landfilled, demonstrate how the requirements of either D-6o(1) or D-6o(2) will be met.

D-6m(1) Void Space: 270.21(i), 264.315(a)

Describe how it will be assured that all containers are at least 90 percent full when placed in the landfill.

D-6m(2) Volume Reduction: 270.21(i), 264.315(b)

Describe how containers will be crushed, shredded or similarly reduced in volume to the maximum practical extent before burial.

D-7a Treatment Demonstration: 270.20(a), 264.272(a)

Demonstrate that hazardous constituents in the waste will be completely degraded, transformed or immobilized in the treatment zone of the unit for which a permit is sought. Demonstrate that volatilization of hazardous constituents will not be significant.

D-7a(1) Demonstration Wastes: 270.20(a)(1)

Describe the wastes used in the demonstration and the wastes to be treated during normal operation. Identify the concentrations of potential hazardous constituents in both wastes.

D-7a(2) Demonstration Data Sources: 270.20(a)(2)

Describe the source of the data used for the treatment demonstration and provide available determinations.

D-7a(2)(a) Existing Literature: 270.20(a)(2)

If existing literature is used to demonstrate treatment, submit a brief written review of scientific literature and previous studies that contain pertinent information. Information sources should be properly referenced.

D-7a(2)(b) Operating Data: 270.20(a)(2)

Describe any operating data used to make the demonstration of the units from which the data was gathered, application rate data and operating records. Describe sampling and analysis methods used and provide analytical confirmation of the extent of waste degradation, transformation and immobilization, as appropriate.

D-7a(3) Laboratory/Field Testing Programs: 270.20(a)(3)

Field and laboratory tests to be used for the demonstration should be thoroughly described. The characteristics of the units used to gather the demonstration data should be compared to those of the units to be permitted. Include interpretive discussions as appropriate.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7a(3)(a) Test Description: 270.20(a)(3)(i)

Describe the type of tests to be conducted to determine waste immobilization, degradation and transformation rates.

D-7a(3)(b) Materials and Methods: 270.20(a)(3)(ii)

Describe the test set-up, test protocols and sampling and analysis procedures.

D-7a(3)(c) Schedule: 270.20(a)(3)(iii)

Describe the testing schedule and expected completion date.

D-7a(3)(d) Simulated Characteristics: 270.20(a)(3)(iv)

Demonstrate that the testing program will accurately simulate the actual design and operation of the unit to be permitted, including climatic conditions, topography and soil characteristics.

D-7a(3)(e) Clean-up: 270.20(a), 264.272(b)

Describe clean-up activities to be employed on completion of the test program.

D-7a(3)(f) Environmental Protection: 270.20(a), 264.272(b)(3)

Describe how the test will be conducted in a manner that protects human health and the environment. In the case of field tests, describe the potential for groundwater or surface water contamination resulting from the field tests.

D-7a(4) Toxicity: 270.20(a), 264.272(c)(2)

Demonstrate that hazardous waste application rates will be controlled so as not to adversely affect performance, considering microbial toxicity and phytotoxicity.

D-7b Land Treatment Program: 270.20(b), 264.271

Describe the characteristics and operating conditions of the land treatment unit(s) to be permitted.

D-7b(1) List of Wastes: 270.20(b)(1)

Provide a list of all wastes to be placed in the land treatment unit(s).

D-7b(2) Operating Procedures: 270.20(b)(2), 264.273(a)

Describe the operating procedures used to assure uniform and complete degradation, transformation and immobilization.

D-7b(2)(a) Waste Application Rates and Methods: 270.20(b)(2)(i), 264.273(a)(1)

Submit information establishing the constituents in the wastes which limit the amount of waste applied at one time, the rate at which reapplication is conducted, and the total capacity of each unit. Identify the rate and frequency of waste application and the concentration of the limiting constituents in the waste. Describe the methods utilized to apply wastes to the unit.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7b(2)(b) Control of Soil pH: 270.20(b)(2)(ii), 264.273(a)(2)

Identify acceptable limits of soil pH and describe the rationale for those limits. Describe how soil pH will be measured and adjusted.

D-7b(2)(c) Enhancement of Microbial or Chemical Reactions: 270.20(b)(2)(iii), 264.272(a)(3)

Describe measures used to enhance treatment, including the method and frequency of such measures (e.g., fertilization, microbial innoculations, soil aeration).

D-7b(2)(d) Control of Soil Moisture: 270.20(b)(2)(iv), 264.272(a)(4)

Identify the limits on soil moisture content. Describe how soil moisture will be monitored and adjusted, if necessary.

D-7c Unsaturated Zone Monitoring Plan: 270.20(b)(3), 264.278

Submit an Unsaturated Zone Monitoring Plan describing the measures used to determine if hazardous wastes have migrated out of the treatment zone.

D-7c(1) Sampling Location: 270.20(b)(3)(ii), 264.278(b), 264.278(d)

Identify sampling location, if known, and provide the rationale used to select locations. Demonstrate that the sampling locations provide the capability to detect migration of hazardous constituents out of the treatment zone.

D-7c(2) Sampling Frequency: 270.20(b)(3)(i), 264.278(e)

Provide a schedule for sampling soils and soil-pore liquid. Demonstrate that the proposed frequency is adequate, considering potential migration rates of hazardous constituents out of the treatment zone.

D-7c(3) Sampling Equipment: 270.20(b)(3)(i), 264.278(e)

Identify and describe equipment used to obtain soil core and soil-pore liquid samples.

D-7c(4) Equipment Installation: 270.20(b)(3)(i), 264.278(e)

Describe the procedures used to install soil-pore liquid monitoring devices.

D-7c(5) Sampling Procedures: 270.20(b)(3)(i), 264.278(e)

Describe soil and soil-pore liquid sampling procedures including methods for sample preparation, preservation and transport.

D-7c(6) Analytical Procedures: 270.20(b)(3)(iii), 264.278(e)

Identify the analytical methods used to determine the concentration of hazardous constituents in collected samples.

D-7c(7) Chain of Custody: 270.20(b)(3)(iv), 264.278(e)

Provide a description of the methods to be utilized to assure sample integrity throughout, sampling, transportation, analysis and reporting.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7c(8) Background Values: 270.20(b)(3)(v), 264.278(c)

Describe the sampling and analytical program used to establish background soil and soil-pore liquid concentrations of hazardous constituents. Identify sampling locations and depths. Provide background data, if available.

D-7c(9) Statistical Methods: 270.20(b)(3)(vi), 264.288(c)

Describe the statistical methods that will be used to determine if significant differences exist between background and treatment zone concentrations of hazardous constituents in soils and soil-pore liquids.

D-7c(10) Justification of Principle Hazardous Constituents: 270.20(b)(3)(vii), 264.278(a)(2)

Provide a suggested list of 40 CFR 261 Appendix VIII hazardous constituents to be monitored for in soils and soil-pore liquids. Demonstrate that the selected principal hazardous constituents are more difficult to treat than all other Appendix VIII constituents present in the waste.

D-7d Treatment Zone Description: 270.20(b)(5)

Identify the dimensions of the treatment zone and the soil within the treatment zone.

D-7d(1) Soil Survey: 270.20(b)(5)

Provide a map or plot plan delineating the horizontal boundaries of the treatment zone and all soil series occurring within the treatment zone.

D-7d(2) Soil Series Descriptions: 270.20(b)(5)

Submit a description of each soil series identified within the treatment zone, including:

- Profile description with horizonation
- Depth
- Color
- USDA texture
- Structure
- Thickness
- Slope
- Mineralogy
- Use and vegetation
- Atterburg limits
- Water capacity
- Shrink-swell potential
- Erosion factors
- Salinity.

D-7d(3) Soil Sampling Data: 270.20(b)(5)

Provide the results of soil analyses for each treatment zone soil series as described in Permit Applicants Guidance Manual page LT-37.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7d(4) Depth of Treatment Zone: 264.271(c)(1)

Identify the vertical dimensions of the treatment zone.

D-7d(5) Seasonal High Water Table: 264.271(c)(2)

Identify the depth to the seasonal high water table and the source of that data.

D-7e Design, Construction, Operation and Maintenance: 270.20(c), 264.273

Describe the design, construction, operation and maintenance of run-on, run-off and wind dispersal controls.

D-7e(1) Surface Water Control Plans: 270.20(c)(1)

Submit a scale drawing of the unit showing any run-on controls utilized. Demonstrate that those controls will prevent flow onto the treatment zone from at least a 25-year storm.

D-7e(2) Collection and Control of Run-off: 270.20(c)(2), 264.273(d)

Describe the run-off collection and control system and demonstrate that it is capable of managing the peak flow resulting from a 24-hour 25-year storm.

D-7e(3) Minimizing Hazardous Constituent Run-off: 270.20(c)(3), 264.273(b)

Identify specific measures that will minimize the concentration of hazardous constituents in run-off from the unit.

D-7e(4) Management of Accumulated Run-on and Run-off: 270.20(c)(4), 264.273(e)

Demonstrate that collection and holding facilities associated with run-on and run-off control systems will be managed after storms to maintain the minimum required design capacity of the system. Describe the fate of collected surface water including sampling and analysis protocols for determining contaminant levels.

D-7e(5) Control of Wind Dispersal: 270.20(c)(6), 264.273(f)

Describe the methods employed to control wind dispersal of particulate matter from the treatment zone.

D-7f Food Chain Crops: 270.20(d), 264.276

Demonstrate that there is no substantial risk to human health or the environment caused by the growth of food chain crops on the unit.

D-7f(1) Food Chain Crop Demonstration: 270.20(d), 264.276(a)(1)

For all hazardous constituents, except cadmium, demonstrate 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.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7f(1)(a) Demonstration Basis: 270.20(d), 264.276(a)(3)(i)

Show that the demonstration results will be representative of the unit to be permitted, considering:

- Soil characteristics
- Waste characteristics
- Application rates
- Crop characteristics
- Climate effects.

D-7f(1)(b) Test Procedures: 270.20(d), 264.276(a)(3)

Describe the procedures used in any tests referenced or conducted. Include sample selection criteria, sample size, analytical methods, and statistical procedures.

D-7f(2) Cadmium-Bearing Wastes: 270.20(d)(5), 264.276(b)

If cadmium is present in the waste to be land treated, provide the information specified in either D-7f(2)(a) or D-7f(2)(b).

D-7f(2)(a) Crops for Human Consumption: 270.20(d)(5), 264.276(b)(1)

If crops are to be grown for human consumption, provide the following data:

- Soil pH
- Soil pH controls
- Cadmium loading rate
- Soil cation exchange capacity.

D-7f(2)(b) Animal Feed: 270.20(d)(5), 264.276(b)(2)

If only animal feed is to be grown, provide the soil pH and soil pH controls. Provide a copy of an operating plan demonstrating how animal feed will be distributed to preclude ingestion by humans, including control of alternative land use.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E. GROUNDWATER MONITORING

E-1 Exemption from Groundwater Protection Requirements: 270.14(c), 264.90(b)

If a waiver from the Subpart F groundwater monitoring requirements is requested, the owner or operator must demonstrate that one of the following conditions applies to the facility.

E-1a Surface Impoundment: 264.90(b)(2), 264.222

Demonstrate that the surface impoundment has been designed and operated in compliance with 264.222. (See comment D-4b.)

E-1b Waste Piles: 264.90(b)(2), 264.250(c), 264.252, 264.253

Demonstrate that the waste pile has been designed and operated in compliance with 264.250(c), 264.252, or 264.253. (See comments D-3b(1), D-3b(2), or D-3k, respectively.)

E-1c Landfill: 264.90(b)(2), 264.302

Demonstrate that the landfill has been designed and operated in compliance with 264.302. (See comment D-6b.)

E-1d No Migration: 264.90(b)(4)

Demonstrate that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the post-closure care period. (Predictions must be based on assumptions that maximize the rate of liquid migration.) This demonstration must be certified by a qualified geologist or geotechnical engineer.

E-2 Interim Status Period Groundwater Monitoring Data: 270.14(c)(1), 265.90 - 265.94

Existing facilities must provide a summary of the groundwater monitoring data obtained during interim status period.

E-3 Aquifer Identification: 270.14(c)(2)

E-3a Uppermost Aquifer: 270.14(c)(2)

Identify the uppermost aquifer.

E-3b Underlying Aquifer: 270.14(c)(2)

Identify any hydraulically interconnected underlying aquifer.

E-3c Hydrogeologic Properties: 270.14(c)(2)

Describe the hydrogeologic properties (e.g., hydraulic gradient, groundwater flow, rate and direction) and provide the supporting data used to identify this information (i.e., the information obtained from hydrogeologic investigations of the facility area).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-4 Contaminant Plume Description: 270.14(c)(4), Part 261, Appendix VIII

Provide a description of any plume of contamination that has entered the groundwater from a regulated unit. Identify the concentrations of Part 261, Appendix VIII constituents (throughout the plume or the maximum concentration of each Appendix VIII constituent) for the plume of contamination delineated on the topographic map. (See comment B-2b.)

E-5 Groundwater Monitoring Program: 270.14(c)(5), 264.97

E-5a Description of Wells: 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

E-5b Representative Samples: 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-5c Sampling and Analysis Procedures: 264.97(d) and (e)

Describe the groundwater monitoring program procedures and techniques for appropriate sample collection, sample preservation and shipment, appropriate analytical procedures, and chain of custody control.

E-5d Groundwater Elevation: 264.97(f)

Describe the procedure which will be used to determine the groundwater surface elevation each time the groundwater is sampled.

E-6 Detection Monitoring Program: 270.14(c)(6), 264.98

Provide sufficient information, supporting data, and analyses documenting the absence of hazardous constituents in the groundwater to support the implementation of a detection monitoring program at the present time.

E-6a Indicator Parameters, Waste Constituents, Reaction Products to be Monitored For: 270.14(c)(6)(i), 264.93, 264.98(a)

Supply a list of indicator parameters, waste constituents, or reaction products that can provide a reliable indication of the presence of hazardous constituents in the groundwater.

E-6a(1) Hazardous Waste Characterization: 264.98(a)(1)

Identify the type, quantity and concentrations of constituents in wastes managed at the regulated unit(s).

E-6a(2) Behavior of Constituents: 264.98(a)(2)

Provide a description of the expected mobility, stability, and persistence of waste constituents, or their reaction products, in the unsaturated zone beneath the waste management area.

E-6a(3) Detectability: 264.98(a)(3)

Specify the detectability of indicator parameters, waste constituents, or their reaction products in the groundwater.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-6b Groundwater Monitoring Program: 270.14(c)(6)(ii), 264.97, 264.98

Describe in detail the individual elements of the monitoring system to be used during detection monitoring.

E-6b(1) Description of Wells: 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

E-6b(2) Representative Samples: 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-6b(3) Locations of Background Groundwater Monitoring Wells that are Not Upgradient: 264.97(g)(3)

For wells that are not located upgradient from the waste management area, provide information for either E-6b(3)(i) or E-6b(3)(ii).

E-6b(3)(i) Inability to Determine Upgradient: 264.97(g)(3)(i)

Demonstrate that the hydrogeologic conditions do not allow determination that the wells are upgradient.

E-6b(3)(ii) Representative Samples of Background Groundwater Quality: 264.97(g)(3)(ii)

Demonstrate that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

E-6c Background Values: 270.14(c)(6)(iii), 264.98(c)

Submit background values for each proposed monitoring parameter or constituent, or procedures to calculate such values. Submit the information identified in Section E-6c(1) or E-6c(2).

E-6c(1) Data Currently Available: 264.98(c)

E-6c(1)(a) Background Groundwater Quality Data: 264.98(a)(4), 264.98(c)

Specify the concentrations and coefficients of variation for each of the proposed monitoring parameters or constituents in the background groundwater quality.

E-6c(1)(b) Sampling Frequency: 264.97(g)(1)

Demonstrate that background groundwater quality for each parameter or constituent is based on data obtained through quarterly sampling of wells.

E-6c(1)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-6c(1)(d) Background Values: 264.98(c)(2)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-6c(2) Plan for Establishing Groundwater Quality Data: 270.14(c)(6)(iii), 264.98(c)

Submit a plan for establishing background values. The plan must address the following items.

E-6c(2)(a) Well Location: 264.98(c)

Indicate the wells to be used to collect the data.

E-6c(2)(b) Sampling Frequency: 264.97(g)(1)

Demonstrate that background groundwater quality for each parameter or constituent is based on data obtained through quarterly sampling of wells.

E-6c(2)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-6c(2)(d) Background Values: 264.98(c)(2)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-6d Sampling, Analysis and Statistical Procedures: 270.14(c)(6)(iv), 264.97(d), (e) and (h), 264.98(d), (e), (f) and (g)

Submit a proposed sampling and analysis plan that includes procedures for sample collection, sample preservation and shipment, analytical methods, and chain of custody controls. The plan should also describe the statistical comparison procedure(s) to be used.

E-6d(1) Sample Collection: 264.97(d)(1)

Describe the procedures and techniques for sample collection.

E-6d(2) Sample Preservation and Shipment: 264.97(d)(2)

Describe the procedures and techniques for sample preservation and shipment.

E-6d(3) Analytical Procedure: 264.97(d)(3)

Describe the analytical technique that will be used for each monitoring parameter. (The methods specified in the most recent edition of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846) must be used.)

E-6d(4) Chain of Custody: 264.97(d)(4)

Describe the procedures for chain of custody control for all samples collected.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-6d(5) Additional Requirements for Compliance Point Monitoring: 264.98(d)

E-6d(5)(a) Sampling Frequency: 264.98(d)

Demonstrate that sampling of each monitoring well at the compliance point will be performed semi-annually during the active life of a regulated unit.

E-6d(5)(b) Compliance Point Groundwater Quality Values: 264.98(d)

Show that the groundwater quality values will be expressed in the form necessary to determine statistically significant increases.

E-6d(6) Annual Determination: 264.98(e)

Specify the procedure for the annual determination of the uppermost aquifer flow rate and direction.

E-6d(7) Statistical Determination: 264.98(g)

Specify the procedures to be used to determine whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-6d(7)(a) Statistical Procedure: 264.98(g)(1), 264.97(h)

Specify the statistical comparison procedures which will be used to evaluate whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-6d(7)(b) Results: 264.98(g)(2)

Provide an estimate of the time period, subsequent to sampling completion, within which the results of the statistical analysis will be available.

E-7 Compliance Monitoring Program: 270.14(c)(7)

If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of permit application, submit the following information.

E-7a Waste Description: 270.14(c)(7)(i)

A description of the wastes previously handled at the facility. This description should include:

- Historical records of volumes, types (including EPA ID number, if applicable), and chemical composition of wastes placed in units in the waste management area;
- The results of any direct sampling of the waste (see "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW-846);
- A list of constituents that are reasonably expected to be in or derived from the waste; and
- Identification of the dominant constituents expected to be present, and their relative abundance.

If it is expected that some constituents may form a separate, immiscible fluid, the composition of this fluid and its viscosity and density should be included in the application.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7b Characterization of Contaminated Groundwater: 270.14(c)(7)(ii)

Provide a characterization of the contaminated groundwater including the concentration of identified hazardous constituents. For each well at the point of compliance, and for each background well, provide the following information:

- Concentrations of each constituent in Appendix VIII of 40 CFR Part 261;
- Concentrations of major anions and cations; and
- Concentrations of the constituents listed in Table 1 of §264.94, if not already determined by the above.

E-7c Hazardous Constituents to be Monitored: 270.14(c)(7)(iii), 264.93

Specify the hazardous constituents which you propose to monitor and present a rationale for selecting these constituents.

E-7d Concentration Limits: 270.14(c)(7)(iv), 264.99(a)(2), 264.94

Specify proposed concentration limits for each hazardous constituent. (The proposed concentration limit must not exceed the present background level of that constituent in the groundwater nor may it exceed the value of that constituent, if listed in Table 1 of §264.94, entitled Maximum Concentrations of Constituents for Groundwater Protection. If you wish to petition the Regional Administrator to establish alternate concentration limits than those specified above you must supply the information identified in comment E-7f.)

E-7e Alternate Concentration Limits: 270.14(c)(7)(iv), 264.99(a)(2), 264.94(b)

Provide a justification for establishing alternate concentration limits. This justification must address each of the following factors.

E-7e(1) Adverse Effects on Groundwater Quality: 264.94(b)(1)

The potential adverse effects on groundwater quality, considering:

- The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity of groundwater and the direction of groundwater flow;
- The proximity and withdrawal rates of groundwater users;
- The current and future uses of groundwater in the area;
- The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
- The potential for health risks caused by human exposure or waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7e(2) Potential Adverse Effects: 264.94(b)(2)

The potential adverse effects on hydraulically-connected surface-water quality, considering:

- The volume and physical and chemical characteristics of the waste in the regulated unit;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity and quality of groundwater, and the direction of groundwater flow;
- The patterns of rainfall in the region;
- The proximity of the regulated unit to surface waters;
- The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
- The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;
- The potential for health risks caused by human exposure to waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

E-7f Groundwater Monitoring System: 270.14(c)(7)(v), 264.97, 264.99

Describe in detail the individual elements of the monitoring system to be used during compliance monitoring.

E-7f(1) Description of Wells: 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

E-7f(2) Representative Samples: 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-7f(3) Locations of Background Groundwater Monitoring Wells that are Not Upgradient: 264.97(g)(3)

For wells that are not located upgradient from the waste management area, provide information for either E-7b(3)(i) or E-7b(3)(ii).

E-7f(3)(i) Inability to Determine Upgradient: 264.97(g)(3)(i)

Demonstrate that the hydrogeologic conditions do not allow determination that the wells are upgradient.

E-7f(3)(ii) Representative Samples of Background Groundwater Quality: 264.97(g)(3)(ii)

Demonstrate that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7g Background Values: 264.99(c)

Submit background values for each proposed monitoring parameter or constituent, or procedures to calculate such values. Submit the information identified in Section E-7g(1) or E-7g(2).

E-7g(1) Data Currently Available: 264.99(c)

E-7g(1)(a) Background Groundwater Quality Data: 264.97(g)(2), 264.99(c)

Specify the concentrations and coefficients of variation for each of the proposed monitoring parameters or constituents. Document that the background groundwater quality is based on data from upgradient wells that account for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuation in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-7g(1)(b) Sampling Frequency: 264.97(g)(2), 264.99(c)(3)(i)

Describe the sampling frequency used in developing the data base used to determine a background value for each parameter or constituent for each well.

E-7g(1)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-7g(1)(d) Background Values: 264.99(c)(3)(ii)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-7g(2) Plan for Establishing Groundwater Quality Data: 264.99(c), 264.97(g)

Submit a plan for establishing background groundwater quality values. The plan must address the following items.

E-7g(2)(a) Background Data: 264.97(g)(2)

Document that the background groundwater quality will be based on data from upgradient wells -- which will be available before the permit is issued; that the data accounts for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuations in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-7g(2)(b) Well Location: 264.99(c)

Indicate the wells to be used to collect the data.

E-7g(2)(c) Sampling Frequency: 264.99(g)(2)

Describe the sampling frequency to be used in developing the data base used to determine the background water quality for a monitoring parameter or constituent for each well.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7g(2)(d) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-7g(2)(e) Background Values: 264.98(c)(2)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-7h Sampling, Analysis and Statistical Procedures: 270.14(c)(7)(vi), 264.97(d), (e) and (h), 264.99(d), (e), (f) and (g)

Submit a proposed sampling and analysis plan that includes procedures for sample collection, sample preservation and shipment, analytical methods, and chain of custody controls. The plan should also describe the statistical comparison procedure(s) to be used.

E-7h(1) Sample Collection: 264.97(d)(1)

Describe the procedures and techniques for sample collection.

E-7h(2) Sample Preservation and Shipment: 264.97(d)(2)

Describe the procedures and techniques for sample preservation and shipment.

E-7h(3) Analytical Procedure: 264.97(d)(3)

Describe the analytical technique that will be used for each monitoring parameter. (The methods specified in the most recent edition of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846) must be used.)

E-7h(4) Chain of Custody: 264.97(d)(4)

Describe the procedures for chain of custody control for all samples collected.

E-7h(5) Additional Requirements for Compliance Point Monitoring: 264.99(d)

E-7h(5)(a) Sampling Frequency: 264.99(d)

Demonstrate that sampling of each monitoring well at the compliance point will be performed semi-annually during the active life of a regulated unit.

E-7h(5)(b) Testing for Appendix VIII Hazardous Constituents: 264.99(f)

Specify the procedure for the annual testing of all monitoring wells at the compliance point for all constituents contained in Appendix VIII of Part 261.

E-7h(5)(c) Compliance Point Groundwater Quality Values: 264.99(d)

Show that the groundwater quality values will be expressed in the form necessary to determine statistically significant increases.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7h(6) Annual Determination: 264.99(e)

Specify the procedure for the annual determination of the uppermost aquifer flow rate and direction.

E-7h(7) Statistical Determination: 264.99(h)

Specify the procedures to be used to determine whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-7h(7)(a) Statistical Procedure: 264.97(h), 264.99(h)(1)

Specify the statistical comparison procedures which will be used to evaluate whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-7h(7)(b) Results: 264.99(h)(2)

Provide an estimate of the time period, subsequent to sampling completion, within which the results of the statistical analysis will be available.

E-8 Corrective Action Program: 270.14(c)(8), 264.100

If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under §264.94 Table 1, or if groundwater monitoring conducted at the time of permit application at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, the owner or operator must submit sufficient information, supporting data, and analyses to establish a corrective action program which meets the requirements of §264.100. (However, an owner or operator is not required to submit information to establish a corrective action program if he demonstrates to the Regional Administrator that alternate concentration limits will protect human health and the environment after considering the criteria listed in §264.94(b).)

Submit the following information to establish a corrective action program:

E-8a Characterization of Contaminated Groundwater: 270.14(c)(8)(i)

Provide a characterization of the contaminated groundwater including the concentration of identified hazardous constituents. For each well at the point of compliance, and for each background well, provide the following information:

- Concentrations of each constituent in Appendix VIII of 40 CFR Part 261;
- Concentrations of major anions and cations; and
- Concentrations of the constituents listed in Table 1 of §264.94, if not already determined by the above.

E-8b Concentration Limits: 270.14(c)(8)(ii), 264.99(a)(2), 264.94

Specify proposed concentration limits for each hazardous constituent. (The proposed concentration limit must not exceed the present background level of that constituent in the groundwater nor may it exceed the value of that constituent, if listed in Table 1 of §264.94, entitled Maximum Concentrations of Constituents for Groundwater Protection. If you wish to petition the Regional Administrator to establish alternate concentration limits than those specified above you must supply the information identified in comment E-7f.)

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-8c **Alternate Concentration Limits:** 270.14(c)(8)(ii), 264.99(a)(2), 264.94(b)

Provide a justification for establishing alternate concentration limits. This justification must address each of the following factors.

E-8c(1) **Adverse Effects on Groundwater Quality:** 264.94(b)(1)

Potential adverse effects on groundwater quality, considering:

- The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity of groundwater and the direction of groundwater flow;
- The proximity and withdrawal rates of groundwater users;
- The current and future uses of groundwater in the area;
- The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
- The potential for health risks caused by human exposure or waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

E-8c(2) **Potential Adverse Effects:** 264.94(b)(2)

Potential adverse effects on hydraulically-connected surface-water quality; considering:

- The volume and physical and chemical characteristics of the waste in the regulated unit;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity and quality of groundwater, and the direction of groundwater flow;
- The patterns of rainfall in the region;
- The proximity of the regulated unit to surface waters;
- The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
- The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;
- The potential for health risks caused by human exposure to waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-8d Corrective Action Plan: 270.14(c)(8)(iii), 264.100(b)

The applicant must submit detailed plans and an engineering report on the corrective actions proposed for the facility. This information should include:

E-8d(1) Location: 270.14(c)(8)(iii), 264.100(b)

Maps showing the location of engineered barriers, caps, drains and wells, etc. (use the topographic map in Section B-2).

E-8d(2) Construction Detail: 270.14(c)(8)(iii), 264.100(b)

Descriptions and engineering drawings of construction details and specifications of engineered barriers, caps, drains, wells, etc.

E-8d(3) Plans for Removing Wastes: 270.14(c)(8)(iii), 264.100(b)

If proposed, plans for removing and handling of any hazardous wastes.

E-8d(4) Treatment Technologies: 270.14(c)(8)(iii), 264.100(b)

A description of the treatment technologies to be used for contaminated groundwater that is pumped or drained from the zone of contamination.

E-8d(5) Effectiveness of Correction Program: 270.14(c)(8)(iv), 270.14(c)(8)(iii), 264.100(b)

A prediction and sensitivity analysis on the effectiveness of corrective actions. (For example, anticipated drain flow rates, assuming a range of hydrologic properties.)

E-8d(6) Reinjection System: 270.14(c)(8)(iii), 264.100(b)

If treated ground or surface water is to be reinjected at the site, the concentration levels of all hazardous constituents to be reinjected.

E-8d(7) Additional Hydrogeologic Data: 270.14(c)(8)(iii), 264.100(b)

A description and summary of any additional hydrogeologic data collected for use in designing the corrective action.

E-8d(8) Operation and Maintenance: 270.14(c)(8)(iii), 264.100(b)

Operation and maintenance plans for the correction action measures.

E-8d(9) Closure and Post-Closure Plans: 270.14(c)(8)(iii), 264.100(b)

If applicable, closure and post-closure care plans for the materials used to handle hazardous wastes as part of the corrective action.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-8e Groundwater Monitoring Program: 270.14(c)(8)(iv), 264.100(d)

Description of the groundwater monitoring program used to assess the effectiveness of the corrective action measures. Water quality monitoring must be conducted over the on-site extent of the contaminated groundwater. Submit the following information:

E-8e(1) Description of Wells: 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

E-8e(2) Representative Samples: 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-8e(3) Locations of Background Groundwater Monitoring Wells that are Not Upgradient: 264.97(g)(3)

For wells that are not located upgradient from the waste management area, provide information for either E-7b(3)(i) or E-7b(3)(ii).

E-8e(3)(i) Inability to Determine Upgradient: 264.97(g)(3)(i)

Demonstrate that the hydrogeologic conditions do not allow determination that the wells are upgradient.

E-8e(3)(ii) Representative Samples of Background Groundwater Quality: 264.97(g)(3)(ii)

Demonstrate that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

E-8f Background Values: 264.99(c)

Submit background values for each proposed monitoring parameter or constituent, or procedures to calculate such values. Submit the information identified in Section E-7g(1) or E-7g(2).

E-8f(1) Data Currently Available: 264.99(c)

E-8f(1)(a) Background Groundwater Quality Data: 264.97(g)(2), 264.99(c)

Specify the concentrations and coefficients of variation for each of the proposed monitoring parameters or constituents. Document that the background groundwater quality is based on data from upgradient wells that account for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuation in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-8f(1)(b) Sampling Frequency: 264.97(g)(2), 264.99(c)(3)(i)

Describe the sampling frequency used in developing the data base used to determine a background value for each parameter or constituent for each well.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-8f(1)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-8f(1)(d) Background Values: 264.99(c)(3)(ii)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-8f(2) Plan for Establishing Groundwater Quality Data: 264.99(c), 264.97(g)

Submit a plan for establishing background groundwater quality values. The plan must address the following items.

E-8f(2)(a) Background Data: 264.97(g)(2)

Document that the background groundwater quality will be based on data from upgradient wells -- which will be available before the permit is issued; that the data accounts for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuations in background groundwater quality if such fluctuations ar expected to affect the concentration of the hazardous constituent.

E-8f(2)(b) Well Location: 264.99(c)

Indicate the wells to be used to collect the data.

E-8f(2)(c) Sampling Frequency: 264.99(g)(2)

Describe the sampling frequency to be used in developing the data base used to determine the background water quality for a monitoring parameter or constituent for each well.

E-8f(2)(d) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-8f(2)(e) Background Values: 264.98(c)(2)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-8g Sampling, Analysis and Statistical Procedures: 270.14(c)(7)(vi), 264.97(d), (e) and (h), 264.99(d), (e), (f) and (g)

Submit a proposed sampling and analysis plan that includes procedures for sample collection, sample preservation and shipment, analytical methods, and chain of custody controls. The plan should also describe the statistical comparison procedure(s) to be used.

E-8g(1) Sample Collection: 264.97(d)(1)

Describe the procedures and techniques for sample collection.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-8g(2) Sample Preservation and Shipment: 264.97(d)(2)

Describe the procedures and techniques for sample preservation and shipment.

E-8g(3) Analytical Procedure: 264.97(d)(3)

Describe the analytical technique that will be used for each monitoring parameter. (The methods specified in the most recent edition of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846) must be used.)

E-8g(4) Chain of Custody: 264.97(d)(4)

Describe the procedures for chain of custody control for all samples collected.

E-8g(5) Additional Requirements for Compliance Point Monitoring: 264.99(d)

E-8g(5)(a) Sampling Frequency: 264.99(d)

Demonstrate that sampling of each monitoring well at the compliance point will be performed semi-annually during the active life of a regulated unit.

E-8g(5)(b) Testing for Appendix VIII Hazardous Constituents: 264.99(f)

Specify the procedure for the annual testing of all monitoring wells at the compliance point for all constituents contained in Appendix VIII of Part 261.

E-8g(5)(c) Compliance Point Groundwater Quality Values: 264.99(d)

Show that the groundwater quality values will be expressed in the form necessary to determine statistically significant increases.

E-8g(6) Annual Determination: 264.99(e)

Specify the procedure for the annual determination of the uppermost aquifer flow rate and direction.

E-8g(7) Statistical Determination: 264.99(h)

Specify the procedures to be used to determine whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-8g(7)(a) Statistical Procedure: 264.97(h), 264.99(h)(1)

Specify the statistical comparison procedures which will be used to evaluate whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-8g(7)(b) Results: 264.99(h)(2)

Provide an estimate of the time period, subsequent to sampling completion, within which the results of the statistical analysis will be available.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-1a Security Procedures and Equipment: 270.14(b)(4), 264.14

Unless a waiver is granted, the facility must demonstrate the following:

F-1a(1) 24-Hour Surveillance System: 264.14(b)(1)

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; or

F-1a(2)(a) Barrier: 264.14(b)(2)(i)

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; and

F-1a(2)(b) Means to Control Entry: 264.14(b)(2)(ii)

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).

F-1a(3) Warning Signs: 264.14(c)

The facility must have a sign with the legend, "Danger - Unauthorized Personnel Keep Out", which must be posted at each entrance to the active portion of the facility and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility and must 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: 264.14(a)

If a waiver of the security procedures and equipment requirements is requested, the owner or operator must demonstrate the following:

F-1b(1) Injury to Intruder: 264.14(a)(1)

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

F-1b(2) Violation Caused By Intruder: 264.14(a)(2)

Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirements of this part.

F-2a General Inspection Requirements: 270.14(b)(5), 264.15(a) and (b), 264.33

Describe the facility schedule for inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards. The schedule must be kept at the facility.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2a(1) Types of Problems: 264.15(b)(3)

The schedule must identify the types of problems to look for during the inspection.

F-2a(2) Frequency of Inspections: 264.15(b)(4)

Describe the frequency of inspection 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.

F-2b(1) Container Inspection: 264.174

Document weekly inspections of containers and container storage area for deterioration caused by corrosion or other factors.

F-2b(2) Tank Inspection: 264.194(a) and (b)

Document daily or weekly inspection procedures by the facility owner or operator of the following:

F-2b(2)(a) Tank Construction Materials: 264.194(a)(4)

The construction materials of the above-ground portions of the tank to detect corrosion or erosion and leaking of fixtures and seams (weekly).

F-2b(2)(b) Tank Surrounding Area: 264.194(a)(5)

The area immediately surrounding the tank to detect obvious signs of leakage (weekly).

F-2b(2)(c) Tank Overfilling Control Equipment: 264.194(a)(1)

Overfilling control equipment (e.g., waste-feed cut-off systems and bypass systems) to ensure good working order (daily).

F-2b(2)(d) Tank Monitoring Data: 264.194(a)(2)

Data gathered from monitoring equipment (e.g. pressure and temperature gauges) where present to ensure that the tank is operated according to design specifications (daily).

F-2b(2)(e) Tank Level of Waste: 264.194(a)(3)

The level of waste in uncovered tanks to ensure maintenance of sufficient freeboard to prevent overtopping by wave or wind action, or by precipitation (daily).

F-2b(2)(f) Tank Condition Assessment: 264.194(b)

The schedule and procedure for assessing the condition of the tank. Procedure must be adequate to detect cracks, leaks, or wall thinning to less than sufficient shell strength.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2b(2)(g) Tank Interior Inspection: 264.194(b)

Document established procedures for emptying a tank to allow entry and inspection of the interior to detect corrosion or erosion of the tank sides and bottom.

F-2b(3) Waste Pile Liner Inspection for Exemption from Groundwater Protection Requirement: 264.253(a)(3)

The wastes in the pile must be removed periodically, and the liner must be inspected for deterioration, cracks, or other conditions that may result in leaks and (2) the frequency of inspections based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability).

F-2b(4) Waste Pile Inspection: 264.254(b)

Describe how each waste pile, while in operation, will be inspected weekly and after storms to detect evidence of any of the following:

F-2b(4)(a) Leak Detection Systems: 264.254(b)(1)

The presence of liquids in leak detection systems.

F-2b(4)(b) Run-on and Run-off Control System: 264.254(b)(2)

Deterioration, malfunctions, or improper operation of run-on and run-off control systems.

F-2b(4)(c) Wind Dispersal System: 264.254(b)(3)

Proper functioning of wind dispersal control systems, where present.

F-2b(4)(d) Leachate Collection and Removal System: 264.254(b)(4)

The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

F-2b(5) Surface Impoundment Inspection: 264.226(b), 264.226(c)

Document inspection procedures for the following:

F-2b(5)(a) Condition Assessment: 264.226(b)

Describe how each surface impoundment, while in operation, will be inspected weekly and after storms to detect evidence of any of the following:

F-2b(5)(a)(1) Overtopping Control System: 264.226(b)(1)

Deterioration, malfunctions, or improper operation of overtopping control system.

F-2b(5)(a)(2) Impoundment Contents: 264.226(b)(2)

Sudden drop in the level of the impoundment contents.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2b(5)(a)(3) Leak Detection System: 264.226(b)(3)

The presence of liquids in the leak detection system, where present.

F-2b(5)(a)(4) Deterioration: 264.226(b)(4)

Severe erosion or other signs of deterioration in dikes or other containment devices.

F-2b(5)(b) Structural Integrity: 264.226(c)

Specify the procedure to be followed for assessing the structural integrity of the surface impoundment dike, including that portion of any dike which provides freeboard. These procedures must demonstrate compliance of the following regulation. Prior to issuance of the permit, and after any extended period of time during which the impoundment was not in service, the owner or operator must obtain a certification from a qualified engineer. The certification must establish that the dikes will withstand the stress of the pressure exerted by the types and amount of wastes to be placed in the impoundment and will not fail due to scouring or piping without dependence on any liner system included in the surface impoundment construction.

F-2b(6) Incinerator Inspection: 264.347

Document the daily or weekly inspection procedures used by the facility owner or operator with respect to the following:

F-2b(6)(a) Incinerator and Associated Equipment: 264.347(b)

Document the procedures for daily visual inspections of the incinerator and associated equipment for leaks, spills, fugitive emissions, and signs of tampering.

F-2b(6)(b) Incinerator Waste Feed Cut-off System and Associated Alarms: 264.347(c)

Document the procedures for testing the emergency waste feed cut-off system and associated alarms. Testing must be conducted on a weekly basis unless a demonstration can be made that the weekly frequency is unduly restrictive and that less frequent inspections will be adequate. At a minimum, operational testing must be conducted monthly.

F-2b(7) Landfill Inspection: 264.303(b)

Demonstrate that while the landfill is in operation it will be inspected weekly and after storms to detect evidence of any of the following:

F-2b(7)(a) Run-on and Run-off Control System: 264.303(b)(1)

Deterioration, malfunctions, or improper operation of run-on and run-off control systems.

F-2b(7)(b) Leak Detection System: 264.303(b)(2)

The presence of liquids in leak detection systems, where present.

F-2b(7)(c) Wind Dispersal Control System: 264.303(b)(3)

Proper functioning of wind dispersal control systems, where present.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2b(7)(d) Leachate Collection and Removal System: 264.303(b)(4)

The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

F-2b(8) Land Treatment Facility Inspection: 264.273(g)

Describe how the land treatment facility units will be inspected weekly and after storms to detect evidence of the following:

F-2b(8)(a) Run-on and Run-off Control System: 264.273(g)(1)

Deterioration, malfunctions, or improper operation of run-on and run-off control systems.

F-2b(8)(b) Wind Dispersal Control System: 264.273(g)(2)

Improper functioning of wind dispersal control measures.

F-3a Equipment Requirements: 270.14(b)(6), 264.32

Demonstrate that the facility possesses the equipment listed below. (The location, description, and capabilities of this equipment must be provided in the Contingency Plan, Section G-5. Requests for a waiver of part or all of this requirement must be accompanied by a demonstration that none of the hazards posed by waste handled at the facility could require a particular kind of equipment:

F-3a(1) Internal Communications: 264.32(a)

An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.

F-3a(2) External Communications: 264.32(b)

A device, such as a telephone (immediately available at the scene of operations) or a handheld two-way radio, for summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams.

F-3a(3) Emergency Equipment: 264.32(c)

Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment.

F-3a(4) Water for Fire Control: 264.32(d)

Water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.

F-3b Aisle Space Requirement: 264.35

Demonstrate that the facility maintains sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency. Requests for a waiver of the aisle space requirement must be accompanied by a demonstration that aisle space is not needed for any, or all, of these purposes.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-4 Preventive Procedures, Structures, and Equipment: 270.14(b)(8)

Describe procedures, structures, or equipment used at the facility for the following:

F-4a Unloading Operations: 270.14(b)(8)(i)

Prevention of hazards in unloading operations (e.g., use of ramps or special forklifts).

F-4b Run-off: 270.14(b)(8)(ii)

Prevention of run-off from hazardous waste handling areas to other areas of the facility or environment, or prevention of flooding (e.g., berms, dikes, trenches).

F-4c Water Supplies: 270.14(b)(8)(iii)

Prevention of contamination of water supplies.

F-4d Equipment and Power Failure: 270.14(b)(8)(iv)

Mitigation of effects of equipment failure and power outage.

F-4e Personnel Protection Equipment: 270.14(b)(8)(v)

Prevention of undue exposure of personnel to hazardous waste (e.g., protective clothing).

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste: 270.14(b)(9), 264.17(a)

Describe the precautions taken by a facility that handles ignitable or reactive waste to prevent actual ignition, including separation from sources of ignition such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., heat-producing chemical reactions), and radiant heat. Demonstrate that when ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specially designated locations. "NO SMOKING" signs must be conspicuously placed wherever a hazard exists from ignitable or reactive waste.

F-5b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste: 270.14(b)(9), 264.17(b)

Describe the precautions taken by a facility that treats, stores, or disposes of ignitable or reactive waste, or accidentally mixes incompatible waste or incompatible wastes and other materials, to prevent reactions which: (1) generate extreme heat or pressure, fire or explosions, or violent reactions; (2) produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility; (5) by similar means threaten human health or the environment.

F-5c Management of Ignitable or Reactive Wastes in Containers: 270.15(c), 264.176

Provide sketches, drawings, or data demonstrating that containers of ignitable or reactive waste are located at least 15 meters (50 feet) from the facility's property line.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-5d Management of Incompatible Wastes in Containers: 270.15(d), 264.177

Describe the procedures used to ensure that incompatible wastes and materials are not placed in the same containers or in an unwashed container that previously held incompatible waste. If a storage container holds a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments, document that the wastes are separated from the other material or protected from them by means of a dike, berm, wall or other device.

F-5e Management of Ignitable or Reactive Wastes in Tanks: 270.16(f), 264.198

Describe the operational procedures used for storing such wastes in tanks that includes specific information on: (1) how the waste is treated, rendered, or mixed before or immediately after the 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; (2) how facilities that treat or store ignitable or reactive waste in covered tanks comply with the National Fire Protection Association's buffer zone requirements for tanks.

F-5f Management of Incompatible Wastes in Tanks: 270.16(f), 264.199(b)

Certify 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.

F-5g Management of Ignitable or Reactive Wastes Placed in Waste Piles: 270.18(g)

If ignitable or reactive wastes are to be placed in the waste pile, provide a description of how the wastes will be mixed, treated or otherwise rendered nonignitable and/or nonreactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

F-5h Management of Incompatible Wastes Placed in Waste Piles: 270.18(h)

If incompatible wastes, or incompatible wastes and materials are to be placed in the waste pile, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

F-5i Management of Ignitable or Reactive Wastes Placed in Surface Impoundments: 270.17(h), 264.229

Except for surface impoundments to be used solely for emergencies, if ignitable or reactive wastes are to be placed in the surface impoundment, provide a description of how the wastes will be mixed, treated or otherwise rendered non-ignitable and/or non-reactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-5j Management of Incompatible Wastes Placed in Surface Impoundments: 270.17(i), 264.230

If incompatible wastes, or incompatible wastes and materials are to be placed in the surface impoundment, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

F-5k Management of Ignitable or Reactive Wastes Placed in Landfills: 270.21(f), 264.312

If ignitable or reactive wastes are to be placed in the landfill, provide a description of how the wastes will be mixed, treated or otherwise rendered nonignitable and/or nonreactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

F-5l Management of Incompatible Wastes Placed in Landfills: 270.21(g), 264.313

If incompatible wastes; or incompatible wastes and materials are to be placed in the landfill, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

F-5m Management of Ignitable or Reactive Wastes Placed in Land Treatment Units: 270.20(d)(7), 264.281

If ignitable or reactive wastes are to be placed in the land treatment unit, provide a description of how the wastes will be mixed, treated or otherwise rendered nonignitable and/or nonreactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-5n Management of Incompatible Wastes Placed in Land Treatment Units: 270.20(d)(8), 264.282

If incompatible wastes, or incompatible wastes and materials are to be placed in the land treatment unit, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

G. CONTINGENCY PLAN: 270.14(b)(7), 264.50 through 264.56, 264.52(b)

Provide a copy of the Contingency Plan or Spill Prevention Control and Countermeasures (SPCC) Plan amended for hazardous waste management to describe the actions facility personnel will take in response to fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

G-1 General Information

Provide the facility name and location, operator, site plan, and description of facility operations.

G-2 Emergency Coordinators: 264.52(d), 264.55

Provide names, addresses, office and home phone numbers, and duties of primary and alternate coordinators and statement of authorization of coordinator to commit necessary resources to plan.

G-3 Implementation: 264.52(a), 264.56(d)

Describe how and when the contingency plan will be implemented.

G-4a Notification: 264.56(a)

Describe the methodology for immediate notification of facility personnel and necessary state or local agencies.

G-4b Identification of Hazardous Materials: 264.56(b)

Describe procedures for identification of hazardous materials involved in the emergency.

G-4c Assessment: 264.56(c), 264.56(d)

Describe the policy for assessment of possible hazards to the environment and human health and need for evacuation and notification of authorities. The authorities to be notified should include the on-scene coordinator for that area or the National Response Center.

G-4d Control Procedures: 264.52(a)

Specify control procedures to be taken in the event of a fire, explosion, or release.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-4e Prevention of Recurrence or Spread of Fires, Explosions, or Releases: 264.56(e)

Describe 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.

G-4f Storage and Treatment of Released Material: 264.56(g)

Provide for treatment, storage, or disposal of any material that results from a release, fire, or explosion at the facility.

G-4g Incompatible Waste: 264.56(h)(1)

Describe provisions for prevention of incompatible waste from being treated, stored, or located in the affected areas until clean-up procedures are completed.

G-4h Post-Emergency Equipment Maintenance: 264.56(h)(2)

Describe procedures for ensuring that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

G-4i Container Spills and Leakage: 264.52, 264.171

Specify procedures to be used when responding to container spills or leakage, including procedures and timing for expeditious removal of spilled waste and repair or replacement of the container(s).

G-4j Tank Spills and Leakage: 264.194(b)

Document the procedures to be used by the facility owner or operator to respond to tank spills or leakage, including procedures and timing for expeditious removal of leaked or spilled waste and repair of the tank.

G-4k Waste Pile Spills and Leakage: 264.252, 264.253

Describe the procedures to be used when responding to waste pile spills and leakage.

G-4k(1) Double-lined Waste Piles: 264.252(b)

Describe the procedures to be followed in the event a liquid leaks into the leak detection system of a double-lined waste pile.

G-4k(1)(a) Notification: 264.252(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4k(1)(b) Remedial Action: 264.252(b)(2)(i)

Procedures for removing accumulated liquid, repairing or replacing the liner which is leaking and obtain a certification from a qualified engineer that to the best of his/her knowledge and opinion, the leak has been stopped.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-4k(1)(c) Detection Monitoring Program: 264.252(b)(2)(ii)

Procedure for inacting a ground-water detection program.

G-4k(2) Inspectable Piles: 264.253

Specify the remedial procedures which will be used if deterioration, a crack, or other condition is identified that is causing or could cause a leak. Address the following:

G-4k(2)(a) Notification: 264.253(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4k(2)(b) Remedial Action: 264.253(b)(2)(i)

Procedures for repairing or replacing the liner (base) obtaining a certification from a qualified engineer that, to the best of his/her knowledge and opinion, the liner (base) has been repaired and leakage will not occur.

G-4k(2)(c) Detection Monitoring Program: 264.253(b)(2)(ii), 264.98

Procedures for inacting a groundwater detection program.

G-41 Surface Impoundment Spills and Leakage: 264.222, 264.227

G-41(1) Emergency Repairs: 264.227

Describe the procedures to be used for removing a surface impoundment from service when the level of the liquid in the impoundment suddenly drops and the drop is not known to be caused by changes in the flow into or out of the impoundment or when the dike leaks. Address the following:

G-41(1)(a) Stopping Waste Addition: 264.227(b)(1)

Procedures for stopping waste additions to the impoundment.

G-41(1)(b) Containing Leaks: 264.227(b)(2)

Procedures for containing any leakage.

G-41(1)(c) Stopping Leaks: 264.227(b)(3)

Procedures for stopping the leak.

G-41(1)(d) Preventing Catastrophic Failure: 264.227(b)(4)

Procedures to stop or prevent catastrophic failure.

G-41(1)(e) Emptying the Impoundment: 264.227(b)(5)

Procedures for emptying the impoundment, if necessary.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-4l(2) Certification: 264.227(d)(1), 264.226(c)

Specify the procedure which will be followed for recertifying the dike's structural integrity, in the event the impoundment is removed from service as a result of actual or imminent dike failure.

G-4l(3) Repairs as a Result of Sudden Drop: 264.227(d)(2)

Specify the procedure which will be followed in the event the impoundment is removed from service as the result of a sudden drop in the liquid level for the following:

G-4l(4)(a) Existing Portions of Surface Impoundment: 264.227(d)(2)(i)

Installation of a liner for any existing portion of the impoundment.

G-4l(4)(b) Other Portions of the Surface Impoundment: 264.227(d)(2)(ii)

Certification by a qualified engineer for other than existing portions of the impoundment.

G-4l(5) Double-Lined Surface Impoundments: 264.222(b)

Describe the procedures to be followed in the event a liquid leaks into the leak detection system of a double-lined surface impoundment including:

G-4l(5)(a) Notification: 264.222(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4l(5)(b) Remedial Action: 264.222(b)(2)(i)

Procedures for removing accumulated liquid, repairing or replacing the liner which is leaking, and obtain a certification from a qualified engineer that to the best of his/her knowledge and opinion, the leak has been stopped.

G-4l(5)(c) Detection Monitoring Program: 264.222(b)(2)(ii)

Procedure for enacting a groundwater detection program.

G-4m Incineration Spills and Leakage: 264.52

Describe the procedures for responding to spills or leakage, including the decontamination process and repair of the unit.

G-4n Landfill Leakage: 264.52, 264.302(b)

Describe the procedures to be followed in the event a liquid leaks into the leak detection system of a double-lined landfill including:

G-4n(1) Notification: 264.302(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-4n(2) Remedial Action: 264.302(b)(2)(i)

Procedures for removing accumulated liquid, repairing or replacing the liner which is leaking, and obtain a certification from a qualified engineer that to the best of his/her knowledge and opinion, the leak has been stoppe

G-4n(3) Detection Monitoring Program: 264.302(b)(2)(ii)

Procedure for enacting a groundwater detection program.

G-4o Land Treatment Facility Spills and Leakage: 264.52(a)

Describe the procedures to be used to respond to land treatment facility spills or leaks.

G-5 Emergency Equipment: 264.52(e)

Describe the location and specifications of the emergency equipment.

G-6 Coordination Agreements: 264.52(c), 264.37

Describe the coordination agreements 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. Document refusal to enter into a coordination agreement.

G-7 Evacuation Plan: 264.52(f)

Describe signal(s) to be used to begin evacuation routes, and planned and alternate evacuation routes.

G-8 Required Reports: 264.56(j)

Describe the provisions for submission of reports of emergency incidents within 15 days of occurrence, and maintenar of records identifying the time, date, and details of an emergency incident.

H. PERSONNEL TRAINING: 270.14(b)(12), 264.16

H-1 Outline of the Training Program: 264.16(a)(1)

Provide an outline of both the introductory and continuing training programs by owners or operators to prepare personnel to operate or maintain the facility in a safe manner. Include a brief description on how training will be designed to meet actual job tasks. (Note: On-the-job training may be used to comply with these requirements.)

H-1a Job Title/Job Description: 264.16(d)(1), 264.16(d)(2)

Provide the job title and job description of each employee whose position at the facility is related to hazardous waste management.

H-1b Training Content, Frequency, and Techniques: 264.16(c) and (d)(3)

Describe the content, frequency, and techniques used in both introductory and continuing training (including an annu review of the initial training) for each employee.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

H-1c Training Director: 264.16(a)(2)

Demonstrate that the program is directed by a person trained in hazardous waste management.

H-1d Relevance of Training to Job Position: 264.16(a)(2)

Demonstrate that facility personnel are instructed in hazardous waste management procedures (including contingency plan implementation) relevant to their positions.

H-1e Training for Emergency Response: 264.16(a)(3)

Demonstrate that facility personnel are able to respond effectively to emergencies and are familiar with emergency procedures, emergency equipment, and emergency systems. The training program should include the following:

H-1e(1) Procedures for Using, Inspecting, Repairing, and Replacing Facility Emergency and Monitoring Equipment

H-1e(2) Key Parameters for Automatic Waste Feed Cut-off Systems

H-1e(3) Communications or Alarm Systems

H-1e(4) Response to Fires

H-1e(5) Response to Groundwater Contamination Incidents

H-1e(6) Shutdown of Operations

H-2 Implementation of Training Program: 264.16(b) and (d)(4)

Indicate that training has been successfully completed by facility personnel within six months of their employment or assignment to the facility or transfer to a new position within the facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements. Records documenting that the required training has been given to and completed by facility personnel must be maintained.

I. CLOSURE AND POST-CLOSURE REQUIREMENTS: 270.14(b)(13), 264.110 through 264.120

I-1 Closure Plans: 270.14(b)(13), 264.112

Include a copy of the written closure plan consistent with I-1a through I-1k including an estimate of the maximum inventory of wastes in storage and treatment at any time.

I-1a Closure Performance Standard: 264.111

Describe how closure minimizes the need for post-closure maintenance and minimizes releases of wastes.

I-1b Partial and Final Closure Activities: 264.112(a)(1)

If partial closure is anticipated, describe how and when the facility will be partially closed, including an identification of the maximum extent of operation after partial closure. Describe how and when the facility will finally be closed.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1c Maximum Waste Inventory: 264.112(a)(2)

Describe the maximum inventory of wastes in storage and in treatment at any time during the life of the facility.

I-1d Inventory Removal, Disposal or Decontamination of Equipment: 264.112(a)(3), 264.114

Describe how the hazardous waste inventory will be removed or treated and how all facility equipment and structures will be decontaminated or disposed of when closure is completed. Alternatively, provide information for closing the unit as a disposal facility as described in I-1e.

I-1d(1) Closure of Containers: 264.178

Show that at closure, all hazardous waste and hazardous waste residue will be removed from the containment system, and how remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

I-1d(2) Closure of Tanks: 264.197

Show that at closure, all hazardous waste and hazardous waste residue will be removed from tanks, discharge control equipment, and discharge confinement structures, and that the facility will be decontaminated.

I-1d(3) Closure of Waste Piles: 270.18(i), 264.258

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. If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the pile as a landfill [I-1e] and provide post-closure pland [I-2]. Piles without liners or with liners that do not meet the requirements of D-3c must also provide contingent plans for closing the facility as a landfill [I-1d(6)] and a contingent post-closure plan [I-2], except for dry, enclosed piles meeting the requirements of D-3b(1) or piles for which a liner exemption is sought in accordance with D-3b(2).

I-1d(4) Closure of Surface Impoundments: 270.17(g), 264.228

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. If any wastes, waste residues or contaminated materials or soils will remain after closure provide plans for closing the surface impoundment as a disposal unit [I-1e] and provide post-closure plans [I-2]. Surface impoundments without liners or with liners that do not meet the requirements of D-4c must also provide contingent plans for closure as a disposal unit [I-1e] and a contingent post-closure plan [I-2], except for impoundments requesting a liner exemption in accordance with D-4b.

I-1d(5) Closure of Incinerators: 264.351

Describe how, at closure, all hazardous residues will be removed from the incinerator, associated ductwork, 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, describe how the incinerator and associated units and equipment will be dismantled and disposed of as a hazardous waste.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1d(6) Closure of Land Treatment Facilities: 270.20(d)(6), 264.280

Describe the steps to close the unit at the end of its operating life, while assuring continued treatment of wastes, as necessary.

I-1d(6)(a) Continuance of Treatment: 270.20(d)(6), 264.280(a)

Describe how, during the closure period, all operations necessary to maximize degredation, transformation and immobilization of hazardous constituents will be continued.

I-1e(6)(b) Vegetative Cover: 270.20(d)(6), 264.280(a)(8)

Describe the vegetative cover to be established during closure, including:

- Common name, species and variety of the cover crop to be established;
- Data showing that the cover crop can thrive in the soils and climate in which it will be placed;
- The minimum percentage of soil cover to be maintained on the closed land treatment unit; and
- Methods to be used to establish and maintain the cover.

I-1e Closure of Disposal Units: 270.14(b)(13), 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

All piles, landfills and surface impoundments 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. Surface impoundments and waste piles requiring contingent closure plans must also provide these descriptions.

I-1e(1) Disposal Impoundments: 270.17(g), 264.228(a)(2)

If wastes are to remain in the impoundment after closure, describe the methods for preparing the wastes for the final cover.

I-1e(1)(a) Elimination of Liquids: 270.17(g), 264.228(a)(2)(i)

Describe how free liquids are to be removed or solidified at closure.

I-1e(1)(b) Waste Stabilization: 270.17(g), 264.228(a)(2)(iii)

Describe the methods to be used to stabilize remaining wastes to support the final cover, including:

- Stabilization methods, equipment and materials
- Required bearing strength of stabilized waste
- Demonstration of stabilized waste bearing strength
- Methods for bearing strength determination during closure.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1e(2) Cover Design: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

The cover design and installation procedures should be thoroughly described. This submission should include:

- Drawings showing cover layers, thicknesses, slopes and overall dimensions
- The common name, species and variety of the proposed cover crop
- Descriptions of synthetic liners to be used, including chemical properties, strength thickness and manufacturers specifications
- Description of rationale for cover selection
- Descriptions of and specifications for protective materials placed above and below synthetic liners
- Clay liner characteristics, including thickness and permeability
- Clay liner construction plans including lift sequencing.

I-1e(3) Minimization of Liquid Migration: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

For cover designs different than the EPA-suggested design, provide engineering calculations showing the proposed cover will provide long-term minimization of liquid migration through the cover.

I-1e(4) Maintenance Needs: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

Demonstrate that the cover system will function effectively with minimum maintenance needs.

I-1e(5) Drainage and Erosion: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

Provide the following information:

- Data demonstrating that the proposed final slopes will not cause significant cover erosion.
- Descriptions of drainage materials and their permeabilities.
- Engineering calculations demonstrating free drainage of precipitation off of and out of the cover.
- Estimation of the potential for drainage-layer clogging.

I-1e(6) Settlement and Subsidence: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

Describe potential cover settlement and subsidence, considering immediate settlement, primary consolidation, secondary consolidation, and creep and liquefaction. Include the following information:

- Potential foundation compression.
- Potential soil liner compression.
- Potential waste consolidation and compression resulting from waste dewatering, biological oxidation and chemical conversion of solids to liquids.

Describe the effects of potential subsidence/settlement on the ability of the final cover to minimize infiltration.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1e(7) Cover Permeability: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

Demonstrate that the cover system will have a permeability less than or equal to that of the liner system.

I-1e(8) Freeze/Thaw Effects: 270.17(g), 264.228(a)(2), 264.228(c), 270.18(i), 264.258(c), 270.21(e), 264.310(a)

Identify the average depth of frost penetration and describe the effects of freeze/thaw cycles on the cover.

I-1f Continuance of Operations: 270.14(b)(13), 264.228, 264.258, 264.280, 264.310

Describe how, during the closure period, monitors and controls at land stroage, treatment, and disposal units will be continued, as appropriate, including:

- Groundwater monitoring;
- Unsaturated zone monitoring;
- Run-on controls;
- Run-off controls; and
- Wind dispersal controls.

I-1g Schedule for Closure: 264.112(a)(4)

Provide an estimate of the expected year of closure and the schedule for final closure, including total time to close the facility and time required for intervening closure activities. This will allow tracking of the progress of closure.

I-1h Extensions for Closure Time: 264.113(a), 264.113(b)

Submit a petition 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 which justifies that a longer period of closure time is required.

I-2 Post-Closure Plan: 270.14(b)(13), 270.17(g), 264.228(b), 264.228(c)(1)(ii), 270.18(i), 270.20(c)(6), 264.280(c), 270.21(e), 264.310(b)

Submit a copy of the most recent post-closure plan or, if applicable, the contingent post-closure plan. Landfill, surface impoundment and waste pile post-closure plans should address items I-2a, b and c; land treatment unit post-closure plans, item I-2d.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-2a Inspection Plan: 270.17(g), 264.228(b), 264.228(c)(1)(ii), 270.18(i), 270.21(e), 264.310(b)

Describe the inspections to be conducted during the post-closure care period, their frequency, the inspection procedure, 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 functioning
- Leak detection system
- Leachate collection and removal system
- Gas venting system
- Well condition
- Benchmark integrity.

The rationale for determining the length of time between inspections should be provided.

I-2b Monitoring Plan: 270.17(g), 264.228(b), 264.228(c)(1)(ii), 270.18(i), 270.21(e), 264.310(b)

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting the following operations and evaluating the data gathered:

- Groundwater monitoring
- Leachate collection and removal
- Leak detection between liners.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-2c Maintenance Plan: 270.17(g), 264.228(b), 264.228(c)(i)(ii), 270.18(i), 270.21(e), 264.310(b)

Describe the preventative and corrective maintenance 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
- Repair of run-on and run-off control structures
- Leachate removal system maintenance
- Well replacement.

Describe the rationale to be used to determine the need for corrective maintenance activities.

I-2d Land Treatment: 270.20(d)(6), 264.280(c)

Describe 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 systems and run-off management systems
- Wind dispersal control
- Control of food chain crops
- Unsaturated zone monitoring.

I-3 Notice in Deed: 270.14(b)(14), 264.120, 264.117(c), 264.119

Existing facilities must submit a copy of the notice or notation recorded in the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity notify any potential purchaser of the property that (1) the land has been used to manage hazardous wastes; (2) its use is restricted; and (3) the survey plot and record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility has been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Regional Administrator of the U.S. Environmental Protection Agency.

I-4 Closure Cost Estimate: 270.14(b)(15), 264.142

Provide a copy of the most recent closure cost estimate, calculated to cover the cost of closure when the cost would be greatest (not including partial closure). The cost must be updated annually using an inflation factor.

I-5 Financial Assurance Mechanism for Closure: 270.14(b)(15), 264.143

Provide a copy of the established financial assurance mechanism for facility closure. The mechanism must be one of the following:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-5a Closure Trust Fund: 264.143(a), 264.151(a)(1)

Provide a copy of the closure trust fund agreement with the wording required by 264.151(a)(1) and a formal certification of acknowledgment.

I-5b Surety Bond: 264.143(b) and (c), 264.151(b) and (c)

I-5b(1) Surety Bond Guaranteeing Payment Into a Closure Fund: 264.143(b), 264.151(b)

Provide a copy of the surety bond with the wording required by 264.151(b) and a copy of the standby trust agreement. The bond must guarantee that the owner or operator will fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility, or fund the standby trust fund in an amount equal to the penal sum within 15 days of an order to begin closure, or provide alternate financial assurance if the bond is cancelled.

I-5b(2) Surety Bond Guaranteeing Performance of Closure: 264.143(c), 264.151(c)

Provide a copy of the surety bond with the wording required by Part 264.151(c), guaranteeing that the owner or operator will perform closure according to the closure plan and the requirements of Subpart G.

I-5c Closure Letter of Credit: 264.143(d), 264.151(f)

Provide a copy of the irrevocable letter of credit with the wording required by 264.151(f) and a copy of the standby trust agreement. The letter of credit must be issued for a period of at least one year and be for the amount of estimated closure.

I-5d Closure Insurance: 264.143(e), 264.151(e)

Provide a copy of the certificate of insurance with the wording required in 264.151(e).

I-5e Financial Test and Corporate Guarantee for Closure: 264.143(f), 264.151(f), 264.151(h)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(f), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If a parent company is guaranteeing closure for a subsidiary facility, the corporate guarantee must accompany the preceding items.

I-5f Use of Multiple Financial Mechanisms: 264.143(g)

Provide a copy of a combination of trust fund agreements, surety bonds guaranteeing payment into a closure trust fund, letters of credit, or insurance, together which provide financial assurance for the amount of closure.

I-5g Use of Financial Mechanism for Multiple Facilities: 264.143(h)

Provide 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 funds closure assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-6 Post-Closure Cost Estimate: 270.14(b)(6), 264.144

Provide a copy of the most recent post-closure cost estimate, calculated to cover the cost, in current dollars, of post-closure monitoring and maintenance of the facility in accordance with the applicable post-closure plan. The cost must be updated annually using an inflation factor.

I-7 Financial Assurance Mechanism for Post-Closure Care: 270.14(b)(16), 264.145

Provide a copy of the established financial assurance mechanism for post-closure care of the facility. The mechanism must be one of the following:

I-7a Post-Closure Trust Fund: 264.145(a), 264.151(a)(1)

Provide a copy of the post-closure fund agreement with the wording required by 264.151(a)(1) and submit a formal certification of acknowledgment.

I-7b Surety Bond: 264.145(b) and (c), 264.151(b) and (c)

I-7b(1) Surety Bond Guaranteeing Payment Into a Post-Closure Trust Fund: 264.145(b), 264.151(b)

Provide a copy of the surety bond with the wording required by 264.151(b) and a copy of the standby trust agreement. The bond must guarantee that the owner or operator will fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility, or fund the standby trust fund in an amount equal to the penal sum within 15 days of an order to begin closure, or provide alternate financial assurance if the bond is cancelled.

I-7b(2) Surety Bond Guaranteeing Performance of Post-Closure Care: 264.145(c), 264.151(c)

Provide a copy of the surety bond with the wording required by Part 264.151(c), guaranteeing that the owner or operator will perform post-closure care according to the post-closure plan and the requirements of Subpart G.

I-7c Post-Closure Letter of Credit: 264.145(d), 264.151(f)

Provide a copy of the irrevocable letter of credit with the wording required by 264.151(f) and a copy of the standby trust agreement. The letter of credit must be issued for a period of at least one year and be for the amount of estimated post-closure costs.

I-7d Post-Closure Insurance: 264.145(e), 264.151(e)

Provide a copy of the certificate of insurance with the wording required by 264.151(e).

I-7e Financial Test and Corporate Guarantee for Post-Closure Care: 264.145(f), 264.151(f), 264.151(h)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(f), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If a parent corporation is guaranteeing post-closure care for a subsidiary facility, the corporate guarantee must accompany the preceding items.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-7f Use of Multiple Financial Mechanisms: 264.145(g)

Provide a copy of a combination of financial mechanisms, including trust fund agreements, surety bonds guaranteeing payment into a post-closure trust fund, letters of credit, and insurance, together which provide financial assurance for the amount of post-closure care.

I-7g Use of Financial Mechanism for Multiple Facilities: 264.145(h)

Provide 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 post-closure funds assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility.

I-8 Liability Requirements: 270.14(b)(17), 264.147

Provide copies of the required items documenting compliance with applicable liability requirements for sudden and nonsudden accidental occurrences.

I-8a Coverage for Sudden Accidental Occurrences: 264.147(a)

Liability coverage must be maintained for sudden accidental occurrences in the amount of at least $1 million per occurrence with an annual aggregate of at least $2 million. Liability coverage may be demonstrated in one of three ways:

I-8a(1) Endorsement or Certification: 264.147(a)(1)

Submit a signed duplicate original of the Hazardous Waste Facility Liability Endorsement, with the wording specified by 264.151(i), or of a Certificate of Liability Insurance, with the wording specified by 264.151(j).

I-8a(2) Financial Test for Liability Coverage: 264.147(a)(2), 264.147(f)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(g), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If the applicant is using the financial test to demonstrate both assurance for closure or post-closure care and liability coverage, the letter specified in 264.151(g) must be submitted to cover both forms of financial responsibility. Under these circumstances, a separate letter as specified by 264.151(f) is not required.

I-8a(3) Use of Multiple Insurance Mechanisms: 264.147(a)(3)

Submit items demonstrating required liability coverage through a combination of endorsement or certification and financial test as these mechanisms are specified in this section (see I-8a(1) and I-8a(2)). The amounts of coverage demonstrated must total at least the minimum amounts required by 264.147(a).

I-8b Coverage for Nonsudden Accidental Occurrences: 264.147(b)

Liability coverage must be maintained for nonsudden accidental occurrences in the amount of at least $3 million per occurrence with an annual aggregate of at least $6 million. Coverage may be demonstrated in one of three ways:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-8b(1) Endorsement or Certification: 264.147(a)(1)

Submit a signed duplicate original of the Hazardous Waste Facility Liability Endorsement, with the wording specified by 264.151(i), or of a Certificate of Liability Insurance, with the wording specified by 264.151(j).

I-8b(2) Financial Test for Liability Coverage: 264.147(a)(2), 264.147(f)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(g), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If the applicant is using the financial test to demonstrate both assurance for closure or post-closure care and liability coverage, the letter specified in 264.151(g) must be submitted to cover both forms of financial responsibility. Under these circumstances, a separate letter as specified by 264.151(f) is not required.

I-8b(3) Use of Multiple Insurance Mechanisms: 264.147(a)(3)

Submit items demonstrating required liability coverage through a combination of endorsement or certification and financial test as these mechanisms are specified in I-8b(1) and I-8b(2). The amounts of coverage demonstrated must total at least the minimum amounts required by 264.147(b).

I-8c Request for Variance: 264.147(c)

Request for an adjusted level of required liability coverage must be accompanied by supporting information to demonstrate that established levels of financial responsibility specified in 264.147(a) or (b) are not consistent with the degree and duration of risk associated with treatment, storage, or disposal at the applicant's facility or group of facilities.

I-9a Use of State Required Mechanism: 270.14(b)(18), 264.149

Where a state has hazardous waste regulations with equivalent or greater liability requirements for financial assurance for closure and post-closure care, provide a copy of the state-required financial mechanisms, including the facility EPA ID number, name, address, and amounts of coverage and a letter requesting that the state mechanism be considered acceptable.

I-9b State Assumption of Responsibility: 270.14(b)(18), 264.150

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, submit a copy of a letter from the state describing the state assumption of responsibility 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, together with a letter requesting that the state's assumption of responsibility be considered acceptable.

J. OTHER FEDERAL LAWS: 270.14(b)(20), 270.3

Demonstrate compliance with the requirements of applicable Federal laws such as the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, and Fish and Wildlife Coordination Act.

K.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

PART B CERTIFICATION: 270.11(a) and (b)

Applications must be accompanied by a certification letter as specified in 270.11(d). The required signatures are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public agency, either a principal executive officer or ranking elected official.