PEDCo ENVIRONMENTAL, INC.
11499 CHESTER ROAD
CINCINNATI, OHIO 45246
(513) 782-4700
TELECOPIER (513) 782-4807

October 19, 1983

Mr. Robert Morby
U.S. Environmental Protection Agency
Region VII
3245 East 11th Street
Kansas City, Missouri 64106

Re: Contract No. 68-02-3173
Work Assignment 84, Subtask 2C
PN 3450-84-2C

Dear Mr. Morby:

Enclosed with this letter is a copy of the checklist with written comments and a list of deficiencies relative to the RCRA Part B permit application for Sludgemaster, Inc. These work products are delivered in accordance with your letter dated September 23, 1983.

The applicant and his consultants have not provided sufficient information to make a technical evaluation on the proposed waste treatment process. The generalized claims made by the application concerning treatability of various wastes and effectiveness of their process(es)are not substantiated by the applicant and/or the available literature on this subject. The proposed process utilizes various oxidizing and reducing agent (a proprietary per-oxygen compound), formalin , selected clays, special types of cements, a proprietary pH buffering solution, and calcium oxide. The description of this process in the application is brief and vague.

The application includes several diagrams intended to illustrate structural properties of the treated materials, however, the diagrams are reprints from various literature sources having no direct bearing on the specific wastes to be treated by Sludgemaster of Iowa. The proposed system is a pozzolanic process and the literature describes several problems with this type of system. In particular, small amounts of interfering materials such as bo-rates, sulfates and chlorides have significant effects on the curability, strength, durability, and chemical containment of the treated waste. If the solidification process were retarded such that a monolithic mass were not produced, free liquids would be encapsulated and available for leaching and runoff when the waste storage pile is removed for ultimate disposal. The application proposes a trial and error evaluation for treatability, however it does not define what constitutes effective treatment, nor does it list constraints on the trial and error evaluation process. The application

includes treatment procedures for several waste streams, however, the application does not adequately characterize each waste, list each treatment reagent or specify the treatment protocols and it is not clear how the procedures were developed, since this is a new facility application.

The application does not address the chemical and physical analyses required to obtain the necessary information to dispose of the treated waste in accordance with the requirements of 40 CFR 264. Since the permit application is for treatment and storage, not disposal, this omission may be acceptable. However, the applicant or the disposal facility will be required to obtain this waste characterization data either for justification for a delisting petition or to properly dispose of the waste. For this review, this was not listed as a deficiency, but this is an important aspect of the "cradle-to-grave" management of these treated wastes.

Throughout this application there are numerous grammatical and typographical errors. In general, this did not affect the technical content and therefore these errors were not included in our deficiency list.

Because this is a new facility application and because we could not locate published information on each waste treatment process, a limited telephone survey was made to determine if there are other Sludgemaster franchises operating under interim status or a RCRA permit. To the best of our knowledge, there are no RCRA regulated facilities utilizing the Sludgemaster technologies. There are two other applications of this treatment system in various stages of operations dealing with drilling muds and oily wastes. The results of our telephone survey are attached for your use and review.

The alternatives at hand for proceeding with the permitting process of this facility are:

1. The agency can continue to request from the applicant sufficient information to technically review the application and make a decision on granting or denying a permit. So far this approach has been unsuccessful because the applicant is not responding adequately to the deficiency notices.

2. The agency can make a decision on granting or denying a permit based on the submitted application and information received to date. This alternative raises the following questions if a decision to grant a permit is made.

    - Is the EPA Regional Office prepared to grant a treatment permit to a facility which has not demonstrated waste treatability?

    - Is the EPA Regional Office prepared to exempt from the waste pile groundwater monitoring and liner requirements, a facility which has not demonstrated that it is capable of complying with 40 CFR 264.250(c)?

- Is the EPA Regional Office prepared to allocate significant manpower (staff or contractor) to provide guidance to the applicant?

It is obvious that much effort, both by your staff and the Iowa Department of Environmental Quality staff, has been expended in reviewing this permit application and working with the applicant to obtain a complete and technically adequate application. However, the application (3rd revision) is grossly deficient and we believe the applicant and his consultants will need much more than a couple of weeks to respond to the enclosed deficiency list. We also recommend that the applicant be required to submit a completely revised application along with a point by point response to the deficiency letter with cross references to the page(s) in the application.

If you have any questions concerning this project please do not hesitate to call me.

Sincerely,

PEDCo ENVIRONMENTAL, INC.

Tom Robertson

Thomas D. Robertson
Project Manager

TDR:sk

Enclosure

cc: K. Flournoy
J. Ratcliffe

SLUDGEMASTER, INC.
RCRA PERMIT APPLICATION DEFICIENCY LIST
OCTOBER 1983

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
1	A-14	270.13	Part A 7/1/83 submittal	EPA ID Number - The applicant must include the facility's EPA identification number on pages 3a and 3b of Form 3510-3.
2	A-15	270.13	Part A 7/1/83 submittal	Revised Date of Start Up - The application's proposed date for start-up of the new facility (November 1, 1983) is not feasible. It would appear that the applicant should allow 250 days from receipt of the Notice of Deficiency Letter (NOD). 90 days for response to this NOD 30 days for EPA review of applicant's response 10 days for additional response from applicant 15 days for additional review by EPA 45 days public notice 30 days to respond to public comment 30 days for permit to become effective
3	B-2a	270.14(b)(19)	Figure 2, Figure 3, Figure 4, Figure 5, Figure 6 received 9/8/83	Topographic Map - Figure 2 or 6 must include the the location of any sanitary, process or storm sewer serving the facility. In addition to the fire extinguishers, Figure 2 or 6 must show the location of fire hydrants, and/or other fire control facilities.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
4	B-2b	270.14(c)	Missing	Topographic Map Requirements for Waste Storage Piles - This application has not adequately demonstrated that the facility is exempt from the ground water monitoring requirements (see deficiency No. 28. Unless exempted the application must include on the topographic maps the information specified in 40 CFR 270.14(c).
5	B-3b B-3b(1)(a)	270.14(b)(11) (IV) (A)&(B) 270.14(b)(11) (IV)(C) 264.(18)(b) (ii)	3/29/83 response 22; Figure 4 received 9/8/83; Page 2 received 9/1/83	Flood Plain - The application must demonstrate that the facility will be designed, constructed, operated and maintained to prevent washout of any hazardous waste during a flood. If an adequate flood plan is not submitted the application must include: a) An engineering analysis which indicates the various hydrostatic and hydrodynamic forces expected to result at the site as a consequence of a 100 year flood. The analysis should include calculations and justifications for any assumptions made and b) Structural or other engineering studies showing that the operational units (e.g. dump trucks, containers, tank waste piles, etc.) will not be moved or damaged by the flood forces to the point of allowing a release of hazardous waste. This analysis should include the worst case scenario, i.e., 220 conainers are full or partially full, both tanks contain hazardous waste, (full or empty and not decontaminated), the waste pile includes 150 yd^3 of waste, and there is contaminated dump trucks and other equipment on site.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
	B-3b(1)(b)			Unless the application demonstrates that the facility is capable of withstanding the flood forces discussed above, the application's flood plan must include a detailed description of the procedures to be followed when it is necessary to remove hazardous waste to safety before the facility is flooded, including: a) Timing of such movements relative to flood levels. This portion of the description must include how long it will take and the procedures to decontaminate non-moveable structures, as well as how long it will take to transport all of the wastes and decontamination residuals to safety; b) A description of the location(s) to which the waste will be moved. This description must indicate that each receiving facility will be eligible to receive the waste being transported to the facility; c) Procedures, equipment, and personnel to be used and the means to ensure that these resources will be available; d) Potential for accidental discharge of the waste.
6	B-4	270.14(b)(10)	Figure 6 received 4/1/83 Page 3 response 10; received 4/1/83	Traffic Information - The application must include detailed information on how the crushed rock ramps allowing equipment to enter and exit the treated waste holding area will be constructed and operated. The information must describe the load bearing capacity of the ramps, how creep, heave, and potholes will be minimized and demonstrate that the ramps are designed to allow equipment a smooth entrance and/or exit.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				The application must include information on the traffic patterns and estimated volume of vehicles (number and type) that will be entering and exiting the treated waste holding area. Also include route(s) to nearest major highway and provide information on the shared right-of-way. The application must include traffic information on how hazardous waste will be brought into and moved out of the container and tank storage and treatment areas. Information on ramps, load bearing capacity, vehicle types and numbers all must be provided.
7	C-1	270.14(b)(2) 264.13(a)	3/29/83 response 3, 4a,4b, 4c, 24a and 24b.received 4/1/83 Pages WAP-1 through WAP-11 received 9/8/83	Chemical and Physical Analysis - The application must include all information which must be known to store and/or treat each waste. The information must be waste specific and include, as appropriate, for storage and/or treatment: a) Toxic constituents (Extraction Procedures and 40 CFR 261 Appendix VIII) b) Corrosivity and acceptable ranges of pH c) Reactivity and conditions which cause reaction d) Ignitability and acceptable ranges of flash points e) Buffering capacity and acceptable ranges f) Water content and acceptable ranges g) Percent solids and acceptable ranges h) Density on specific gravity and acceptable ranges i) Treatment interfering compound or acceptable ranges j) Leachate generation rate and fluid conductivity (for wastes stored in waste pile). k) Inorganic components and acceptable ranges

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				l) Organic solvents (halogenated and nonhalogenated) and acceptable ranges m) Treatment inhibitors and acceptable ranges n) Physical form (solid, liquid, gas, oxidized, reduced etc.) o) Compatibility with other wastes and treatment reagents p) Other The applicant is advised that the EPA hazardous waste ID number does not sufficiently identify or characterize the waste being treated or stored at the facility. For example, F001 is utilized to represent any one of six individual spent halogenated solvents or mixtures or sludges from the recovery of these solvents or mixtures. Hence it is possible that two separate waste streams being identified as F001 would require entirely different treatment procedures.
8	C-2a	264.13(b)(1)	WAP-3	Parameters and Rationale - The application's list of parameters and the rationale for choosing each for analysis must be expanded to include all information necessary to store and/or treat the various wastes. See deficiency No. 9 above.
9	C-2b	264.13(b)(2)	WAP-5	Test Method - The application must include an acceptable test method for each parameter included in deficiency No.10 above. Additionally the test methods proposed for odor, reactivity, color and physical state all must be standardized. Such things as sample size, apparatus requirements, mixing times, reagents, and comparative standards all must be identified.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				Please note that the use of humans to detect odors emitted from or by hazardous waste will not be approved. The application must identify which references will be used for determining compatibility.
10	C-2c	264.13(b)(3)	WAP-5	Sampling Methods - The application must include additional sampling methods for each parameter added in response to deficiencies No. 10 and 11 above.
11	C-2d	264.13(b)(4)	WAP-6	Frequency of Analysis - In addition to the analysis frequencies provided the applicant must include the frequency at which the proposed additional analyses will be conducted. See deficiency Nos. 10 and 11.
12	C-2e	264.13(b)(5)	WAP-7	Requirements for Waste Generated Offsite - The applicant must either expand the waste generator information request form to include all information necessary to store and/or treat the waste in accordance with 40 CFR 264, or include the analytical procedures to obtain this information independent of the generator. See deficiency No. 9 above.
13	D-1a(1)	270.15(a)(1) 264.175(b)(1)	Figure 6	Storage Containment System Materials - The application must demonstrate that the proposed containment system will be free of cracks or gaps, and sufficiently impervious to contain leaks, spills and accumulated precipitation until the collected material is detected and removed. Specific information on the type and strength of the concrete, its thickness, reinforcing steel, water stops, subgrade modulus, sealing materials and installation procedures must be provided.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
14	D-1a(2)	270.15(a)(2) 264.175(b)(2)	Figure 6	Storage Containment System Design and Operation - The application must demonstrate that the containment system is designed and operated to drain and remove leaks, spills, or precipitation. The demonstration must include drainage system flow capacities, alarm activation levels, sump pit and pump capacities, etc.
15	D-1a(3)	270.15(a)(3) 264.175(b)(3)	Missing	Capacity of Containment System - The application must demonstrate that the containment system has sufficient capacity to contain 10 percent of the volume of the containers plus any rain which may fall, blow, or run on or into the storage containment system during a 24 hour/25 year storm event. The demonstration must include calculations and take into account the volume displaced by interior walls, slopes, containers, pallets, tanks and other pieces of equipment below the effective curb height.
16	D-1a(4)	270.15(a)(4) 264.175(b)(4)	Figure 6	Control of Run-on - The application must demonstrate that the six inch curb and the roof overhang are capable of preventing flow into the containment system during peak discharge of a twenty five year storm event, unless the containment system has sufficient capacity to contain the rain and run on resulting from a 24 hour/25 year storm plus ten percent of the total container volume. The demonstration should include calculations and justifications for any assumptions.
17	D-1a(5)	270.15(a)(5) 264.175(b)(5)	Missing	Removal and Analysis of Accumulated Liquids in the Containment System - The application must provide information which demonstrates that accumulated liquids will be properly characterized and managed or disposed in a manner which complies with 40 CFR

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				264. They must be removed from the storage containment system expeditiously and in a manner which prevents over flow. This information must include analytical procedures, inspection schedules, clean up procedures, alarm levels, etc.
18	D-1c	270.14(b)(9) 264.17(a)	3/29/83 response 17a	Requirements of Ignitable Incompatible and Reactive Wastes in Containers - The application must describe the precautions which will be taken to prevent ignition or reaction of the wastes stored and treated. The description must include how sources of ignition such as, open flame, smoking, cutting and welding, hot surfaces, friction heat, sparks (static, electrical, and mechanical), heat producing chemicals and radiant heat will be controlled. The application must also describe container grounding systems and indicate where (if any) smoking is allowed. The application must include on Figure 6 the location of No Smoking signs. The application must expand the discussion on how incompatible wastes will be identified and managed. The discussion must include either 1) a site specific list of incompatible wastes or 2) demonstrate that containers holding hazardous wastes that are incompatible with other wastes or materials stored nearby are adequately separated from the incompatibles or protected from them by means of dikes, berms, walls or other devices. The application must demonstrate that hazardous waste will not be placed in an unwashed container that previously held incompatible wastes or materials. The demonstration must include discussions on wash procedures and/or procedures to identify containers which previously held incompatible wastes.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
19	D-1d	264.171 264.172 264.173	Missing	Container Management - The application must include a description of the types of containers which are acceptable for each waste to be stored or treated at the facility. The description must include basic design parameters, dimensions, materials of construction, liners and compatibility of the waste with the container. The application must describe the procedures for handling containers to avoid rupture or leaking. Because the applicant has indicated that drums will be stacked 3 drums high, the description must demonstrate that the proposed stacking procedure is stable and capable of withstanding: a) Wind forces caused by sustained winds of up to 70 mph (annual extreme wind with 25 year recurrence interval). b) A collision from a loaded forklift driving 2 m.p.h. The application must describe the container management practices which will be utilized to segregate incompatible wastes in storage. The discussion should include a map or drawing showing the location of each incompatible waste type. The application must indicate that containers will always be kept closed during storage except when adding or removing waste.
20	D-2a	270.16(a) 264.19(a)	Missing	Description of Tanks - The application must include a discussion of design and operation procedures which demonstrate that each storage tank will not collapse or rupture. The discussion must include: a) How many treatment and/or storage tanks are being permitted

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				b) Reference to design standards or other information used in design and fabrication c) Design specifications for each tank including: type of seam; materials of construction and lining (if any); nominal, design and operating capacities; support bracing and structure; connectors, instrumentation; etc. d) Plan and profile drawings of the tanks and structural supports. The drawings must include as appropriate all dimensions including: overall height; diameter or length and width; seam line to seam line length; plate thickness; structural number sizes; bracing connections; support structures; openings; piping connections; instrumentation; feed systems; safety mechanisms; alarms; bypass systems.
21	D-2b	270.16(b) 264.192(a) 264.191(a) 264.17(c)	Missing	Tank Corrosion and Erosion - The application must include a discussion on the pertinent characteristics of each storage and treatment tank's construction and lining materials. The discussion must include: corrosion and erosion allowances, corrosion and erosion rates, compatibility with each waste and if appropriate treatment reagents, and calculations of minimum shell thicknesses.
22	D-2c	270.16(d) & (e) 264.192(b)	7/1/83 response 6c	Tank Management Practices - The application must include a diagram of piping, instrumentation and process flows for each piece of treatment equipment and storage tank. The diagram should include flow directions, instrument capabilities and piping elevations, etc.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
23	D-2d	264.198	Missing	Requirements for Ignitable and Reactive Wastes in Tanks - The application must describe: a) The procedures for treating, mixing, rendering before or immediately after placing ignitable and/or reactive wastes in a storage tank such that the resulting material no longer meets the definition of ignitable or reactive wastes; or b) The procedures for protecting the treatment and storage tanks from sources of ignition or reaction. The description must include, as appropriate, how sources of ignition such as open flame, smoking, cutting and welding, hot surfaces, friction heat, sparks (electrical, static and mechanical), heat producing chemicals and radiant heat will be controlled. If treatment procedures are used, the description must be waste specific and include mixing times, reaction times, reagent quantities, testing and sampling procedures.
24	D-2e	264.199	3/29/83 response No. 17a	Incompatible Wastes in Tanks - The application must expand the discussion on how incompatible wastes will be identified and managed. The discussion must include procedures to prevent placing incompatible wastes in the same tank. The discussion must include precautions and procedures utilized to ensure that wastes are not placed in any unwashed tank which previously stored or treated incompatible wastes.
25	D-3a	270.18(a)	Missing	List of Wastes in Piles - The application must include: a list of all hazardous waste to be placed in the waste storage piles; and the analytical and sampling techniques which will be used to identify and characterize the waste being

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				placed in the waste storage piles. See deficiency Nos. 9 through 13 above. Note: All wastes listed in 40 CFR 261 Subpart D which are treated and placed in this pile are classified as hazardous unless applicant has the waste delisted.
26	D-3b(1)	270.18(b) 264.250(c) 264.251	3/29/83 response 20c; 7/1/83 response 48	Groundwater Monitoring and Liner Exemption - In order to qualify for the groundwater monitoring and liner exemption, the application must demonstrate that leachate is not generated from the pile. The demonstration must be waste specific and include substantiated evidence that the treated waste does not generate leachate through decomposition or other reaction. Additionally, calculations, assumptions and the rationale for their use must be included in the demonstration. The application must also demonstrate that the six inch curb and two foot roof over hang are capable of preventing flow onto the active portion of the pile during peak discharge from a 25 year storm. The demonstration must include detailed plans and an engineering report describing: a) System management practices b) Maintenance procedures c) Design of collection and holding facilities, i.e., sumps, pumps, piping, alarms, etc. The application must state that neither liquids nor wastes containing free liquids are placed on or allowed to contact the waste pile. Additionally, the application must include the testing procedures which will be utilized to determine that free liquids do not exist in the stored waste.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
27	D-3c	264.251(b) 270.18(c)(1)	Missing	Liner System Requirements - Unless the applicant can demonstrate that the proposed waste pile is exempt from the liner requirements, the application must provide detailed plans and and engineering report describing the liner system. The engineering report must demonstrate the acceptability of the liner and include calculations defining the minimum strength required taking into consideration and include the following: a) Stresses resulting from differential settlement, uplift or compression b) Climatic conditions (freeze thaw, ultraviolet, wet-dry, thermal, ozone, wind) c) Installation stresses (puncture, tear, abrasion) d) Operational stresses (physical, chemical, biological) The application must also provide testing results or other information demonstrating that the liner is compatible with the waste and waste leachates. It must also describe the installation procedures including inspection, testing quality control programs to be used to assure proper installation of the liner. The application must also include information on the liner's manufacturer, date of manufacture, brand name, etc.
28	D-3e	264.251(a)(2)	Missing	Leachate Detection System - Unless the applicant demonstrates that the proposed pile is exempt from the leachate detection system requirements, the application must include detailed plans and an engineering report demonstrating how the system will be designed to ensure that no more than 30 cm (one foot) of leachate is above the liner.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
29	D-3f D-3g	270.18(c)(2) 270.18(c)(3) 270.18(c)(4) 264.251(c) 264.251(d)	Missing	Control of Run-on/Run- Off - Unless the applicant demonstrates that the proposed pile is exempt from the liner and groundwater monitoring requirements the application must demonstrate that the proposed six inch curb and two foot roof overhang are capable of preventing run-on from the peak discharge of a 25 year storm and run-off from the volume resulting from a 25-year, 24 hour storm. The demonstration must include detailed plans and an engineering report describing: a) System management practices b) Maintenance procedures c) Design of collection and holding facilities, i.e., sumps, pumps, piping, alarms, etc.
30	D-3h	270.18(c)(5) 264.250(c)	7/1/83 letter response 48	Particulate Control - The applicant must fully describe the cover referred in their 7/1/83 letter response No. 48. The description must include operation and maintenance procedures for the cover.
31	E-1 thru E-3	270.14(c) 265.90-94	Missing	Groundwater Monitoring - Unless the applicant demonstrates that the proposed pile is exempt from the groundwater monitoring requirements, the application must: a) Identify the uppermost aquifer and any hydraulically interconnected underlying aquifers, and describe their 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). b) Supply a list of indicator parameters, waste constituents, or reactions that can provide a reliable indication of the presence of hazardous constituents in the groundwater.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				c) Identify the type, quantity and concentrations of constituents in wastes managed at the regulated unit(s). d) 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) Describe in detail the individual elements of the monitoring systems to be used during detection monitoring. f) Identity the number, location and depth of each well. Describe the well construction materials and construction techniques. g) Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points, and (2) the compliance monitoring point. h) Include background values for each proposed monitoring parameter or constituent, and procedures to calculate such values. It must also specify the concentrations and coefficients of of variation for each of the proposed monitoring parameters or constituents in the background groundwater quality. i) Include a proposed sampling and analysis plan that specifies 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.
32	F-1a(2)(a)	264.14(b)(2)(i)	7/1/83 response 20a, 20b, & 20c; Page 3 of 9/1/83	Security Barrier - The applicant must correct the discrepancies between Figures 2, 6 and the July 1, 1983 letter concerning the height of the fence and the location of gates. The fence height is specified as 5 feet in Figure 6 and 6 feet in the letter.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
33	F-1(a)(3)	264.14(c)	Figure 6	Warning Signs - The application must specify where warning signs (besides those on the two access gates) are located. Warning signs must be legible from any approach.
34	F-2a	270.14(b)(5) 264.15(a) & (b)	IP-3	General Inspection Requirements - The application's inspection schedule and checklist must be expanded to include where appropriate: a) Monitoring equipment including: RPM gauges, thermostats, scales, treatment reagent dispensing meters, flow and liquid level indicators, pH monitors, leachate monitors, gas and vapor analyzer, particulate analyzer, venturi meters, scales, etc. b) Safety and emergency equipment including: locking devices, respirators, electrical grounding equipment, and itemized protective clothing, first aid supplies, and decontamination equipment.
35	F-2a(1)	270.14(b)(3)	Missing	Types of Problems - The application's inspection schedule and checklist must include the types of problems that the inspector is to look for and the criteria he/she is to utilize for each item on the inspection schedule. Such things are waste pile liner deterioration, ranges of operation, deviations in calibration, number of respirators, type and quantity of protective clothing items, alarm settings, gear greasing and oiling schedule, equipment storage locations, tank erosion and corrosion rates and minimum shell thickness, proper reagent storage areas, and equipment calibration. Schedules, all must be included in the application.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
36	F-2b(1)	264.174	I-P3 & 4 7/1/83 letter response 33	Container Inspection - The application indicates that containers will be segregated by waste type, hence the weekly container inspection must include checking container labels to verify that different waste types are segregated.
37	F-2b(2)	264.194	I-P3 & 4	Tank Inspection - The application must clearly indicate that tanks will be inspected every calendar day (including weekends, and holidays) that waste is in storage or being treated.
38	F-2b(3)	264.254 270.18(e) 270.14(b) (5)	I-P3 & 4	Waste Pile Inspection - Unless exempted from the liner and groundwater monitoring requirements the inspection schedule must include weekly and after storm inspection of: a) Run on and run off control systems b) Leak detection system c) Particulate control system d) Leachate detection system e) Waste segregation procedure Additionally the application should clearly delineate what constitutes a storm. If an exemption from the groundwater monitoring requirements of Subpart F is applied for, because the facility periodically inspects the liner under the waste pile, the inspection schedule must include the types of problems and frequency of inspection to which the liner is subject.
39	F-2c	264.15(c)	Missing	Remedial Action - The application must describe the remedial action procedures to be taken, whenever an inspection reveals a problem. The description should include notification procedures and estimated times for completion of corrective actions.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
40	F-4	270.14(b)8	Figure 6	Preventive Procedures Structures and Equipment - The application must expand the description of the procedures, structures and equipment used to prevent hazards. The description must demonstrate that due caution will be exercised and include the following: a) Loading and unloading operations and equipment b) Mitigating effects of equipment failure and power outages c) Prevention of contamination of potable water supplies by use of back flow preventers and run off control techniques d) Personnel protection equipment (when to use, number, type and capabilities of equipment)
41	F-5a	270.14(b) 264.17(a) & (c)	3/29/83 letter response 83	Precautions to Prevent Ignition or Reaction or Reaction of Ignitable or Reactive Waste - The application must include a description of the precautions taken to demonstrate compliance with 264.17 including documentation demonstrating compliance with 264.17(c). The description must include precautions 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. The description should demonstrate that when ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specially designated locations.
42	F-5b	270.14(b)(9) 264.17(b) & (c)	Missing	General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste - The application must include a description of the precautions taken to prevent reactions which:

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				a) Generate extreme heat or pressure, fire or explosions or violent reactions b) Produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment c) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions d) Damage the structural integrity of the device or facility 3) By similar means threaten human health or the environment. The application must also include documentation that the precautions taken meet the requirements of 264.17(a) or (b) and that the procedures are based on references to published scientific or engineering literature, data from trial tests, waste analyses, or results of treatment of similar wastes by similar treatment processes and under similar operating conditions.
43	F-5h	264.257	Missing	Incompatible Wastes in Waste Piles - The application must include: a) A statement that incompatible wastes and materials are not stored in the same waste pile or on the same base that previously held an incompatible waste or material unless 264.17(b) is complied with; and b) A description of the procedures (dikes, beams, walls, distances) utilized to separate a waste pile of hazardous waste that is incompatible with any waste or other material stored nearby.

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Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
44	G-1	264.52	Contingency Plan CP-1 to CP-9	Contingency Plan - The application must include a contingency plan that is a self contained plan of action. The plan must include a site drawing, identification of the owner, and of the operator and a general description of the facility's operation.
45	G-2	264.52(d) 264.54	Contingency Plan CP-3	Emergency Coordinator - The application's contingency plan must indicate that the list of emergency coordinators will be submitted with the certification of completion and prior to start-up operations. The application's contingency plan must describe the procedures which will be used to designate which emergency coordinator will be on duty or on call during non-business hours.
46	G-4b	264.56(c)	Contingency Plan CP-4 and CP-9	Identification of Hazardous Materials - The application's contingency plan must include the procedures for identifying, quantifying and determining the areal extent of a release during an emergency event. The procedures must include sampling, testing, analysis, timing, criteria, records review, etc.
47	G-4c	264.56(d)	Contingency Plan CP-4	Hazard Assessment - The application's contingency plan must include the procedures for assessing possible hazards to the environment and human health. It must also give the criteria for determining the need for evacuation.
48	G-4f G-4g G-4h	264.56(g) 264.56(h)	Contingency Plan CP-4A	Storage and Treatment of Released Material - The application's contingency plan must describe the procedures, equipment and methods for containing, and/or treating hazardous waste resulting from a release, fire or explosion. The description must

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				identify equipment and its capabilities, analytical procedures to be followed, and define the criteria for determining if the areas or equipment are contaminated or not.
49	G-4i	264.56 264.171	Missing	Container Spill and Leakage - The application's contingency plan must describe the procedures and criteria for implementing the contingency plan whenever it is necessary to respond to container spills or leakage including removal of spilled waste and repair or replacement of damaged containers.
50	G-4j	264.56(g) 264.194(c)	Missing	Tank Spills and Leakage - The application's contingency plan must describe the procedures and criteria for implementing the contingency plan whenever it is necessary to respond to both treatment process equipment and storage tank spills or leakage including removal of spilled waste and repair or replacement of the tank.
51	G-4k	270.14(b)(7) 264.252 264.253	Missing	Waste Pile Spills and Leakage - The application's contingency plan must describe the procedures and criteria for implementing the contingency plan whenever it is necessary to respond to waste pile spills or leakage including removal of spilled waste and repair of liners, run off-run on control systems, building, etc. Unless exempted from the liner requirements, groundwater monitoring system requirements and/or leachate detection system requirements the discussion must include, where appropriate: a) Procedures for notifying the region administrator if liquids are detected in a leak detection system.

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				b) Procedures for removing the waste pile and accumulated leachate and repairing or replacing the liner. c) A statement that a qualified engineer will be retained to certify, to the best of his/her knowledge and opinion, that the repairs to the liner and base will prevent leakage. d) Procedures and criteria for enacting groundwater detection, compliance and corrective action programs. e) Procedures and criteria which will be used if an inspectable liner is found to be deteriorating, cracking, punctured or defective.
52	G-5	264.52(e)	Contingency Plan CP-5	Emergency Equipment - The application's contingency plan must include a drawing giving the specific location of the available emergency equipment. Additionally, the plan must describe the equipment and give its capabilities and limitations. The emergency equipment list should be expanded to include: decontamination equipment and supplies, eyewash station, protective clothing, respirators, first aid and medical supplies, absorbents, yard hydrants and any other equipment and supplies needed to respond to an emergency event.
53	G-6	264.37 264.52(c) 264.53(b) 264.37(b)	Contingency Plan CP-2	Coordination Agreements - The application must include: a) A description of coordination agreements (if any) with local police departments, fire departments, hospitals, contractors, equipment suppliers and state and local emergency response teams.

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				b) A statement indicating that a copy of the contingency plan has been submitted to each of the organizations which have coordination agreements. The statement should indicate to whom and when contingency plan was submitted. c) If applicable, documentation of state or local authorities refusal to enter into a coordination agreement.
54	G-7	264.52(f)	Contingency Plan CP-6	Evacuation Plan - The facility's contingency plan must include the criteria for implementing the evacuation plan and describe in more detail the signal or signals to be used to begin evacuation.
55	H-1	264.16(d)(1) 264.16(d)(2)	PTR-1 thru PTR-5	Job Descriptions, Titles and Duties - The application must upgrade the required education and other qualifications listed for the Supervisor and Laboratory Technician or justify why these requirements are adequate to ensure that capable and competent personnel are used in these positions. Additionally, one or more job descriptions must include emergency coordinator duties.
56	H-1c	264.16(a)(2)	7/1/83 response 27b	Training Director - The application must demonstrate that Mr. Hopkins is adequately trained and qualified to direct the training program. A resume giving his credentials and relevant experience must be submitted.
57	H-1d	264.16(a)(2)	Missing	Relevance of Training to Job Position - The application's training program must describe how the instructions will be relevant to each job description. The description must clearly delineate which employees will receive detailed instructions in treatment and process controls, emergency coordinators duties, monitoring requirements, etc. and which employees will receive general instructions.

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
58	H-1e	264.16(d)(4)	Missing	Implementation of Training Program - The application must state that new employees will not work in unsupervised positions until they have completed the required site and job specific training. The application must indicate that employees will complete the site and job specific training within six months of employment.
59	I-1c	264.112(a)(2)	Closure Plan CP-2	Maximum Waste Inventory - The application must include an estimate of the maximum inventory of wastes that could be in treatment at anytime during the life of the facility. The applicant should correct the discrepancy between Figure 6 and page CP-2 concerning the maximum waste inventory of containers in storage. Figure 6 indicates maximum volume is 218 drums. The closure plan puts maximum inventory at 220 drums.
60	I-1d I-1f I-1f(1) I-1f(2) I-1f(3)	264.112(a)(3) 264.114 270.14(b)(13) 264.178 264.197 264.258	Closure Plan CP-4	Inventory, Removal, Disposal or Decontamination - Under specific activities to be followed during closure (see page CP-4), the application must: a) Include procedures and criteria for determining if previously used containers meet the definition found in 40 CFR 261.7 for empty containers. b) All full containers of hazardous waste must be disposed of properly; delete "if not processed" from item 4 of page CP-4. c) Delineate what will be done with partially full containers; d) Include the criteria, sampling, analytical and testing procedures which will be used to determine if structure, equipment and areas are contaminated and to determine if decontamination has been successful.

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				e) Not include the second sentence in item 9 concerning six inches of subsoil removal. f) Include instructions to properly manifest all wastes being transported off site. g) Include the procedures to remove hazardous waste, including residuals from the storage tanks and treatment equipment. h) Include, unless exempted in accordance with 264.250(c) or 264.251(b), a contingent closure plan designed to close the waste pile as a landfill.
61	I-4	270.14(b)(15)	FC-1	Closure Cost Estimate - The applicant must correct the discrepancy between the closure cost estimate and closure procedures. The cost estimate assumes all waste in storage will be treated where the closure plan says it will be transported off site and disposed. The closure cost estimate must include costs for: a) Emptying tanks into containers b) Purchasing containers (60 or more) c) Analytical testing, sampling and evaluation d) Equipment rental (forklifts, trucks, frontend loaders, steam blasters, etc.) e) Transporting of containers to other storage or disposal facilities f) Labor for loading containers on to transport vehicles g) Safety equipment h) Management activities The application must demonstrate that the unit prices are reasonable. Available literature indicates that disposal of drumed hazardous waste containing free liquids cost between $90-$185/drum, transport of hazardous waste cost $1.70 to $4.00 per loaded mile, fully burdened costs for skilled laborers is $18.00/hour.

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
62	I-5	270.14(b)(15) 264.143 264.151	Missing	Financial Assurance Mechanism for Closure - The application must include a copy of the financial assurance mechanism adopted by the owner/operators to satisfy the requirements of 40 CFR 264.143.
63	I-6	270.14(b)(16) 264.144	Missing	Post-Closure Cost Estimate - The application must demonstrate that the facility is not required to have a contingent post-closure cost estimate or it must include a contingent post-closure cost estimate. The cost estimate must be based on the extent of operation mostly like to make post closure most expensive, i.e., mobile waste constituents, fully loaded labor groundwater monitoring, routine maintenance, administration, transportation, etc.
64	I-7	270.14(b)(16)	Missing	Financial Assurance Mechanism for Post-Closure - The application must include a copy of the financial assurance mechanism adopted by the owner/operator to satisfy the requirements of 40 CFR 264.145 or it must demonstrate the facility is exempt from the requirement.
65	I-8	270.14(b)(17) 264.147(a) 264.147(b)	Missing	Liability Requirements - The application must include a copy of the Insurance policy or other documentation which comprises compliance with the requirements of 264.147.
66	J	270.14(b)(20)	Missing	Other Federal Laws - The application must state and document whether or not the proposed facility will be in compliance with the following federal laws and executive orders: a) Wild and Scenic Rivers Act b) National Historic Preservation Act c) Endangered Species Act d) Fish and Wildlife Act

(continued)

Deficiency no.	Checklist location no.	40 CFR citation	Location in application	Deficiency
				e) Coastal Zone Management Act f) Executive Order 11988 g) Executive Order 11990
67	K	270.11 270.14	Missing	Certification - The application must include a signed copy of the certification provided in 40 CFR 270.11. The signature must be by a principal executive officer of the company. Additionally any new design drawings, specifications and engineering studies submitted in response to deficiencies must be certified by a registered professional engineer.

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

Facility Name SLUDGEMASTER INC
Address 765 SCHMIDT RD
DAVENPORT IOWA 52808

Contact Name RICHARD HOPKINS, PRES
Contact Phone Number 319-323-0930

EPA I.D. Number IAD 980632947
Permit Review Team PEDCO - ROBERTSON, BRUCK, JANSZEN, ALBRINCK

Date Application Received
Date Review Completed

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
PART A - APPLICATION	270.11(a) and b, 270.10(d) 270.13	45 FR 35544, May 19, 1980 Ref. 1; Ref. 2		
FORM 1				
A-1 Label Items • EPA ID number • Facility name • Facility mailing address • Facility location			Part A	OK
A-2 Pollutant Characteristics			Part A	OK
A-3 Name of Facility			Part A	OK
A-4 Facility Contact • Name and title			Part A	OK
A-5 Facility Mailing Address			Part A	OK
A-6 Facility Location			Part A	OK
A-7 SIC Code(s) • Four digits			Part A	OK
A-8 Operator Information • Name • Address • Status • Phone			Part A	OK
A-9 Indian Land			Part A	OK

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
A-10 **Existing Environmental Permits** • NPDES • UIC • RCRA • PSD • Other			Part A	OK - none
A-11 **Map** • One mile beyond property line • Outline of facility • Location of existing and proposed intake and discharge structures • Hazardous waste treatment, storage, and disposal facilities • Underground injection wells • Springs, rivers, and other surface water bodies			Part A	OK
A-12 **Nature of the Business**			Part A	Description of nature of business is technically incorrect. They don't treat hazardous waste to be non-hazardous till proven through delisting.
A-13 **Certification** • Name, title, and date • Acceptable signature			Part A	OK
FORM 3 A-14 **EPA ID Number**			Part A	see deficiency no. 1
A-15 **First or Revised Application** • Existing/New • Interim/Permitted			Part A	see deficiency no. 2
A-16 **Process - Codes and Design Capacities** • Process codes • Amount • Unit of measure			Part A	T04 S01 S02 S02 S03 12,000 12,000 1000 2000 120 U G G G Y
A-17 **Description of Hazardous Wastes** • EPA hazardous waste number • Estimated annual quantity • Unit of measure • Process code • Process description			Part A	annual quantities for some wastes may be unreasonable.
A-18 **Facility Drawing**				New facility
A-19 **Facility Photograph**				New facility
A-20 **Latitude and Longitude**			Part A	OK

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
A-21 Facility Owner • Name • Address • Telephone			Part A	OK
A-22 Owner Certification • Name, signature, date			Part A	OK
A-23 Operator Certification • Name, signature, date			Part A	OK
PART B - FACILITY DESCRIPTION				
B-1 General Description A general description of the facility. Include the nature of the business. Offsite facilities should identify the types of industry served; on-site facilities should briefly describe the process(es) involved in the generation of hazardous waste.	270.14(b)(1) Guidance	Ref. 70; Ref. 89		OK
B-2 Topographic Map	270.14(b)(19)	Ref. 3, Part 1; Ref. 4; Soil State Conservationists, U.S. Geological Survey District offices; Ref. 5; Ref. 6; Ref. 7; Ref. 8, Ch. 15.1.10 Ref. 9, Ref. 10; Ref. 11; Ref. 12, Ch. 12, Sec. II.B.2, Ref. 13; Ref. 70		see deficiency no. 3
B-2a General Requirements A topographic map showing the facility and a distance of 1000 feet around it. The following information is required: • Scale 1 in ≤ 200 ft • Contours sufficient to show surface water flow • Extend 1000 ft beyond property • Map scale • Map date • 100-yr floodplain • Surface waters • Surrounding land use • Wind rose • Map orientation • Legal boundaries • 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 • Location of hazardous waste units • Access and internal roads				

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
B-2a (continued) For large facilities the use of other scales may be acceptable on a case-by-case basis.				
B-2b Additional Topographic Requirements for Land Storage, Treatment and Disposal Facilities Unless exempt from groundwater monitoring requirements, surface impoundments, waste piles, land treatment, and landfill facilities must include the following information on the topographic map: • Groundwater flow direction (Isometric graph) • Point of compliance • Groundwater monitoring wells • The extent of any plume • Hazardous waste management area The following required information may be incorporated into the topographic map if possible, or at least should be discussed in the text. • Groundwater flow rate • Boundaries of uppermost aquifer • Underlying interconnection between uppermost aquifer and lower aquifer (Although many of these items can be shown on a single map, it is allowable to use additional maps to display some of the information. Presentation of all of this information on a single map may sacrifice clarity.)	270.14(c)(3) 270.14(c)(3)/ Guidance	Ref. 105; Ref. 143		see deficiency no. 4
B-3 Location Information	270.14(b)(11)	U.S. Geological Survey District Offices. Ref. 70		
B-3a Seismic Considerations For new facilities only, applicant must identify the political jurisdiction (county, township, or election district) in which facility will be located. If located in any of the political jurisdictions specified in Part 264 Appendix VI, the applicant must prove that the facility is located at least 3000 ft from any fault where movement has taken place in Holocene time or that no such faults pass within 200 ft of the portions of the facility used for treatment, storage, or disposal of hazardous waste.	270.14(b)(11) (i) and (ii) 264.18(a) 264 Appendix VI			Na

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
B-3a (continued) Proof may come from geologic studies, aerial photographs, field observations or subsurface investigations. All information gathered must be acceptable by a geologist experienced in evaluating seismic activity.				
B-3b Floodplain Standard Documentation of whether or not the facility is located within a 100-yr floodplain including the source of data (Federal Insurance Administration Map or other maps and calculations). If map other than FIA map is used demonstration of equivalent mapping technique should be provided. If located in 100-yr floodplain include: • 100-yr floodplain level • Other special flooding factors (e.g., wave action) that must be considered to prevent washout	270.14(b)(11) (iii) 264.18(b)	Ref. 3, Ref. 4; Ref. 5; Ref. 6; Ref. 9; Ref. 10	Fig 2, 9/1/83	see deficiency no. 5
B-3b(1) Demonstration of Compliance For facilities located within the 100-yr floodplain, a description of how the facility is designed, constructed, operated, and maintained to prevent washout of any hazardous waste during a flood. Either of the following may be used:	270.14(b)(11) (iv) 264.18(b)		Figure 4 rec. 9/8/83	
B-3b(1)(a) Flood Proofing and Flood Protection A structural or other engineering study showing how design of the tanks, containers, or waste piles and the flood proofing and protection devices at the facility will prevent washout including: • Engineering analysis of hydrodynamic and hydrostatic forces • Structural or other engineering studies of hazardous waste units and flood protection devices	270.14(b)(11) (iv) (A) and (B)	Refs. 14-28	letter 3/29/83 comment 22	
B-3b(1)(b) Flood Plan Description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. The plan must address the following:	270.14(b)(11) (iv)(C)	Ref. 3, Part 1, Sec. 3.1; Ref. 3, Part 1, Sec. 3.3.4; Ref. 3, Part 1, Sec. 3.3.5		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
B-3b(1)(b) (continued) • Timing related to flood levels • Estimated time to move the waste • Description of the location to which the waste will be moved and proof of the receiving facility's eligibility to receive hazardous waste • Procedures, equipment, and personnel to be used and the means to ensure that these resources will be available • Potential for accidental discharge of the waste				
B-3b(2) Plan for Future Compliance with Floodplain Standard For facilities located within the 100-yr floodplain that do not comply with the floodplain standard, a plan showing how and when the facility will be brought into compliance. A compliance schedule must be included.	270.14(b)(11)(v)			Na; new facility
B-3b(3) Waiver for Land Storage and Disposal Facilities (Existing Facilities Only) If a waiver from the Floodplain Standard is requested, the owner or operator must demonstrate that there will be no adverse effects on human health or the environment if washout occurs. The following factors must be considered in this demonstration: • Volume and physical and chemical characteristics of the waste • Concentration of hazardous constituents that would potentially affect surface waters • Impact of such concentrations on the current or potential uses of and water quality standards established for the affected surface waters • Impact of hazardous constituents on the sediments of affected surface waters or the soils of the 100-year floodplain	264.18(b)(ii)			waiver not requested or applicable

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
B-4 Traffic Information A description of the means of transporting hazardous wastes. All facilities should describe movement of waste on the facility. Description must include: • Estimated volume • Traffic pattern • Traffic control • Access road(s) surfacing and load-bearing capacity Off-site facilities (only) should also describe movement of waste to the facility from the point where it leaves nearest major highway	270.14(b)(10) Guidance	Ref. 29	Figure 6	see deficiency no. 6
PART C - WASTE CHARACTERISTICS				
C-1 Chemical and Physical Analyses For each hazardous waste treated, stored or disposed at the facility, the following information should be provided: • General description of the waste • Hazardous characteristics • Basis for hazard designation • Laboratory report on analyses results • Existing published or documented data on hazardous waste or hazardous waste from a similar process (new facilities only) At a minimum, the analyses should include all the information which must be known to treat, store, or dispose of the waste in accordance with 264 requirements.	270.14(b)(2) 264.13(a) 270.62(b)(2)(i) Guidance	Refs. 30-33; Ref. 60; Ref. 61; Ref. 70	p WAP-1 to WAP-11	see deficiency no 7
C-1a Containers • Free liquids • Waste specific parameters based on hazardous designation • Other information required for safe operation	Guidance			
C-1b Tanks • Specific gravity • Waste specific parameters based on hazardous designation • Other information required for safe operation	Guidance			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
C-1c Waste Piles • Appendix VIII constituents • Indicator parameters (groundwater monitoring) • Percent moisture • Leachate generation rate • Compatibility of liner(s) and waste/ leachate • Mobility of hazardous constituent(s) through liner • Fluid conductivity (hydraulic, leachate, organic) • Vapor pressure of hazardous constituents	Guidance	Ref. 112		
C-1d Surface Impoundments • Appendix VIII constituents • Indicator parameters (groundwater monitoring) • Compatibility of liner and water • Mobility of hazardous constituents through liner(s) • Fluid conductivity (hydraulic, organic) • Vapor pressure of hazardous constituents	Guidance	Ref. 111		Na
C-1e Incinerators				
C-1e(1) Trial Burn If a trial burn is proposed (or has been conducted already), an analysis of each waste or waste mixture to be burned during the trial burn (or burned during the previous trial burn) and after the trial burn is complete, which includes: • Heat value • Viscosity (liquids) • Physical form (nonliquids) • Identification of hazardous organic constituents listed in Appendix VIII • Approximate quantification of hazardous constituents	270.62(b)(2)(i)			
C-1e(2) Data in Lieu of Trial Burn Data may be supplied in lieu of the results of a trial burn. The data must include an analysis of each waste or waste mixture to be burned, including: • Heat value • Viscosity (if applicable) or description of physical form of the waste	270.19(c)(i)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
C-1e(2) (continued) • Identification of hazardous organic constituents listed in Appendix VIII • Approximate quantification of hazardous constituents • Quantification of hazardous constituents which may be designated as POHC's based on data submitted from other trial or operational burns which demonstrate compliance with the performance standard in 264.343. • Comparison of waste for which permit data submitted in lieu of a trial burn, including identified POHC's				Na
C-1f Landfills • Appendix VIII constituents • Percent moisture • Leachate generation rate • Compatibility of liner and waste/leachate • Mobility of hazardous constituent through liner(s) • Fluid conductivity (hydraulic, leachate, organic	Guidance	Ref. 109; Ref. 113		
C-1g Land Treatment • Percent moisture • Specific gravity or bulk density • pH • Conductivity • Acidity or alkalinity • TOC • Appendix VIII constituents • Concentration and identification of volatile hazardous constituents	Guidance	Ref. 109		
C-2h Additional Requirements for Land Storage, Treatment and Disposal Facilities If the facility utilizes hazardous waste surface impoundments, piles, land treatment units or landfills, a description of the procedures used to determine the existence and concentration of Appendix VIII constituents in any plume of contamination or groundwater must be submitted.	270.14(c)			Na if exempt - see comment under D-3b
C-2 Waste Analysis Plan A copy of the waste analysis plan required by 264.13(b) and, if applicable, 264.13(c). The Waste Analysis Plan should describe the procedures used to obtain chemical and physical	270.14(b)(3) 264.13(b) and (c), 264.341	Ref. 98	pWAP-1 to WAP-11	

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
C-2 (continued) information and data on the wastes to insure proper storage, treatment, and disposal. Minimum requirements include:				
C-2a <u>Parameters and Rationale</u> A list of parameters chosen for analysis and an explanation of the rationale for their selection.	264.13(b)(1)	Ref. 33, Ch. 2.1.1; Ref. 34, Sec. 7.4.2; 40 CFR Part 261, Appendix VII	WAP-3	see deficiency no. 8
C-2b <u>Test Methods</u> A description of the test methods used to test for parameters chosen.	264.13(b)(2)	40 CFR 261, Appendix II; Refs. 35-38	WAP-5	see deficiency no. 9
C-2c <u>Sampling Methods</u> A list of the sampling methods used to obtain a representative sample of each waste to be analyzed.	264.13(b)(3)	40 CFR 261 Appendix I; Ref. 8; Refs. 34-36; Ref. 39; Refs. 41-43; Ref. 46	WAP-5	see deficiency no. 10
C-2d <u>Frequency of Analysis</u> A description of the frequency at which the analyses will be repeated. The frequency must be sufficient to ensure that the analysis is accurate and up-to-date. (For an on-site facility this will be whenever there is a process change. For an incinerator, this will be as often as required to verify consistency of the waste feed.)	264.13(b)(4) Guidance		WAP-6	see deficiency no. 11
C-2e <u>Additional Requirements for Wastes Generated Offsite</u> A description of the procedures used to inspect and/or analyze wastes generated off-site that includes procedures to determine their identity, sampling frequency, and sampling methods used. Also, waste analysis information supplied by generator.	264.13(b)(5) 264.13(c)	40 CFR 261, Appendix I; Ref. 8, Ch. 9.5; Ref. 34; Sec. 4.2.3; Ref. 36; Sec. 4.0; Ref. 39; Ch. V; Ref. 41, Part 3; Ref. 42, Part III	WAP-6,7,8	see deficiency no. 12
C-2f <u>Additional Requirements for Facilities Handling Ignitable, Reactive, or Incompatible Waste</u> If the facility stores or treats ignitable, reactive, or incompatible waste, a description of methods which will be used to meet the additional waste analysis requirements necessary for complying with the regulatory requirements specified in Section F-5.	264.13(b)(6) 264.17		missing	see deficiency nos. 18, 23, 24, 26, 41, 42

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
PART D - PROCESS INFORMATION				
D-1 Containers		Ref. 90; Ref. 93		
D-1a Containers with Free Liquids				
Description of System A description of the containment system to demonstrate compliance with 264.175. Show at least the following:	270.15(a)		Figure 6	see deficiency no. 13
D-1a(1) Basic Design Parameters, Dimensions, and Materials of Construction Base must underly containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.	270.15(a)(1) 264.175(b)(1)			
D-1a(2) Description of How Design Promotes Drainage or How Containers are Kept From Contact With Standing Liquids In Containment System Base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or otherwise protected from contact with accumulated liquids. For this requirement, the applicant should address where applicable: • Describe handling and stacking practices • Grading of base • Drainage design and removal system	270.15(a)(2) 264.175(b)(2) Guidance		Figure 6	see deficiency no. 14
D-1a(3) Capacity of the Containment System Relative to the number and Volume of Containers to be Stored Sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container, whichever is greater. Information that should be included to satisfy this requirement is:	270.15(a)(3) 264.175(b)(3) Guidance		Figure 6	see deficiency no. 15 design capacity: 6" main storm event equals 3742 gal 218 drums x 55 = 11,990 gal

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-1a(3) (continued) • Volume of largest container • Total volume of containers • Containment structure capacity • Capacity of run-off collection system • Geographic storm intensity/ frequency data				
D-1a(4) Provisions for Preventing or Managing Run-on Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to the 10 percent minimum to contain any run-on which might enter the system. The applicant should discuss structures used to control run-on such as: • Containment system auxiliary structures (curbs, dikes, etc.) • Engineering grading design • Collection and removal system design capacity • Potential run-on	270.15(a)(4) 264.175(b)(4) Guidance		Figure 6 missing	see deficiency no. 16 see deficiency no. 17
D-1a(5) How Accumulated Liquids Can be Analyzed and Removed to Prevent Overflow Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner as is necessary to prevent overflow of the collection system. Information that should be included is: • How liquids will be analyzed • Removal equipment and methods (sump pump design, piping specifications, location, discharge point, and capacity) • Management of accumulated liquid including prevention of overflow.	270.15(a)(5) 264.175(b)(5) Guidance			
D-1b Containers Without Free Liquids For storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with 264.175(c) including:	270.15(b)			Na

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-1b(1) Test for Free Liquids Test procedures and results or other documentation or information to show that the wastes do not contain free liquids.	270.15(b)(1)			Na
D-1b(2) Description of Storage Area Design and Operation to Drain and Remove Liquids or How Containers Are Kept From Contact With Standing Liquids Containment system not required if:	270.15(b)(2)			
• Storage area sloped or otherwise designed and operated to drain and remove liquid resulting from precipitation, or	264.175(c)(1)			
• Containers elevated or otherwise protected from contact with accumulated liquid	264.175(c)(2)			
D-1c Requirements for Ignitable or Reactive Wastes and Incompatible Wastes	270.15(c)		Response 3/29/83	see deficiency no. 18
• Sketches, drawings, or data demonstrating compliance with 264.176 and 264.177(c), where applicable				
• Containers holding ignitable or reactive waste located at least 15 meters (50 feet) from facility property line	264.176			
• Containers holding hazardous wastes incompatible with waste or materials stored nearby must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device	264.177(c)			
• Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with 264.177(a) and (b) and 264.17(b) and (c)	270.15(d)			
• Incompatible wastes must not be placed in same container unless 264.17(b) complied with	264.177(a)			
• Hazardous waste must not be placed in unwashed container that previously held incompatible waste or material	264.177(b)			
• Precautions to prevent reactions which 1) generate extreme heat, pressure, fire, or explosions, or violent reactions, 2) produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten	264.17(b)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-1c (continued) 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) through other means threaten human health or environment • Documentation of compliance with 264.17(b) based on references to published scientific or engineering literature, data from trial tests, waste analysis, or results of treatment of similar wastes by similar treatment processes and under similar operating conditions	264.17(c)			
D-1d Container Management • Type of containers and construction material should include liners (if applicable) manufacturer specifications, dimensions • Procedures for handling to avoid rupturing or leaking • Weekly inspections for deterioration caused by corrosion or other factors • Machinery, equipment, procedures used to move containers • Adequate aisle space for machinery, inspections, and to meet applicable codes (i.e., fire) • Maximum number, height, volume, and types of containers in storage area • Waste container always kept closed during storage except when adding or removing waste • Location of ignitable, reactive, and incompatible waste	264.171, 264.172 264.173		missing	see deficiency no. 19
D-2 Tanks				
D-2a Description of Tanks Description of design and operation procedures which demonstrate compliance with the requirements of 264.191, 264.192, 264.198 and 264.199 including: • References to design standards or other available information used in design and construction	270.16	Ref. 23; Ref. 24; Ref. 26; Ref. 27; Ref. 28; Ref. 29; Ref. 97	missing	see deficiency no. 20

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-2a (continued)				
• Design specifications including construction materials and lining materials, including pertinent characteristics such corrosion or erosion resistance				
• Tank dimensions, capacity, shell thickness				
• Diagram of piping, instrumentation, process flow				
• Description of feed systems, safety cutoff, bypass systems, and pressure controls				
• Description of procedures for handling incompatible, ignitable, or reactive wastes, including the use of buffer zones				
• Types and number of tanks	Guidance			
• Tank internal pressure and pressure controls	264.191(a)			
• Foundation construction, specifications, and structural supports	264.191(a)			
• Specific gravity of tank liquids	264.191(a)			
• Tank design standard code and year	Guidance			
• Specifications on seams (include type)	Guidance			
• Operating pressure and temperature	Guidance			
• Type of waste contained in tanks	Guidance			
• Maximum height of liquid level	Guidance			
D-2b Tank Corrosion and Erosion 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). The applicant should also address:	270.16(b) 264.192(a)	Ref. 91; Ref. 97	missing	see deficiency no 21
• Description of lining and coating materials	270.16(b), 264.192(a)			
• Corrosion allowance and corrosion and erosion rates.				
• Demonstration of how minimum shell thickness will be maintained	264.191(a)			
• Tank construction compatibility with waste and tests or documentation to substantiate compatibility	264.17(c)			
• Description of treatment reagents	264.192(a)			
D-2c Tank Management Practices A description of the tank owner's or operator's operating practices and controls:	270.16(d) and (e); 264.192(b)	Ref. 97	letter 7/1/83	see deficiency no 22
• Description of controls to prevent overfilling and overtopping such as waste feed cut-off system(s), by-pass or standby tank	264.192(b)(1)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-2c (continued)				
• Demonstration of maintenance of sufficient freeboard to prevent overtopping by wave or wind action or precipitation for uncovered tanks	264.192(b)(2)			
• Piping, instrumentation, and process flow diagrams	270.16(d)			
• Description of tank instrumentation such as pressure, temperature, pH, level gauges and monitors	270.16(e)			
• Description of safety devices such as rupture discs and safety vents	270.16(e), 264.191(a)			
D-2d Requirements for Ignitable or Reactive Wastes	264.198		missing	see deficiency no. 23
• Procedures for treating, mixing, rendering before or immediately after placement in tank so that resulting material no longer meets definition of ignitable or reactive waste, or	264.198(a)(1)			
• Procedures for storage/treatment to protect from ignition or reaction, or	264.198(a)(2)			
• Designation of tank solely for emergencies	264.198(a)(3)			
• Demonstration of buffer zone requirements if stored in covered tanks	264.198(b)			
D-2e Requirements for Incompatible Wastes	264.199		letter 3/29/83	see deficiency no. 24
• Description of procedures to prevent placing incompatible wastes in same tank	264.199(a)			
• Precautions against placing waste in unwashed tank previously holding incompatible waste.	264.199(b)			
D-3 Waste Piles	270.18	Ref. 34; Ref 96; Ref. 105-108; Ref. 112; Ref. 115; Ref. 116; Ref. 120-127; Ref. 130; Ref. 132	missing	see deficiency no. 25
D-3a List of Wastes	270.18(a)			
The application must provide a list of all hazardous wastes to be placed or previously placed in waste piles.				
Information may include:	Guidance			
• Analytical and sampling techniques				
• Information on ignitability, compatibility, corrosivity, and reactivity				
• Appendix VIII constituents				

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-3b Exemptions				
D-3b(1) Exemption For Protected Piles From Design and Operating (264.251) and Groundwater Monitoring (Subpart F) Requirements Exemption from 264.251 and Subpart F requirements applies only to waste piles placed inside or under a protective structure so that neither runoff nor leachate is generated. To qualify for the exemption applicant must demonstrate the following: • Liquids or materials containing free liquids are not placed in the pile • The pile is protected from surface water run-on by the structure or in some other manner • The pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting, and • The pile will not generate leachate through decomposition or other reactions	270.18(b) 264.250(c)		Letter 7/1/83 comment 47	see deficiency no. 26
D-3b(2) Exemption for Double-Lined Piles from Subpart F For double-lined piles to be exempt from groundwater monitoring requirements, the application must provide detailed plans and an engineering report describing: • How the waste pile and liners will be constructed so that they are above seasonal high water table. • Two liners meeting requirements of 264.251(a)(1) • Leak detection system between liners capable of detecting any migration of liquids into the space between the liners in a timely manner • Leachate collection and removal system meeting 264.251(a)(2) requirements • Procedures/equipment for management of liquid wastes in waste piles	264.252			Na
D-3b(3) Exemption from Subpart F for Piles Having Inspectable Liners To be exempt from groundwater monitoring requirements, the application must provide detailed plans and an engineering report describing:	264.253			Na

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-3b(3) (continued) • How the waste pile and liner is constructed so that they are above the seasonal high water table • A liner meeting the requirements of 264.251(a)(1) • A leachate collection and removal system meeting the requirements of 264.251(a)(2) • The liners' ability to withstand stress and physical damage which may cause failure due to puncture, cracking, tearings, thinning, ultraviolet degradation, thermal degradation, etc. • The waste removal technique • The liner cleaning technique				
D-3b(4) Liner Exemption from Design and Operation Requirements of 264.251(a) If an exemption from the liner design and operation requirements is requested, the application must demonstrate that alternate design and operating practices, together with location characteristics will prevent groundwater and surface water contamination at any future time. Information to be submitted include: • Nature and quantity of wastes • Alternative design and operation plans • Hydrogeologic setting - Attenuative capacity - Thickness of liners - Thickness of soils between the pile and seasonal groundwater or surface water elevations - Other factors which would influence the quantity, quality, and mobility of leachate produced	264.251(b)		missing	see deficiency no. 27
D-3c Liner System Requirements Unless a waiver of the liner requirements is requested or unless the waste pile qualifies as an existing portion, a liner is required.	264.251(a)		missing	see deficiency no 27
D-3c(1) Liner Description If a liner is required, the application must provide detailed plans and an engineering report describing	270.18(c)(1) 264.251(a)(1)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-3d(1) (continued)				
the liner system. The application must demonstrate that migration of waste out of the liner system will be prevented. The following information is needed:				
° Material of construction ° Chemical properties ° Physical strength ° Thickness				
- synthetic - natural	Guidance			
° Liner/waste compatibility testing ° Liner installation procedures ° Liner inspection procedures	Guidance			
° Subsurface exploration data ° Foundation design ° Size/area covered	Guidance			
° Vendor and manufacture (if synthetic)	Guidance			
° How the system's integrity will be maintained against:				
- internal and external pressure gradients including static head, settlement, compression, uplift - contact with waste/leachate - climatic conditions - installation stresses - daily opeational stresses				
D-3e Leachate Detection, Collection, and Removal System Requirements	264.251(a)(2)		missing	see deficiency no. 28
Unless an exemption from leachate detection, collection, and removal system requirements is requested the application must include detailed plans and an engineering report describing:				
° How the system will be designed and operated to ensure that no more than 30 cm (one foot) of leachate is above the liner ° Materials of construction ° Chemical resistance to waste/leachate ° Provisions to prevent clogging ° Load-bearing strength and the ability of the system to withstand the pressures exerted by overlaying waste, waste cover materials and equipment used at the waste pile				

(continued)

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subj. Req't misnumbered

D-3d omitted

	Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-3f	Control of Run-on and Run-Off The application must include detailed plans and an engineering report describing the system(s) used to prevent run-on from the peak discharge of a 25-year storm and to prevent run-off from the volume resulting from a 24-hour, 25-year storm. Information to be submitted may include: • Sizing, design, and installation of system(s), i.e., piles, tanks, surface impoundments, pumps, wet wells, etc. • Maintenance procedures to ensure long-term structural integrity	270.18(c)(2) and (3); 264.251(c) and (d) Guidance Guidance		missing	see deficiency no. 29
D-3g	Units Associated with Run-On, and Run-Off Control Systems Detailed plans and an engineering report describing: • Collection and holding facilities (e.g., tanks, basins) associated with run-on and run-off control systems • How the holding facilities will be managed and operated to maintain design capacity after storms	270.18(c)(4) 264.251(e)		missing	see deficiency no. 29
D-3h	Particulate Control The application must demonstrate that the waste pile is managed in such a manner that wind dispersal of wastes is controlled.	270.18(c)(5) 264.250(c)		letter 7/1/83 comment 48	see deficiency no. 30
D-3i	Additional Information Required If Treatment Is Carried Out on or in the Pile If treatment occurs in or on the waste pile the application must include: • Details of the process including rate of decomposition, heat of reaction, controls, etc. • Equipment used • Nature, quality and quantity of the residuals • Monitoring equipment (temperature, pH, explosimeter)	270.18(f) Guidance		missing	It is not clear if any treatment occurs in the pile. It is suspected that dewatering by evaporation and solidification will occur.

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-4 Surface Impoundments		Ref. 79; Ref. 94; Ref. 99; Ref. 106; Ref. 107; Ref. 109; Ref. 111; Ref. 115; Ref. 116;		Na
D-4a List of Wastes	270.17(a)			
The application must provide a list of all				
• Analytical and sampling techniques	Guidance			
• Appendix VIII constituents	Guidance			
• Ignitability, compatibility, reactivity and corrosivity	Guidance			
D-4b Liner Exemption	264.221(b)(1)-(4); 270.17(b)(1)			
If an exemption from the liner design and operation requirements is requested, the application must demonstrate that alternate design and operating practices, together with location characteristics will prevent groundwater and surface water contamination at any future time. Information to be submitted includes:				
• Nature and quantity of waste				
• Proposed alternate design and operation plans				
• Hydrogeologic setting				
- attenuative capacity				
- thickness of liners and soils between the bottom of the surface impoundment and seasonal groundwater and surface water elevations				
• Other factors which would influence the quantity, quality, and mobility of any leachate to ground or surface waters				
D-4c Groundwater Monitoring Exemption				
D-4c(1) Double-Lined Surface Impoundments	264.222			
To be exempt from groundwater monitoring requirements the application must provide detailed plans and an engineering report describing:				
• How the surface impoundment and liners will be constructed so that they are above the seasonal high water table				
• A leak detection system between the linears capable of detecting any migration of liquids into the space between the liners in a timely manner				

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-4c(1) (continued) - proper location of detection points, network diagram - drainage media, tile sizing - describe operation of system, analog or digital signal, open or closed circuits				Na
D-4d <u>Liner System Requirements</u> Unless a waiver of the liner requirements is requested or unless the surface impoundment qualifies as an existing portion, a liner is required.	270.17(b)(1) 264.221(a)			
D-4d(1) <u>Liner Description</u> If a liner is required, the application must provide detailed plans and an engineering report describing the liner system. The application must demonstrate that migration of waste into the liner for storage facilities is permitted. Migration into the liner for disposal facilities is not permitted. The following information is needed. ° Material of construction ° Physical strength ° Chemical properties ° Thickness - synthetic - natural ° Foundation design ° Size/area covered ° Liner/waste compatibility ° Liner installation procedures ° Liner vendor/manufacture ° Subsurface exploration data ° How the system's integrity will be maintained against: - internal and external pressure gradients including static head, settlement, compression, uplift, lateral	264.221(a)			
D-4e <u>Overtopping Controls</u> The application must describe the design and operating procedures that will provide protection against impoundment overtopping.	270.17(b)(2) 264.221(c)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-4e (continued) • Spillway or weirs • Sensors and alarms • Automatic or manual controls • Water balance • Discharge destination • Minimum freeboard bared (2 foot)(100-year flood event) • Process flow diagram				Na
D-4f Dike Design The application must demonstrate that dikes are designed, constructed, and maintained in such a manner that massive failure will not occur. • Maintenance procedures • Erosion protection, inside and outside • Scouring control techniques • Stability analysis, assuming liner failure - foundation - rapid draw-down - intrinsic stability • Engineers' certification - qualifications - after extended nonuse of surface impoundment (6 months) - after initial construction - after repairs - dike construction procedures	270.17(e) 264.226(c)			
D-5 Incinerators				
D-5a Justification for Exemption Documentation that the waste to be burned is considered hazardous solely because: • It is ignitable and/or corrosive; or • It is reactive and will not be burned when other hazardous wastes are present in the combustion zone [Exemptions not allowed for wastes which can react to produce toxic gases as per 261.23(a)(4) and (5)]; or	270.19(a) 264.340(b)	Ref. 33; Ref. 45		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5a (continued) • It is ignitable and/or corrosive, or is reactive subject to the restrictions indicated above, and contains insignificant concentrations of Appendix VIII constituents, or documentation that the waste to be burned contains none of hazardous constituents listed in Appendix VIII which would reasonably be expected to be in the waste				Na
D-5b Trial Burn If the applicant proposes conducting a trial burn to demonstrate compliance or is submitting results from a trial burn already conducted, the permit application must include the following items in accordance with the requirements in 122.27(b):	270.19(b) 270.62(a)(1) 264.343 264.345	Ref. 33		
D-5b(1) New Incinerator Startup/Shakedown If a trial burn is proposed for a new incinerator, the operations prior to conducting the trial burn must be described including the following:				
D-5b(1)(a) Startup/Shakedown Period Time required to bring the new incinerator to a point of operational readiness for the trial burn (startup/shakedown) must be the minimum necessary and cannot exceed 720 hours, or up to 1440 hours if the applicant shows good cause for requiring an extension.	270.62(a), 264.344 264.344(c)(1)			
D-5b(1)(b) Startup/Shakedown Performance Operating conditions during startup/shakedown must be those most likely to assure compliance with the following requirements: • DRE of 99.99% for designated POHC's • If HCl emissions would be more than 1.8 kg/h (4 lb/h) stack emissions must be controlled to the larger of either 1.8 kg/h, or 1% of HCl in the exhaust prior to entering pollution control equipment	270.62(a)(1) 264.343, 264.344(c)(1)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5b(1)(c) (continued) • Particulate emissions corrected for oxygen may not exceed 180 mg/dscm (0.08 grains/dscf)				Na
D-5b(1)(c) Startup/Shakedown Conditions Applicants for new incinerators must submit a statement which suggests conditions necessary to achieve compliance during startup/shakedown including, at a minimum, restrictions or • Waste constituents • Waste feed rates • Carbon monoxide exhaust level • Combustion temperature • Combustion gas velocity • Allowable variations in system design or operating procedures • An appropriate indicator of combustion gas velocity	270.62(a)(1), 264.344(c)(1), 264.345			
Fugitive emissions during startup/shakedown must be controlled by: • Totally sealing the combustion zone, or • Maintaining negative pressure in the combustion zone, or • An alternate method demonstrated to be effective in the application	264.345(d)			
Hazardous wastes not exempted per D-5a must not be fed to the incinerator during startup/shakedown unless it is operating within the acceptable limits. Automatic waste feed cutoff systems that will stop flow of wastes to the incinerator if operating conditions deviate from established limits must be operational during the startup/shakedown period.				
D-5b(2) Trial Burn Plan The trial burn plan must include the following information:				

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Subject requirement		40 CFR section Nos.	References	Location in application	Comments
D-5b(2)(a)	Incinerator Performance For the duration of the trial burn, the operating conditions must be sufficient to demonstrate: • DRE of 99.99% for designated POHC's • If HCl emissions would be more than 1.8 kg/h (4 lb/h), either stack emissions must be controlled to the larger of either 1.8 kg/h, or 1% of HCl in the exhaust prior to entering pollution control equipment • Particulate emissions, corrected for oxygen concentration, no greater than 180 mg/dscm (0.08 grains/dscf)	264.344(c)(2)			Na
D-5b(2)(b)	Detailed Description and/or Engineering Drawing of the Incinerator Including: • Manufacturer's name and model number • Type of incinerator • Linear dimensions of incinerator unit including cross sectional area of combustion chamber • Description of the auxiliary fuel system (type and feed) • Capacity of prime mover • Description of automatic waste feed cut-off system(s) • Stack gas monitoring and pollution control equipment • Nozzle and burner design • Construction materials • Location and description of temperature, pressure, and flow indicating and control devices.	270.62(b)(2)(ii)	Ref. 33; Ref. 44; Ref. 46; Ref. 47; Ref. 53-57		
D-5b(2)(c)	Sampling and Monitoring Procedures and monitoring procedures includtions in the system • Sampling and monitoring equipment • Sampling and monitoring frequency • Analytical procedures	270.62(b)(2)(iii)	Ref. 28; Ref. 33; Ref. 35; Ref. 38; Ref. 39; Ref. 43		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5b(2)(d) Test Schedule ° Dates when trial burn is planned ° The duration of each trial burn ° The quantity of waste to be burned during each trial burn ° Other relevant factors	270.62(b)(2)(iv)	Ref. 33		Na
D-5b(2)(e) Test Protocols For each waste to be burned, identify variations in: ° Ranges of temperature ° Waste feed rate ° Combustion gas velocity ° Use of auxilliary fuel ° Other factors that will be varied that will affect the DRE	270.62(b)(2)(v)	Ref. 33; Ref. 44		
D-5b(2)(f) Pollution Control Devices A description of, and planned operation conditions for, any pollution control devices such as the following: Scrubbers ESP Fabric filter	270.62(b)(2)(vi) Guidance Guidance Guidance	Ref. 44; Ref. 48-52		
D-5b(2)(g) Shut-down Procedures Procedures to be employed in the event of an equipment malfunction for: ° Rapidly stopping waste feed ° Shutting down incinerator ° Controlling emissions	270.62(b)(2)(vii)			
D-5b(3) Trial Burn Results If results from a previously-conducted trial burn are submitted, the following determinations must be provided: ° Quantitative analysis of waste feed POHC's ° Quantitative analysis of exhaust gas concentrations of trial POHC's, oxygen and HCl	270.62(b)(6), (vii) and (ix)			

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Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5b(3) (continued) • Quantitative analysis of any scrubber water, ash residues or other residues (for use in estimating fate of trial POHC's) • Computation of HCl removal efficiency (if HCl emission rate exceeds 1.8 kg/h) • Computation of particulate emissions • Identification of fugitive emissions and their means of control • Average temperatures • Minimum temperatures • Combustion gas velocity • Continuous-monitoring results of CO exhaust gas concentrations • Other information specified in the trial burn plan Above results must be accompanied by a certification that the trial burn was carried out in accordance with the approved trial burn plan and signed by an authorized person (per 270.11).				Na
D-5b(4) <u>Post-Trial-Burn Operation</u> For the period of time following completion of the trial burn and prior to final modification of the permit conditions (the post-trial-burn period), <u>new</u> incinerators must identify conditions to achieve the following performance: • DRE of 99.99% for designated POHC's • If HCl emissions would be more than 1.8 kg/h (4 lb/h), stack emissions must be controlled to the larger of either 1.8 kg/h or 1% of HCl in the exhaust prior to entering pollution control equipment. • Particulate emissions, corrected for oxygen concentration, no greater than 180 mg/dscm (0.08 grains/dscf) These operating conditions should include, at a minimum, restrictions on: • Waste constituents • Waste feed rates • Stack exhaust CO concentrations • Combustion temperature	270.62(c), 264.343, 264.345			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5b(4) (continued) • Combustion gas velocity • Allowable variations in system design or operating procedures Fugitive emissions must be controlled by: • Totally sealing the combustion zone, or • Maintaining negative pressure in the combustion zone, or • An alternate method demonstrated to be effective in the application Hazardous wastes not exempted per D-5a must not be fed to the incinerator unless it is operating within the acceptable limits. Automatic waste feed cutoff systems that will stop flow of wastes to the incinerator, when operating conditions deviate from established limits, must be operational during the post-trial burn period.				Na
D-5c Trial Burn Substitute Submissions An applicant may submit information to be used in lieu of a trial burn to establish permit conditions (note data required under C-1e). Information submitted in lieu of a trial burn must include the following:	270.19(c)	Ref. 33		
D-5c(1) Engineering Description A detailed engineering description including: • Manufacturer's name and model number • Type of incinerator • Linear dimensions including cross sectional area of combustion chamber • Description of auxiliary fuel system (type/feed) • Capacity of prime mover • Description of automatic waste feed cutoff system(s) • Stack gas monitoring and pollution control monitoring system • Nozzle and burner design • Construction materials • Location and description of temperature, pressure, and flow indicating devices and control devices	270.19(c)(2)	Ref. 45		

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Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5c(2) Design and Operating Conditions Design and operating conditions of the incinerator unit to be used compared with that for which comparative burn data are available.	270.19(c)(4)	Ref. 33; Ref. 44-47; Refs. 53-58		Na
D-5c(3) Description of Results Description of results submitted from previously conducted trial burn(s) • Sampling and analysis techniques used to calculate performance standards in 264.343 • Methods and results of monitoring temperatures, waste feed rates, carbon monoxide and an appropriate indicator of combustion gas velocity	270.19(c)(5)	Ref. 33; Ref. 44		
D-5c(4) Incinerator Operation Information Expected incinerator operation information including: • Expected CO • Waste feed rate • Combustion zone temperature • Expected stack gas volume, flow rate and temperature • Computed residence time • Expected HCl removal efficiency • Expected fugitive emissions and control procedures • Proposed waste feed cut-off limits based on identified significant operating parameters • Indication of combustion gas velocity	270.19(c)(6)	Ref. 33; Ref. 44		
D-5d Monitoring The following must be monitored on a continuous basis while incinerating hazardous waste: • Combustion temperature • Waste feed rate • An indicator of combustion gas velocity (to be specified in the permit) • CO at a point downstream of the combustion zone and prior to release to atmosphere	264.347			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-5e Waste Feed Cutoff An incinerator must be operated with a functioning system to automatically cut off waste feed when operating conditions deviate from established limits.	264.345(e)	Ref. 18; Ref. 34; Ref. 82; Ref. 94; Ref. 95; Ref. 99; Ref. 101; Ref. 102; Ref. 104-109; Ref. 113; Ref. 115; Ref. 116; Ref. 118; Ref. 120-127; Ref. 129-137; Ref. 141		Na
D-6 Landfills				
D-6a Wastes to be Landfilled				
A list of all hazardous wastes to be placed in each landfill cell. Applicant should include: • Quantity of each waste • Chemical and physical analysis and a Waste Analysis Plan as described in Items C-1 and C-2 respectively. • Information on ignitability, reactivity, and incompatibility as described in Items F-5k and F-5l. • Appendix VIII constituents	270.21(a) Guidance			
D-6b Surveying and Recordkeeping				
Description of surveying and recordkeeping procedures including a map to be used to show: • Exact location and dimensions of each cell • Surveyed benchmarks • Contents of each cell • Location of each waste type within the cell	264.309 264.73			
D-6c Liner System Design and Construction Detailed plans and an engineering report (except for existing portions of the landfill) describing: • Material of construction • Chemical properties • Physical strength • Thickness • Foundation design/integrity • Area covered • Location relative to high water table • Liner/waste compatibility • Settlement potential • Prevention of waste migration	270.21(b)(1) 264.301(a)(1) Guidance			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-6d Liner System Integrity Detailed plans and an engineering report describing how liner system integrity will be maintained against: • Internal and external pressure gradients • Contact with waste/leachate • Climatic conditions • Installation stresses and procedures • Daily operational stresses	270.21(b)(1) 264.301(a)(1)			Na
D-6e Leachate Collection and Removal System Detailed plans and an engineering report describing (except for existing portions of landfill): • How the system will be designed and operated to maintain less than one foot of leachate immediately above the liner • Materials of construction • Chemical resistance to waste/leachate • Sufficient strength to prevent collapse • Provisions to prevent clogging	270.21(b)(1) 264.301(a)(2)			
D-6f Run-on Control System Detailed plans and an engineering report describing: • Run-on control system capable of preventing run-on to the active portion(s) of the landfill during peak discharge from a 25-year storm • Sizing, design, and installation of system • Maintenance procedures to ensure long-term structural integrity and timely repairs	270.21(b)(2) 264.301(c)			
D-6g Run-Off Control System Detailed plans and an engineering report describing: • Run-off control system designed to collect and control water volume from a 24-hour, 25-year storm • Sizing, design, and installation of system • Maintenance procedures to ensure long-term structural integrity and timely repairs	270.21(b)(3) 264.301(d)			

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	Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-6h	Units Associated with Run-On, and Run-Off Control Systems Detailed plans and an engineering report describing: • Collection and holding facilities (e.g., tanks, basins) associated with run-on, and run-off control systems • How the holding facilities will be managed and operated to maintain design capacity after storms.	270.21(b)(4) 264.301(e)			Na
D-6i	Particulate Control If landfill contains particulate matter, plans describing how wind dispersal of particulates from a landfill, will be controlled.	270.21(b)(5) 264.301(f)			
D-6j	Liner and Leachate Systems Exemption The applicant must demonstrate that alternate design and operating practices, together with location characteristics will prevent groundwater and surface water contamination at any future time. Applicant should submit for consideration detailed information on: • Nature and quantity of wastes • Alternative design and operation • Landfill location description - Hydrogeologic setting - Attenuative capacity and thickness of materials between landfill and ground and surface waters • Other factors which would influence the quality and mobility of leachate produced	270.21(b)(1) 264.301(b) 264.93(a)			
D-6k	Exemption from Groundwater Monitoring Requirements The applicant to be exempt from groundwater monitoring requirements must provide detailed plans and an engineering report describing: • How the landfill and liners will be constructed so that they are above seasonal high water table	270.21(c) 264.302(a)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-6k (continued) ° Two liners meeting requirements of 264.301(a)(1) ° Leak detection system between liners ° Leachate collection and removal system meeting 264.301(a)(2) requirements				Na
D-6l Bulk or Noncontainerized Free Liquids If bulk or noncontainerized free liquids are to be placed in landfill, demonstrate that the requirements of 264.314(a) are met. ° Liner and leachate collection system, or ° Liquids are treated or stabilized ° Free liquid elimination ° Very small container ° Container designed to hold free liquids for use ° Lab pack	270.21(h) 264.314(a)			
D-6m(2) Disposal of Small Containers in Overpacked Drums ° Materials, design of inside container ° Compatibility of inside container with waste ° Tightly sealed ° DOT specifications for both inside container and overpack ° Absorbent material, type and quantity ° Compatibility of absorbent material with waste	270.21(i) 264.316			
D-7 Land Treatment				
D-7a Treatment Demonstration A description of plans to conduct a treatment demonstration. The description must include the following information:	270.20(a) 264.272	Ref. 103-110; Ref. 117-119		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-7a (continued)				Na
° The wastes and the potential hazardous constituents in the waste	270.20(a)(1) 264.272(a)			
° The data sources (e.g., literature, laboratory data, field data, or operating data)	270.20(a)(2) 264.272(b)			
° Any specific laboratory of field test that will be conducted, including:	270.20(a)(3) 264.272(c)			
- The type of test (e.g., column leaching, degradation)				
- Materials and methods, including analytical procedures				
- Expected time for completion				
- Characteristics of the unit that will be simulated in the demonstration, including treatment zone characteristics, climatic conditions, and operating practices				
- The characteristics of the waste to be tested				
- The operating and monitoring measurements taken during the course of the test				
- The duration of the test				
- The volume of waste used in the test				
- In the case of field tests, the potential for migration of hazardous constituents to groundwater or surface water				
° A description on how the field test or laboratory analysis conducted will accurately simulate the characteristics and operating conditions for the proposed land treatment unit including:				
- The characteristics of the waste (including the presence of Appendix VIII of Part 261 of this chapter constituents)				
- The climate in the area				
- The topography of the surrounding area				
- The characteristics of the soil in the treatment zone (including depth), and				
- The operating practices to be used at the unit				
D-7b <u>Treatment Program</u>				
A description of a land treatment program must be provided. The land treatment program must address the following items:	270.20(b) 264.271(a)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-7b (continued)				Na
• The wastes to be land treated	270.20(b)(1)			
• How records will be kept on hazardous waste application dates and rates	264.27(a)(1) 264.279 264.73			
• Design measures and operating practices including:	270.20(b)(2) 264.271(a)(2)			
- Waste application method and rate - Measures to control soil pH - Enhancement of microbial or chemical reactions - Control of moisture content				
• A list of hazardous constituents reasonably expected to be in, or derived from, the wastes to be land-treated based on waste analysis	270.20(b)(4) 264.13			
• The proposed dimensions of the treatment zone	270.20(b)(5) 264.271(c)			
D-7c Treatment Design and Operation				
A description of how the unit is or will be designed, constructed, operated, and maintained. This submission must address the following items:	270.20(c) 264.273			
• Run-on controls system capable of preventing flow onto the treatment zone during peak discharge from at least a 25-year storm	270.20(c)(1) 264.273(c)			
• How run-off of hazardous constituents from the treatment zone during the active life of the land treatment unit will be minimized	270.20(c)(3) 264.273(b)			
• Run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm	270.20(c)(2) 264.273(d)			
• Management of collection and holding facilities associated with run-on and run-off control systems	270.20(c)(4) 264.273(e)			
• How collection and holding facilities will be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system				
• Control of wind dispersal of particulate matter, if applicable	270.20(c)(6) 264.273(f)			
D-7d Food Chain Crops				
If food-chain crops are to be grown in or on the treatment zone of the land treatment unit, a description must be submitted of how the demonstration will be conducted including:	270.20(d) 264.276			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
D-7d (continued)				Na
° Characteristics of the food-chain crop for which the demonstration will be made	264.276(a)(1)			
° Characteristics of the waste, treatment zone, and waste application method and rate to be used in the demonstration	264.276(a)(2)			
° Procedures for crop growth, sample collection, sample analysis, and data evaluation	264.276(a)(3)			
° Characteristics of the comparison crop including the location and conditions under which it was or will be grown	264.276(a)(4)			
° If food-chain crops are to be grown, and cadmium is present in the land-treated waste, a description of how special requirements of 264.276(b) will be complied with	264.276(a)(5)			
PART E - GROUNDWATER MONITORING				
E-1 Interim Status Monitoring Data Summary of groundwater monitoring data obtained during interim status period.	270.14(c)(1) 265.90-265.94	Ref. 100; Ref. 101; Ref. 105-107; Ref. 110; Ref. 137; Ref. 143		Na new facility
E-2 General Hydrogeologic Information Identification of uppermost aquifer and aquifers hydraulically interconnected beneath facility, including: ° Groundwater flow direction and rate ° Basis for identification	270.14(c)(2)		missing	see deficiency no. 31
E-3 Contaminant Plume Description Description of any plume of contamination that has already entered groundwater from a regulated unit. ° Delineation of extent of the plume on the topographic map ° Identification and concentrations of Appendix VIII constituents throughout the plume or maximum concentrations of these constituents in the plume	270.14(c)(4) 261, Appendix VIII			Na
E-4 General Monitoring Program Requirements Waiver request - applicant must certify that there will be no migration of liquid to uppermost aquifer during active life and postclosure. If waiver is not requested,	270.14(c)(5) 264.97 264.90(b)(4)		missing	see deficiency no. 31 exemption claimed

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
E-4 (continued) applicant must provide detailed plans and an engineering report describing proposed groundwater monitoring program to meet general groundwater monitoring requirements. The following information is required:			missing	see deficiency no. 31
E-4a <u>Description of Wells</u> • Number of wells • Locations • Depths • Casing description • Assurance of unaffected background water measurement • Assurance of compliance point groundwater measurement	264.97(a) 264.97(c)			
E-4b <u>Description of Sampling/Analysis Procedures</u> • Sample collection methods • Sample preservation/shipment • Analytical procedures • Chain-of-custody control • Documentation of proper sampling and analysis procedures • Procedure for determination of groundwater elevation with each sample	264.97(d) 264.97(e) 264.97(f)			
E-4c <u>Procedures for Establishing Background Quality</u> • Each hazardous constituent, or monitoring parameters and other constituents • One year quarterly monitoring data from upgradient well(s)	264.97(g)			
E-4d <u>Proposed Compliance Point</u> • Hydraulic downgradient limit • Waste management area • Uppermost aquifer	264.95			
E-5 <u>Description of Detection Monitoring Program for Facilities Not Detecting the Presence of Hazardous Constituents Including</u>:	270.14(c)(6) 264.91(a)(4) 264.98			
E-5a <u>List of Indicator Parameters, Waste Constituents, Reaction Products to be Monitored for, Including</u> • Type, quantities, concentrations expected in wastes	270.14(c)(6)(i) 264.93 264.98(a)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
E-5b (continued) • Mobility, stability, persistence in unsaturated zone • Detectability in groundwater			missing	see deficiency no. 31
E-5b Background Groundwater Concentration Values and Coefficients of Variation for Proposed Parameters Established by: • Use of an appropriate groundwater monitoring system, and • Quarterly sampling data (mean and coefficient of variation) of upgradient wells for one year, or • Quarterly sampling data (mean and coefficient of variation) of other wells for one year, and • Data from a minimum of one sample/well and minimum of four samples for the entire system used to determine background water quality, or • Presentation of procedures to calculate such values (mean and coefficient of variation)	270.14(c)(6)(iii) 264.97(g)(1) 264.97(g)(3) 264.97(g)(4) 264.98(a)(4) 264.98(c)(1) and (3)			
E-5c Description of Groundwater Monitoring System	270.14(c)(6)(ii) 264.98			
E-5d Description of Proposed Sampling, Analysis, and Statistical Comparison Procedures • Sample collection methods • Sample preservation/shipment • Analytical procedures • Chain-of-custody control • Documentation of proper sampling and analysis procedures • Procedures for determining groundwater elevation • Sampling frequency • Procedures for determining statistically significant increase for any monitored parameter • Procedure for annual determination of uppermost aquifer flow rate and direction	270.14(c)(6)(iv) 264.98(f) 264.98(g)			
E-5e Procedure to be Implemented If a Statistically Significant Increase In Any Constituent or Parameter is Identified at Any Compliance Point Monitoring Well	264.98(h)		↓	Y
E-6 Compliance Monitoring Program for Facilities Which Have Detected Presence of Hazardous Constituents				No new facility

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
E-6a Description of Monitoring Program				Na
• Description of wastes previously handled at facility	270.14(c)(7)(i)			
• Characterization of contaminated groundwater	270.14(c)(7)(ii)			
E-6a (continued)				
- Hazardous constituents identified - Hazardous constituents concentrations				
• List of hazardous constituents to be compliance monitored	270.14(c)(7)(iii)			
• Proposed concentration limits for each constituent	270.14(c)(7)(iv)			
• Justification for establishing alternative limits				
• Detailed plans of an engineering report describing groundwater monitoring system	270.14(c)(7)(v) 264.97			
- Represent quality of groundwater passing point of compliance	264.97(a)(2)			
- Proposed compliance point	264.95			
- Number of wells	264.97			
- Location and depths of wells				
- Casing and construction of wells				
• Description of proposed sampling and analysis procedures utilized in evaluating groundwater data	270.14(c)(7)(vi) 264.99(d)			
- Sample collection methods				
- Sample preservation/shipment				
- Analytical procedures				
- Chain-of-custody control				
- Documentation of proper sampling and analysis procedures				
- Procedures for determining groundwater elevation				
- Sampling frequency				
- Procedures for annual determination of uppermost aquifer flow rate and direction	264.99(e)			
• Procedures for establishing background concentration values for constituents that are based on:	264.99(c)(3) 264.97(g)(2)			
- Use of an appropriate groundwater monitoring system, and				
- Data that is available prior to permit issuance				
- Data that accounts for measurement errors in sampling and analysis				
- Data that accounts for seasonal groundwater quality fluctuations				

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
E-6a (continued)				Na new facility
- Data from a minimum of one sample per well and a minimum of four samples from monitoring system, each time system is sampled				
- Procedures for annual testing of all compliance point wells for Appendix VIII constituents	264.99(f)			
• Procedures for determining a statistically significant increase for any monitored parameters	264.99(h)			
- Comparing compliance point data to the concentration limit using the procedure in 264.97(h)(2)				
E-6b An Engineering Feasibility Plan for a Corrective Action Program	270.14(c)(7) 264.99(i) 264.98(h)(5)(ii)			
• Written notification to Regional Administrator	264.100			
• An application for permit modification to establish a corrective action program, including details of the program to comply with groundwater protection standard and details of groundwater monitoring to demonstrate effectiveness of the corrective action program				
E-7 Description of Corrective Action Program Program	270.14(c)(8)			
E-7a Corrective Action Program	264.100			
• Characterization of contaminated groundwater	270.14(c)(8)(i)			
- Identified hazardous constituents - Concentrations of hazardous constituents				
• Concentration limit for each hazardous constituent	270.14(c)(8)(ii) 264.100(a)(2)			
• Detailed plan and an engineering report describing the corrective actions to be taken	264.94 270.14(c)(8)(iii) 264.100(b)			
- Time period necessary to implement corrective action program	264.100(c)			
• Description of groundwater monitoring program that will be sufficient to assess the adequacy of corrective action	270.14(c)(8)(iv) 264.100(d)			
• Procedure to remove or treat constituents in groundwater between compliance point and downgradient facility boundary	264.100(e)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
E-7a (continued)				Na
• Procedure for semiannually submitting written reports to the Regional Administrator on program effectiveness	264.100(g)			
E-7b Alternate Concentration Limits	270.14(c)(8)			
• Sufficient information to establish a compliance monitoring program • Justification for proposed concentration limits meeting requirements of 264.94				
PART F - PROCEDURES TO PREVENT HAZARDS		Ref. 70		
F-1 Security			letter 7/1/83	Figure 6 shows fence height to be when 5'. Letter says it is modified to 6'.
F-1a Security Procedures and Equipment	264.14 122.25(a)(4)	Ref. 59	comment 20	
Unless a waiver is granted, the Part B must include a description of the security procedures and equipment required by 264.14:				
F-1a(1) 24-Hour Surveillance System	264.14(b)(1)	Ref. 59		Na
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:				
• Procedures and personnel to be used • Location and description of equipment	Guidance Guidance			
F-1a(2) Barrier and Means to Control Entry	264.14(b)(2)(i)	Ref. 59	letter 7/1/83 comment 20 app pg 3 9/3/83	Application does not address procedures to control entry during non-working hours.
(In lieu of a 24-hour surveillance system, the applicant may elect to use a barrier and other means to control entry.)				
F-1a(2)(a) Barrier				see deficiency no. 32
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:				
• Height • Material of construction	Guidance Guidance			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-1a(2)(b) Means to Control Entry A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility): • Procedure and personnel to be used • Location and description of equipment	264.14(b)(2)(ii) Guidance Guidance			
F-1a(3) Warning Signs 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 the 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 ft. 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.	264.14(c)		pg 3	see deficiency no. 33
F-1b Waiver If a waiver of these requirements is requested, the owner or operator must demonstrate the following:	264.14(a)			NA
F-1b(1) Injury to Intruder Physical contact with the waste, structure, or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock that may enter the active portion of a facility; and	264.14(a)(1)	Ref. 36, Ch. 5, Secs. 2 and 4		
F-1b(2) Violation Caused by Intruder Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active	264.14(a)(2)	Ref. 36, Ch. 5, Secs. 3 and 4		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-1b(2) (continued) portion of a facility will not cause a violation of the requirements of 40 CFR Part 264.				
Note: To address F-1b(1) and F-1b(2) the applicant should include: • Nature and duration of hazard potential from wastes • Equipment and structures to minimize potential for an intruder to 1) cause a spill; 2) mix incompatible wastes; 3) ignite ignitable or reactive wastes; 4) damage containment or monitoring systems • Features that prevent contact with waste	Guidance			
F-2 Inspection Schedule A copy of the general inspection schedule required by 264.15(b) including, where applicable, specific requirements of 264.174, 264.194, 264.226, 264.254, 264.273, 264.303, and 264.347.	270.14(b)(5) 264.15		IP-1 to IP-6	
F-2a General Inspection Requirements A description of the facility inspection schedule (schedule must be kept at the facility) for the following equipment:	270.14(b)(5) 264.15(a) and (b)	Ref. 62, Ch. 9; Ref. 63, Vol. 12; Ref. 63; Vol. 1	IP-3	see deficiency no. 34
• Monitoring equipment • Emergency and safety equipment • Security devices • Operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards. • Testing as necessary of communications or alarm systems, fire protection equipment and decontamination equipment	264.15(a) and (b) 264.33			
Examples of monitoring equipment that should be inspected at treatment, storage, and disposal facilities are: • Scales • Flow and liquid level monitors • Hazardous gas detectors • pH monitors • Leachate monitors • Pressure sensors • Temperature gauges	Guidance			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-2a (continued)				
Examples of monitoring equipment that should be inspected at facilities with incinerators are: • Waste flow monitors and recorders • Auxiliary fuel flow monitors • Combustion air flow monitors • Temperature monitors • Flame sensors • CO monitors and recorders • Pressure differential indicators • Pressure sensors • pH monitors • Ammeters for measuring blower current draw	Guidance			N/a
Examples of safety and emergency equipment to be inspected at TSD facilities are: • Respirators • Communication systems • Alarm systems • Emergency lighting and power systems • Smoke detectors • Fire protection equipment • First aid equipment and supplies • Decontamination equipment • Protective clothing	Guidance		IP-3	see deficiency no. 34
Examples of security devices to be inspected at TSD facilities are: • Surveillance systems • Barrier surrounding facility • Locking devices	Guidance			
Examples of operating and structural equipment at TSD facilities are: • Spill detection devices • Spill control and collection equipment • Fire and explosion barriers • Ventilation equipment • Sump pumps • Dikes, bases, and foundations In addition, areas such as waste storage, mixing, loading, and unloading areas, which are subject to spills, must be inspected.	Guidance			
F-2a(1) Types of Problems The schedule must identify the types of problems to look for during the inspection (e.g., leaks, deterioration,	264.15(b)(3)		missing	see deficiency no. 35

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-2a(1) (continued) readings out of specified range, missing items or materials, inoperative equipment, etc.).				
F-2a(2) Frequency of Inspection A description of the inspection frequency must be provided for items on the schedule. The frequency of inspection should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.	264.15(b)(4)		IP-2	Waste pile must be inspected after storms
All emergency waste feed cut-off valves must be inspected at least weekly to verify proper operation. All system alarms must also be tested weekly.	264.347(c) (Incinerators only)			
F-2b Specific Process Inspection Requirements At a minimum, the inspection schedule must include the terms and frequencies called for in 264.174, 264.194, 264.226, 265.253, 264.254, 264.303 and 264.347, where applicable.	270.14(b)(5) 254.15(b)(4)		IP-2	
F-2b(1) Container Inspection A description of the weekly inspection of containers and container storage areas for leaks in containers or deterioration of containers and the containment system caused by corrosion or other factors.	264.174		IP-3, IP-4	see deficiency no. 36
F-2b(2) Tank Inspection * A description of the daily inspection of overfilling control equipment, monitoring equipment and level of of waste in uncovered tanks * A description of the weekly inspection of tank construction materials and the area surrounding the tank	264.194		IP-3, IP-4	see deficiency no. 37

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-2b(2) (continued) • A schedule describing the daily monitoring of monitoring equipment (e.g., pressure and temperature gauges) where present to ensure that the tank is operated according to design specifications • A schedule showing the level of waste in uncovered tanks is inpsected daily • A schedule and procedure for assessing the condition of the tank, including detection of leaks, cracks, or wall thinning to less than minimum shell thickness • A procedure for emptying a tank to allow entry and inspection when necessary to detect corrosion or erosion of the tank sides and bottom				
F-2b(3) Waste Pile Inspection The application must provide a description of the procedures to: • Inspect liners and covers during construction and immediately after installation for: - Uniformity, damage, and imperfections, holes, cracks, thin spots, bulges, root holes, tight seams and joints, permeability and compaction • Remove the waste pile and periodically inspect liners for deterioration, cracks and other imperfections • Perform weekly inspections and after storms to detect: - Deterioration, malfunctions, or improper operation of run-on and run-off control systems - The presence of liquids in leak detection systems, where installed - Proper functioning of wind dispersal control systems, where present - The presence of leachate in and proper functioning of leachate collection and removal systems, where present	270.14(b)(5) 270.18(e) 264.254		IP-5	see deficiency no. 38

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-2b(4) Surface Impoundment Inspection The application must provide a description of how each surface impoundment, including the liner and cover systems and appurtenances for control of overtopping, will be inspected weekly and after storms to detect evidence of any of the following: • Deterioration, malfunctions, or improper operation of overtopping topping control systems • Sudden drops in the level of the impoundment's contents • The presence of liquids in leak detection systems, where installed • Severe erosion or other signs of deterioration in dikes or other containment devices For new facilities a description of how the liners will be inspected during construction and immediately after installation to detect nonuniformity, damages, and imperfections (holes, cracks, thin spots, bulges, root holes, tight seams and joints, permeability, and compaction).	270.14(b)(5) 270.17(d) 264.226(b)	Ref. 128		Na
F-2b(5) Incinerator Inspection • Incinerator and associated equipment must be inspected visually at least daily for leaks, spills, fugitive emissions and signs of tampering. • Emergency waste feed cut-off system and associated alarms must be tested weekly unless the applicant demonstrates that weekly frequency is unduly restrictive and that less frequent inspection will be adequate. At minimum operational testing must be conducted monthly.	264.347			
F-2b(6) Landfill Inspection Landfill owners or operators must provide a description of procedures for: • For new facilities, inspection of liners/covers during and immediately after installation	270.21(d) 264.15(a) 264.303			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-2b(6) (continued) ° Inspections weekly and after storms for - Operation of run-on/run-off controls - Liquids in leak detection system - Proper functioning of wind dispersal controls - Leachate in and proper operation of leachate collection/removal system F-2b(7) Land Treatment Inspection A description or the inspection procedures. Specifically the unit must be inpsected weekly and after storms for: ° Deterioration, malfunctions, or improper operation of run-on and run-off control systems ° Improper functioning of wind dispersal control measures	270.20(c)(5) 264.273(g)			N/a
F-2c Remedial Action A description of procedures for taking remedial actions when inspections reveal problems or when problems are imminent. [These may alternately be described in the contingency plan (see 264.194(c), 264.227, 264.171)].	264.15(c)		missing	see deficiency no. 39
F-2d Inspection Log A copy or description of the inspection log or summary form including the following: ° Dates and times of inspections ° Name(s) of inspector(s) ° Observations made ° Date and nature of repairs or remedial actions taken	264.73(b)(5) 264.15(d)		IP-5, IP-6	
F-3 Waiver of Preparedness and Prevention Requirements A justification of any request for a waiver of preparedness and prevention requirements of Part 264, Subpart C.	270.14(b)(6)			waiver not requested

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-3a Equipment Requirements Unless it can be demonstrated that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below, the facility must have the following equipment: (These requirements are not specifically listed in 270.14-270.29 for inclusion in a Part B.)	264.32			
F-3a(1) Internal Communications An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.	264.32(a)		missing	
F-3a(2) External Communications 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, or state or local emergency response teams.	264.32(b)		Figure 6	
F-3a(3) Emergency Equipment • Fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals and portable fire extinguishers • Spill control equipment • Decontamination equipment	264.32(c)	Ref. 30, Sec. 7; Ref. 63, Secs. 4-7, 5-4, 6-8, 8-6, 9-4; Ref. 75; Ref. 76	Figure 6	
F-3a(4) Water for Fire Control One of the following: • Water at adequate volume and pressure to supply water hose streams, or • Foam-producing equipment, or • Automatic sprinklers or water spray systems	264.32(d)		missing	
F-3b Aisle Space Requirement Requests for a waiver of the aisle space requirement must be accompanied by a demonstration that aisle space is not needed to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency.	264.35		Figure 6	

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-4 Preventive Procedures, Structures, and Equipment A description of procedures, structures, or equipment used at the facility for the following must be included:	270.14(b)(8)			see deficiency no. 40
F-4a Unloading Operations Prevention of hazards in unloading operations (e.g., use of ramps or special forklifts).	270.14(b)(8)(i)	Ref. 30, Sec. 7	Figure 6	
F-4b Runoff Prevention of runoff from hazardous waste handling areas to other areas of the facility or environment, or prevention of flooding (e.g., berms, dikes, trenches).	270.14(b)(8)(ii)		Figure 6	see deficiency no. 40
F-4c Water Supplies Prevention of contamination of water supplies.	270.14(b)(8)(iii)		Figure 6	see deficiency no. 40
F-4d Equipment and Power Failure Mitigation of effects of equipment failure and power outages.	270.14(b)(8)(iv)		letter 3/29/83	see deficiency no. 40
F-4e Personnel Protection Equipment Prevention of undue exposure of personnel to hazardous waste (e.g., protective clothing).	270.14(b)(8)(v)	Ref. 39, Ch. 2, Part 4; Ref. 62, Ch. 4-7		see deficiency no. 40
F-5 Prevention of Reaction of Ignitable, Reactive and Incompatible Wastes			letter 3/29/83	
F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste A description of the precautions taken by a facility that handles ignitable, reactive or incompatible waste to demonstrate compliance with 264.17 including documentation demonstrating compliance with 264.17(c). Precautions to prevent actual ignition, including separation from sources of ignition such as 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. Demonstration that when ignitable or reactive waste is being handled, the owner or	270.14(b)(9) 264.17(a) and (c)			see deficiency no. 41

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-5a (continued) 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 <u>General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste</u> A description of the precautions taken by a facility that treats, stores, or disposes of ignitable or reactive waste, or accidentally mixes incompatible waste or incompatible wastes 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.	270.14(b)(9) 264.17(b) and (c)	Ref. 91; Ref. 92	missing	see deficiency no. 42
Documentation to meet requirements of 264.17(a) or (b) may be based on references to published scientific or engineering literature, data from trial tests, waste analyses, or results of treatment of similar wastes by similar treatment processes and under similar operating conditions.	264.17(c)			
F-5c <u>Management of Ignitable or Reactive Wastes in Containers</u> 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.	270.15(c) 264.176		Figure 6	
F-5d <u>Management of Incompatible Wastes in Containers</u> A description of procedures to demonstrate compliance with 264.177(a) and (b) and 264.17(b) and (c).	270.15(d) 264.177(a)		letter 3/29/83 comment 17	

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-5g (continued)				
° The procedures used to ensure that incompatible wastes and materials are not placed in the same container (unless 264.17(b) is complied with) or in an unwashed container that previously held incompatible waste				
° Dikes, berms, walls, or other devices used to separate wastes in containers, piles, open tanks, or surface impoundments	264.177(b)			
F-5e Management of Ignitable or Reactive Wastes in Tanks			missing	see deficiency no. 23
A description of the procedures for handling incompatible, ignitable, or reactive wastes, including the use of buffer zones. 264 requirements include:	270.16(b)			
° Waste must be treated, rendered, or mixed before or immediately after placement in the tank so that it is no longer considered ignitable and complies with 264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; or the tank is used solely for emergencies	264.198(a)			
° Facilities that treat or store ignitable or reactive waste in covered tanks must comply with the National Fire protection Association's buffer zone requirements for tanks	264.198(b)			
F-5f Incompatible Wastes in Tanks	270.16(f) 264.199(b)			
A statement that incompatible wastes and materials are not stored in the same tank or in an unwashed tank that previously held an incompatible waste or material (unless 264.17(b) is complied with).			letter 3/29/83 comment 18	see deficiency no. 24
F-5g Ignitable or Reactive Wastes in Waste Piles	270.18(g) 264.256 264.17			
The application must include a description of the procedures for handling ignitable, or reactive wastes, including the use of buffer zones. Waste must be treated, rendered, or mixed before or immediately after placement in the waste pile so that it is no longer considered ignitable and complies with 264.17(b); or the waste is stored or treated in such a way that it			missing	see deficiency no. 25

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-5g (continued) is protected from any material or conditions that may cause the waste to react or ignite.				
F-5h <u>Incompatible Wastes in Waste Piles</u> The application must include: ° A statement that incompatible wastes and materials are not stored in the same waste pile or on the same base that previously held an incompatible waste or material unless 264.17(b) is complied with ° A description of the procedures (dikes, beams, walls, distances) utilized to separate a waste pile of hazardous waste that is incompatible with any waste or other material stored nearby	264.257		messeng	
F-5i <u>Ignitable or Reactive Wastes in Surface Impoundments</u> A description of the procedures for handling ignitable, or reactive wastes, including the use of buffer zones. Waste must be treated, rendered, or mixed before or immediately after placement in the surface impoundment 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.				Na
F-5j <u>Incompatible Wastes in Surface Impoundments</u> The application must include: ° A statement that incompatible wastes and materials are not stored in the same surface impoundment or in the impoundment that previously held an incompatible waste or material unless 264.17(b) is complied with				
F-5k <u>Ignitable or Reactive Wastes in Landfills</u> Documentation of procedures for:	270.21(f) 264.312			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-5k (continued) • Rendering wastes nonreactive or ignitable prior to or immediately after placement in the landfill • Preventing reactions • Protecting ignitable wastes in containers from materials or conditions that may cause them to ignite				Na
F-5l Incompatible Wastes in Landfills Applicant must provide procedures for: • Insuring that incompatible wastes will not be disposed of in the same landfill cell	270.21(g) 264.313			
F-5m Liquid Wastes in Landfills • For landfills without a liner and leachate collection/removal system, method(s) used to stabilize bulk waste containing free liquids so that no free liquids remain when landfilled • Procedures for removing or stabilizing free-standing liquids in containers	270.21(h) 264.314(a)			
F-5n Special Requirements for Containers Disposed in Landfills Documentation of procedures for ensuring that containers (except very small ones) are at least 90 percent full when placed in the landfill • Documentation of procedures for crushing, shredding, or reducing volume of empty containers prior to landfilling • Description of procedures, containers, and materials used to ensure that lab packs comply with all requirements of 264.315	270.21(i) 264.314 264.315 264.316			
F-5o Ignitable or Reactive Wastes in Land Treatment A description of the management of ignitable or reactive wastes which will be placed in or on the treatment zone, if applicable, and an explanation of how the following requirements will be complied with:	270.20(d)(7) 264.281 264.17(b)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
F-5o (continued) ° The waste is immediately incorporated into the soil so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste and the requirements of 264.17(b) are complied with, or ° The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react				Na
F-5p Incompatible Wastes in Land Treatment A description of the management of incompatible wastes must be submitted if incompatible wastes, or incompatible wastes and materials, will be placed in or the same treatment zone including an explanation of how the following requirements will be complied with: ° The incompatible wastes, or incompatible wastes and materials must not place in or on the same treatment zone, unless 264.17(b) is complied with	270.20(d)(8) 265.282 264.17(b)			
PART G - CONTINGENCY PLAN A copy of the contingency plan required in Part 264, Subpart D. Include, where applicable, specific requirements in 264.227 and 264.255.	270.14(b)(7) 264.50 through 264.56	Ref. 36, Ch. 2; Ref. 64-68; Ref. 70; Ref. 114	CP-1 to CP-9	see deficiency no. 44
An existing spill prevention control plan can be amended to incorporate hazardous waste management provisions sufficient to comply with 264, Subpart D requirements.	264(51)(b)			
G-1 General Information ° Facility name and location and owner or operator name ° Site plan ° Description of facility operations	264.52	Ref. 36, Ch. 2		
G-2 Emergency Coordinators ° Names, addresses, office and home phone numbers, and duties of primary and alternate coordinators in sequence as alternates	264.52(d) 264.55	Ref. 36, Ch. 2		see deficiency no 45

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
G-2 (continued) • A statement authorizing designated coordinators to commit the necessary resources to implement the contingency plan				
G-3 Implementation Criteria for implementation of contingency plan for any potential emergency • Fires/explosions • Unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water	264.52(a) 264.56(d)	Ref. 64; Ref. 65; Ref. 68	CP-8	
G-4 Emergency Response Procedures				
G-4a Notification Methodology for immediate notification of facility personnel and necessary state or local agencies.	264.56(a)	Ref. 64; Ref. 68	CP-4	
G-4b Identification of Hazardous Materials Available data and/or procedures for identification of hazardous materials involved in the emergency and quantity and areal extent of release. Include information on: • Characteristics of waste • Exact source • Amount • Areal extent of release	264.56(b)	Ref. 36, Ch. 2; Ref. 69	CP-4	see deficiency no 46
G-4c Hazard Assessment • Procedure for assessment of possible hazards to the environment and human health • Procedure for determining the need for evacuation and notification of authorities. The authorities to be notified must include the On-Scene-Coordinator for that area or the National Response Center	264.56(c) 264.56(d)	Ref. 30; Ref. 36, Ch. 2; Ref. 60; Ref. 61; Ref. 64; Ref. 68; Ref. 70, Ch. 1	CP-4	see deficiency no 47
G-4d Control Procedures • Specific responses and control procedures to be taken in the event of a fire, explosion, or release of hazardous waste to air, land, or water	264.52(a)	Ref. 33; Ref. 34; Ref. 36, Ch. 2; Ref. 44, Ch. 4; Refs. 64-68; Ref. 70; Ref. 71; Ref. 72	CP-8 CP-9	

(continued)

	Subject requirement	40 CFR section Nos.	References	Location in application	Comments
G-4e	Prevention of Recurrence or Spread of Fires, Explosions, or Releases	264.56(e)	Ref. 36, Ch. 2; Ref. 71; Ref. 73; Ref. 74	CP-4A	
	During an emergency situation, a description of the necessary steps to be taken to ensure that fires, explosions, or releases do not occur, reoccur, or spread to other hazardous waste at the facility. Steps must include, where applicable:				
	• Shut-down of processes and continued monitoring of them				
	• Collecting, containing, and treating released wastes				
	• Removing and isolating containers				
	° Proper use of fire control structures (e.g., fire doors), systems (e.g., sprinkler systems), and equipment (e.g., extinguishers)	Guidance			
G-4f	Storage and Treatment of Released Material	264.56(f) 264.56(g)	Ref. 41, Ch. 3 and 4	CP-4A	see deficiency no. 48
	• Provisions to monitor for leaks, pressure buildup, gas generation, or ruptures as appropriate if operations at the facility are stopped in response to a release, fire or explosion				
	• Provisions for treatment, storage, or disposal of any hazardous waste resulting from a release, fire, or explosion at the facility				
	• Equipment available	Guidance			
	• Procedures for deployment of these resources	Guidance			
	° Methods to contain, treat, and clean up a hazardous release and decontaminate the affected area	Guidance			
G-4g	Incompatible Waste	264.56(h)(1)	Ref. 36, Ch. 2	CP-4A	see deficiency no. 48
	Provisions for prevention of incompatible waste from being treated, stored, or located in the affected areas until cleanup procedures are completed.				
G-4h	Post-Emergency Equipment Maintenance	264.56(h)(2)	Ref. 36, Ch. 2	CP-4A	see deficiency no 48
	Procedures for ensuring that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed. (This includes advising authorities)	264.56(i)			
G-4i	Container Spills and Leakage	264.56(g) 264.171		missing	see deficiency no 49
	Procedures for responding to container spills or leakage including removal of				

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
G-4i (continued) spilled waste and repair or replacement of containers.				
G-4j Tank Spills and Leakage Procedures for responding to tank spills or leakage including removal of spilled waste and repair of tank.	264.56(g) 264.194(c)	Ref. 78	missing	see deficiency no. 50
G-4k Waste Pile Spills and Leakage The application must describe the procedures to be used when responding to waste pile spills and leakage: • Notify Regional Administrator if liquids are detected in a leak detection system • Procedures and criteria for identifying removing accumulated liquids, repairing or replacing the liner(s) • Obtain qualified engineer certification of repairs and probability of leakage • Procedrues and criteria for enacting groundwater detection, compliance, and corrective action programs • Procedures and criteria which will be used if an inspectable liner is found to be deteriorating, cracking or defective	270.14(b)(7) 264.252 264.253		missing	see deficiency no. 51
G-4l Surface Impoundments Spills, Leakage and Sudden Drops The application must describe the procedures to be used when responding to surface impoundment spills and leakgage: • Procedures for notifying Regional Administrator if liquids are detected in a leak detection system • Procedures and criteria for identifying and removing accumulated liquids, repairing or replacing the liner(s) • Procedures and criteria for enacting groundwater detection, compliance, and corrective action programs • Procedures for stopping waste additions • Procedures for stopping leaks and preventing sudden drops and presenting catastrophic failure • Procedures and critera for emptying impoundment	270.14(b)(7) 264.222 264.227			Na

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
G-4l (continued) • Obtain qualified engineers certification of repairs and probability of leakage or failure				Na
G-4m Landfill Leakage	264.302(b)(1) 264.302(b)(2)(i)	Ref. 138		
G-4m(1) Liner Repair and Replacement For double-lined landfills with leak detection systems when liquid is detected in the system; • Procedures to notify the Regional Administrator within 7 days • Procedures to remove accumulated liquid • Procedures to repair or replace the facility liner • Obtain certification from a qualified engineer that the leak has been stopped.				
G-4m(2) Detection Monitoring Program If liquid is detected in the leak detection system and a detection monitoring program is established as a permit condition: • Procedures that will be taken by the landfill owner or operator to implement the detection monitoring program	264.302(b)(2)(ii)			
G-5 Emergency Equipment Location, description, and capabilities of emergency equipment. This should include: • Spill control equipment • Fire control equipment • Personnel protective items such as respirators and protective clothing • First aid and medical supplies • Emergency decontamination equipment • Emergency communication and alarm systems	264.52(e)	Ref. 30; Ref. 36, Ch. 2; Ref. 62, Ch. 5; Ref. 41; Ref. 75; Ref. 76	CP-5	see deficiency no. 52
G-6 Coordination Agreements • A description of coordination agreements with local police and fire departments, hospitals, contractors, and state and	264.37 264.52(c)	Ref. 36, Ch. 2	CP-2	see deficiency no. 53

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
G-6 (continued) local emergency response teams to familiarize them with the facility and actions needed in case of emergency • A statement indicating that a copy of the contingency plan has been submitted to these organizations • If applicable, documentation of refusal to enter into a coordination agreement	264.53(b) 264.37(b)			
G-7 Evacuation Plan The plan must include: • Criteria for evacuation • A description of signal(s) to be used to begin evacuation • Primary and alternate evacuation routes	264.52(f)	Ref. 36, Ch. 2	CP-6	see deficiency no. 54
G-8 Required Reports • Provisions for submission of reports of emergency incidents within 15 days of occurrence • Notation of such incidents in the operating record identifying the time, date, and details of these emergency incidents	264.56(j)	Ref. 36, Ch. 2	CP-8	
PART H - PERSONNEL TRAINING	270.14(b)(12) 264.16	Ref. 77; Ref. 70		
H-1 Outline of Training Program An outline of both the introductory and continuing training programs by owners or operators to prepare the personnel to operate and maintain the facility in a safe manner as required to demonstrate compliance with 264.16. Include a brief description of how training will be designed to meet actual job tasks in accordance with requirements in 264.16(a)(3). (Note: On-the-job training may be used to comply with these requirements.)	270.14(b)(12)		PTR-1 to PTR-8	see deficiency no. 55
H-1a Job Titles and Duties For each employee whose position at the facility is related to hazardous waste management, the following must be maintained at the facility: • Job title • Job duties • Job description	264.16(d)(1) 264.16(d)(2)	Ref. 77	PTR-1 to PTR-5	

(continued)

	Subject requirement	40 CFR section Nos.	References	Location in application	Comments
H-1b	Training Content, Frequency, and Techniques In both introductory and continuing training (including an annual review of the initial training) for each employee describe: • Training content • Frequency of training • Technique(s) used in training	264.16(d)(3) 264.16(c)	Ref. 77	PTR-6 letter 7/1/83 comment 27	
H-1c	Training Director Demonstration that the program is directed by a person trained in hazardous waste management. • Credentials of training director	264.16(a)(2) Guidance	Ref. 77	letter 7/1/83 comment 27	see deficiency no. 56
H-1d	Relevance of Training to Job Position A brief description of how instructions of facility personnel in hazardous waste management procedures (including contingency plan implementation) is relevant to their positions. [To demonstrate compliance with 264.16(a)(2).]	264.16(a)(2)	Ref. 77, Ch. 5	missing	see deficiency no. 57
H-1e	Training for Emergency Response Documentation that the training program trains facility personnel to respond effectively to emergencies and trains them to be familiar with emergency procedures, emergency equipment, and emergency systems, include where applicable: • Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment • Key parameters for automatic waste feed cutoff systems • Communications or alarm systems • Response to fires or explosions • Response to groundwater contamination incidents • Shutdown of operations	264.16(a)(3) 264.16(a)(3)(i) 264.16(a)(3)(ii) 264.16(a)(3)(iii) 264.16(a)(3)(iv) 264.16(a)(3)(v) 264.16(a)(3)(vi)	Ref. 77 Ref. 77 Ref. 77 Ref. 66; Ref. 77; Ref. 78 Ref. 66; Ref. 77; Ref. 78 Ref. 77	PTR-6 PTR-8	see deficiency no. 58
H-2	Implementation of Training Program • Indication that training has been and will be successfully completed by facility personnel within 6 months of their employment or assignment to a facility, or transfer to a new position at a facility,	264.16(d)(4) 264.16(b)	Ref. 77		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
H-2 (continued) whichever is later. (Note: employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements.) ° Records documenting that the required training has been given to and completed by facility personnel must be maintained				
PART I - CLOSURE PLANS, POSTCLOSURE PLANS, AND FINANCIAL REQUIREMENTS	270.14(b)(13); 270.14(b)(15) 270.14(b)(16) 270.14(b)(17) 270.14(b)(18) 264.110-264.115, 264.351, 264.178, 264.197	Ref. 70; Ref. 79; Ref. 80; Ref. 81; Ref. 82		
I-1 Closure Plans A copy of the written closure plan required by 264.112 and consistent with Items I-1a through I-1f. Where applicable, the specific requirements in 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, and 264.351, must be included.	270.14(b)(13)		CP-1	
I-1a Closure Performance Standard A description of how closure ° Minimizes the need for postclosure maintenance ° Minimizes or eliminates releases of hazardous wastes, hazardous waste constituents, leachate, and contaminated rainfall to the air, groundwater, surface water, and surrounding land	264.111 (264.112 requires consistency with 264.111)	Ref. 80; Ref. 81; Ref. 139; Ref. 141		
I-1b Partial Closure and Final Closure Activities If partial closure is anticipated, a description of how and when the facility will be partially closed, including an identification of the maximum extent of operation after partial closure. Also, a description of how and when the facility will be finally closed. Description must identify how requirements of 264.111, 264.113, 264.114, 264.115 and	264.112(a)(1) (264.112(a)(1) through 264.112(a)(4) outline minimum acceptable plan elements)	Ref. 79-82	missing	not anticipated

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-1b (continued) applicable requirements of 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, and 264.351 will be met.				
I-1c Maximum Waste Inventory A description of the maximum inventory of wastes that could be in storage, treatment and disposal at any time during the life of the facility.	264.112(a)(2)	Ref. 79-82	CP-2	see deficiency no. 59
I-1d Inventory Removal, Disposal or Decontamination The application must describe the procedures which will be used to remove, treat or dispose the waste inventory, decontamination residuals, and contaminated structures, soil and equipment	264.112(a)(3) 264.114 270.14(b)(13) 270.17(g) 264.228 264.258 264.178 264.197 264.280 264.310 264.351		CP-4	see deficiency no. 60
I-1e Schedule for Closure A schedule for final closure including; • Estimated expected year of closure • Closure schedule with total time to close, time for intervening closure activites, and inspection schedule during closure	264.112(a)(4)	Ref. 80; Ref. 81	CP-3	
I-1e(1) Time Allowed for Closure The schedule for closure must show • All hazardous wastes will be treated, removed off-site, or disposed of on-site within 90 days from receipt of final volume of waste • All closure activities will be completed within 180 days from receipt of final volume of waste	264.113(a) and (b)			
I-1e(1)(a) Extensions for Closure Time A petition made to the Regional Administrator for a schedule for closure which exceeds the 90 days for treatment, removal, or disposal of wastes and/or the 180 days for completion of closure activities made to the Regional	264.113(a) 264.113(b)			Na

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-1e(1)(a) (continued) Administrator. One of the following must be demonstrated: • Closure activities require longer than 180 days (or facility has capacity to receive additional wastes). • There is a reasonable likelihood that a person other than owner or operator will recommence operation of the site • Closure would be incompatible with continued operation Demonstrate that all steps have and will be taken to prevent threats to human health and environment from unclosed but inactive facility.				
I-1f Inventory Disposal, Removal or Decontamination of Equipment A description of how all facility equipment and structures will be decontaminated or disposed of when closure is completed. The following should be included:	264.114	Ref. 80; Ref. 81	CP-4	see deficiency no. 60
• Decontamination procedures • Criteria for determining contamination • List equipment • Disposal of contaminated soil • Decontamination of clean up materials, equipment, and residues • Demonstrate decontamination has been effective	Guidance			
I-1f(1) Closure of Containers A description of how at closure, all hazardous waste residues will be removed from the containment system, and how remaining containers, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed. The description should address the following:	264.178		CP-4	
• Hazardous waste removal and disposal • Container decontamination and disposal • Site decontamination and disposal including linings, soil, and washes	Guidance			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-1f(1) (continued) • Verification of decontamination • Maximum inventory				
I-1f(2) Closure of Tanks A description of how at closure, all hazardous waste residues will be removed from tanks, discharge control equipment, and discharge confinement structure, and the facility will be decontaminated. The description should address the following: • Waste removal from tanks and equipment • Decontamination of all components • Verification of decontamination • Disposal of wastes and residues • Maximum inventory	264.197 Guidance		CP-4	see deficiency no. 60
I-1f(3) Closure of Waste Piles (Reserved) The application must describe how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste. If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the pile as a landfill [I-1f(6)] and provide postclosure plan [I-2]. Piles without liners or with liners that do not meet the requirements of D-3e must also provide contingent plans for closing the facility as a landfill [I-1d(6)] and a contingent postclosure [I-2], except for dry, enclosed piles meeting the requirements of D-3b or piles for which a liner exemption is sought in accordance with D-3c. • Procedure and criteria for determining whether or not decontamination has been successful • Sampling and analytical techniques • Continuance of treatment during closure (if appropriate)	270.17(i) 264.258	Ref. 95; Ref. 131; Ref. 133; Ref. 136	CP-4	see deficiency no. 60

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-1f(4) Closure of Surface Impoundments A description of how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste. If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the surface impoundment as landfill [I-1f(6)] and provide post-closure plans [I-2]. Surface impoundments without liners or with liners that do not meet the requirements of D-4d must also provide contingent plans for closure as a landfill [I-1f(6)] and a contingent post-closure plan [I-2], except for impoundments requesting a liner exemption in accordance with D-4b. • Procedure and criteria for determining whether or not decontamination has been successful • Sampling and analytical techniques • Continuance of treatment during closure (if appropriate)	270.17(g) 264.228	Ref. 79; Ref. 95; Ref. 131; Ref. 133; Ref. 136		Na
I-1f(5) Closure of Incinerators Description of 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, a description of how the incinerator and associated units and equipment will be dismantled and disposed of as a hazardous waste will suffice.	264.351			
I-1f(6) Closure of Landfills Provide detailed plans and an engineering report which describes the final cover components in detail. These detailed plans and engineering report must describe how the final cover will:	270.21(e) 264.310(a)	Ref. 95; Ref. 131 Ref. 133; Ref. 136		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-1f(6) (continued) • Provide long-term minimization of migration of liquids through closed landfill • Function with minimum maintenance • Promote drainage and minimize erosion/abrasion • Settle/subside without losing integrity • Be less permeable than bottom liners or subsoils				Na
I-1f(7) Closure of Land Treatment During closure of land treatment facilities the owner or operator must comply with the following: • Continued all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required, except to the extent such measures are inconsistent with 264.280(a)(8) • Continue all operations in the treatment zone to minimize run-off of hazardous constituents • Maintain the run-on control system • Maintain the run-off management system • Control wind dispersal of hazardous waste if required • Continue to comply with any prohibitions or conditions concerning growth of food-chain crops • Continue unsaturated zone monitoring except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone • Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance	270.20(d)(6) 264.280(a) 264.280(b)	Ref. 95; Ref. 119; Ref. 132; Ref. 133		

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-1f(7) (continued) When closure is complete the owner or operator may submit to the Regional Administrator certification by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.				
I-2 Post-Closure Plan				Na
I-2a Post-Closure Plan An owner or operator of a disposal facility must have a written post-closure plan. A copy of the approved plan and all revisions to the plan must be kept at the facility until the postclosure care begins. The plan must include the following: • Description of groundwater monitoring activities and frequencies • Description of maintenance activities and frequencies for: - Final containment structures - Facility monitoring equipment - Security devices - Erosion damage - Vegetative cover - Run-on run-off control systems - Leachate collection, detection, and removal systems - Gas venting system - Groundwater monitoring system (saturated and/or unsaturated) - Fugitive dust control system - Crop prohibitions - pH control • Location(s) and number of copies of post-closure plan • Identification and location (address and phone number) of person responsible for storage and updating of facility copy of post-closure plan prior to closure • Identification and location (address and phone number) of person responsible for storage and updating facility copy of post-closure plan during post-closure period • Procedure for updating all other copies of post-closure plan	270.14(b)(3) 270.17(g) 270.18 270.20(c)(6) 270.21(e) 264.118(a) 264.228(b) 264.228(c) 264.280(c) 264.310(b) Guidance			needs to demonstrate exemption

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-2b **Contingent Post-Closure Plans** If surface impoundments or waste piles are utilized and the owner/operator intends to remove all wastes and contamination, the application must include a contingent post-closure plan. The requirements of the contingent post-closure plan are identified to the post-closure plan required for landfills (see I-2a).	270.17(g) 270.18(i) 264.228(c)(1) 264.258(b) 264.258(c)			must demonstrate exemption from grd water monitoring and liner requirements.
I-2c **Specific Post-Closure Plan Requirements** Items I-2c(1) through I-2c(4) present specific post-closure plan requirements for surface impoundments, waste piles, land treatment facilities and landfills.				Na
I-2c(1) **Surface Impoundments** For an owner or operator of a surface impoundment closed with wastes in place, the post-closure plan must include: • Procedures for maintenance and repair of final cover • Procedures for maintenance and monitoring of leak detection system • Procedures for maintenance and monitoring of groundwater monitoring system • Procedures for compliance with Subpart F • Procedures for preventing run-on/run-off final cover damage	270.17(g) 264.118 264.228(c)(1)			
I-2c(2) **Waste Piles** For an owner or operator of a waste pile closed with wastes in place, the post-closure plan must include the same items as for a landfill including: • Procedures for maintenance and repair of final cover • Monitoring and maintenance procedures for leak detection system • Procedure for leachate collection/removal system operation • Procedures to maintain and monitor groundwater monitoring system • Procedures for compliance with Subpart F	270.18(i) 264.118 264.258(b)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-2c(2) (continued)				Na
• Procedures for preventing final cap erosion due to run-on and run-off • Procedures for protection and maintenance of benchmarks • Procedures to be undertaken if liquid is found in leak detection system	264.310(c)			
I-2c(3) Landfills An owner or operator of a landfill must include the following in the post-closure plan: • Procedures for maintenance and repair of final cover • Monitoring and maintenance procedures for leak detection system • Procedure for leachate collection/removal system operation • Procedures to maintain and monitor groundwater monitoring system • Procedures for compliance with Subpart F • Procedures for preventing final cap erosion due to run-on and run-off • Procedures for protection and maintenance of benchmarks • Procedures to be undertaken if liquid is found in leak detection system	270.21(e) 264.118 264.280(c) 264.310(c)			
I-2c(4) Land Treatment Facilities An owner or operator of a land treatment facility must include the following in the post-closure plan: • Procedures to enhance degradation of wastes in treatment zone • Procedure for maintaining vegetative cover • Procedure for maintaining run-on controls • Procedure for maintaining run-off controls • Procedures for wind dispersal control • Procedures to ensure compliance with food-chain crop prohibitions • Procedures for unsaturated zone monitoring	270.20(d)(6) 264.118 264.280(c)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-3 Notices Required for Disposal Facilities				Na
I-3a Notice to Local Land Authority Documentation by applicant that within 90 days after closure a survey plat indicating location and dimensions of landfill cells or other disposal areas with respect to permanently surveyed benchmarks, along with a record of the type, location and quantity of hazardous waste within each cell or disposal area will be submitted to the appropriate local land use authority and to the Regional Administrator.	264.119			
I-3b Notice In Deed to Property Documentation by applicant that he has or will record a notation on the facility deed, or other instrument examined during a title search, that notifies any potential purchase of the property that: • The property has been used to manage hazardous wastes • Use of the land is restricted to activities that will not disturb integrity of final cover system, or monitoring system during post-closure care period • Requirements stated under I-3a above has been complied with	270.14(b)(14) 264.120			
I-4 Closure Cost Estimate A copy of the most recent closure or contingent closure cost estimate, prepared in accordance with 264.142. • Cost estimate • Fully loaded • No salvage credits • Current year costs • Cost adjusted annually from anniversary date of first cost estimate • Based on point in operating life when extent and manner of operation would make closure most expensive.	270.14(b)(15) 264.142 Guidance Guidance 264.142(a) 264.142(b) 264.142(a)	Ref. 83; Ref. 85; Ref. 86	FC-1	see deficiency no. 61
I-5 Financial Assurance Mechanism for Closure A copy of the established financial assurance mechanism for facility closure adopted in	270.14(b)(15) 264.143 264.151	Ref. 84, Ref. 85, Sec. HH	missing	see deficiency no. 62

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-5 (continued) compliance with 264.143. The mechanism must be one of the following (I-5(a) through I-5(f)) and include due dates and use standard wording.				
I-5a <u>Closure Trust Fund</u> A copy of the closure trust fund agreement with the wording required in 264.151(a)(1) and a formal certification of acknowledgment. • Bank or approval institution • Mechanics - Pay-in period; life of permit or remaining life of facility, whichever is shorter - Annual payment; unfunded liability divided by years left in pay-in period	264.143(a) 264.151(a)(1)			
I-5b <u>Surety Bond</u> A surety bond from a federally acceptable surety company meeting one of the following requirements: • Surety bond guaranteeing payment into a closure trust fund. A copy of the surety bond with the wording required in 264.151(b), a copy of the standby trust fund agreement • Surety bond guaranteeing performance of closure. A copy of the surety bond with the wording required in Part 264.151 (c), guaranteeing that the owner or operator will perform closure according to the closure plan and the requirements of Subpart H	264.143(b) 264.151(b) 264.143(b) 264.143(c)			
I-5c <u>Closure Letter of Credit</u> A copy of a closure letter of credit with the wording required in 264.151(d) • Irrevocable letter of credit • At least one year period, automatic renewal • Standby trust fund • Amount reflects current cost estimate	264.143(d) 264.151(d)	Ref. 85, Sec. HH		

(continued)

	Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-5d	Closure Insurance To demonstrate that the owner or operator has closure insurance, he or she must submit to the Regional Administrator 60 days before hazardous waste is received a certificate of insurance worded as specified in 264.151(e). • Noncancellable policy, automatic renewal • Insurer licensed or eligible surplus lines carrier • Certificate of insurance • Funds available whenever final closure occurs	264.151(e)			
I-5e	Financial Test and Corporate Guarantee for Closure To demonstrate that this test is met, an owner or operator must submit a letter signed by the company's chief financial officer that is worded as specified in 264.151(f) and meets the following criteria: • Tangible net worth $10 million • Tangible net worth 6 x all closure and post-closure costs • U.S. assets at least 90% of total assets or at least six times all closure and post-closure costs • Bond rating requirement or alternative financial ratio tests • Application must include; - Copy of a report on the company's latest financial statements drafted by an independent certified public accountant (CPA) - Copy of a report from the owner's or operator's independent CPA to the owner or operator stating that he or she has examined the data in the letter from the chief financial officer and that it is consistent with the amounts in the independently-audited year-end financial statements for the latest fiscal year and that no matters came to attention to cause him to believe that the data should be adjusted In lieu of the above items, the owner or operator may submit a corporate guarantee worded as required by 264.151(h). This guarantee provides that the guarantor, which	264.143(f) 264.151(f) 264.151(h) 264.143(f)(10)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-5e (continued) must be the parent company of the owner or operator, will perform final closure in accordance with the closure plan if the owner or operator fails to do so or will establish a closure trust fund for the owner or operator. A copy of these items should be submitted with the Part B for review by the permit writer.				
I-5f Combinations				
I-5f(1) Use of Multiple Financial Mechanisms A copy of a combination of trust fund agreements, surety bond guaranteeing payment into a closure trust fund or letters of credit, insurance, and state assumption of responsibility, which provide financial assurance for the amount of closure. Combined financial assurance must be at least equal to the adjusted closure cost estimate. Financial assurance instruments must meet requirements of 264.143(a),(b),(d), or (e) which include closure trust fund, surety bond guaranteeing payment into a closure trust fund, closure letter of credit, and closure insurance, respectively.	264.143(g) 264.149			
I-5f(2) Use of Financial Mechanism for Multiple Facilities A copy of a financial assurance mechanism for more than one facility showing for each facility, the EPA ID number, name, address, and amount of closure funds assured by the mechanism. Total funding must be no less than the sum required for each facility considered separately. Documents must be submitted to each Region where facilities are located. Financial test applies to sum of closure and post-closure costs for all facilities.	264.143(h)			
I-6 Post-Closure Cost Estimate If landfill, land treatment, surface impoundments, or waste piles are utilized, the application must include a post-closure or a contingent post-closure cost estimate prepared in accordance with 264.144.	270.14(b)(16) 264.144		missing	see deficiency no. 63

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-6 (continued) • Fully loaded labor rate • No salvage values • No operation credits (gas, crops, livestock) • Current year • Based on the extent of operation most likely to make postclosure most expensive • Inspection costs • Administration • Transportation				
I-7 Financial Assurance Mechanism for Post-Closure A copy of the established financial assurance mechanism for post-closure care adopted in compliance with 264.145. The mechanism must be one of the following (I-7(a) through I-7(f) and include due dates and use standard wording.	270.14(b)(16) 264.145 264.151		missing	see deficiency no. 64
I-7a Post-closure Trust Fund A copy of the post-closure trust fund agreement with the wording required in 264.151(a)(1) and a formal certification of acknowledgment. • Bank or approval institution • Mechanics - Pay-in period; life of permit or remaining life of facility, whichever is shorter - Annual payment; unfunded liability divided by years left in pay-in period	264.145(a) 264.151(a)(1)			
I-7b Surety-Bond A surety bond from a federally acceptable surety company meeting one of the following requirements:	264.145(b) and (c) 264.151(b) 264.151(c)			
• Surety bond guaranteeing payment into a post-closure trust fund. A copy of the surety bond with the wording required in 264.151(b), a copy of the standby trust fund agreement	264.145(b)			
• Surety bond guaranteeing performance of post-closure activities. A copy of the surety bond with the wording required in Part 264.151(c), guaranteeing that the owner or operator will perform post-closure activities according to the post-closure plan and the requirements of Subpart H	264.145(c)			

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	Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-7c	Post-closure Letter of Credit A copy of postclosure letter of credit with the wording required in 264.151(d) • Irrevocable letter of credit • At least one year period, automatic renewal • Standby trust fund • Amount reflects current cost estimate	264.145(c) 264.151(f)	Ref. 85, Sec. HH		
I-7d	Post-closure Insurance To demonstrate that the owner or operator has post-closure insurance, he or she must submit to the Regional Administrator 60 days before hazardous waste is received a certificate of insurance worded as specified in 264.151(e). • Noncancellable policy, automatic renewal • Insurer licensed or eligible surplus lines carrier • Certificate of insurance • Funds available whenever final post-closure occurs	264.145(e) 264.151(e)			
I-7e	Financial Test and Corporate Guarantee for Post-Closure To demonstrate that this test is met, an owner or operator must submit a letter signed by the company's chief financial officer that is worded as specified in 264.151(f) and meets the following criteria: • Tangible net worth $10 million • Tangible net worth 6 x all closure and post-closure costs • U.S. assets at least 90 percent of total assets or at least six times all closure and postclosure costs • Bond rating requirements or alternative financial ratio tests • Application must include: - Copy of a report on the company's latest financial statements drafted by an independent certified public accountant (CPA) - Copy of a report from the owner's or operator's independent CPA to the owner or operator stating that he or she has examined the data in the letter from the	264.145(f) 264.151(f) 264.151(h)			

(continued)

Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-7e (continued)				
chief financial officer and that it is consistent with the amounts in the inde- independently-audited year-end financial statements for the latest fiscal year and that no matters came to attention to cause him to believe that the data should be adjusted				
In lieu of the above items, the owner or operator may submit a corporate guarantee worded as required by 264.151(h). This guarantee provides that the guarantor, which must be the parent company of the owner or operator, will perform post-closure activities in accordance with the post-closure plan if the owner or operator fails to do so or will establish a post-closure trust fund for the owner or operator. A copy of these items should be submitted with the Part B for review by the permit writer.	264.145(f)(10)			
I-7f Combinations				
I-7f(1) Use of Multiple Financial Mechanisms	264.145(g)			
A copy of a combination of trust fund agreements, surety bond guaranteeing payment into a post-closure trust fund or letters of credit, insurance, and state assumption of responsibility, which provide financial assurance for the amount of post-closure. Combined financial assurance must be at least equal to the adjusted post-closure cost estimate. Financial assurance instruments must meet requirements of 264.143(a),(b),(d), or (e) which include post-closure trust fund, surety bond guaranteeing payment into a post-closure trust fund, postclosure letter of credit, and post-closure insurance, respectively.	264.149			
I-7f(2) Use of Financial Mechanism for Multiple Facilities	264.145(h)			
A copy of a financial assurance mechanism for more than one facility showing for each facility, the EPA ID number, name, address, and amount of closure funds assured by the mechanism. Total funding must be no less than the sum				

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Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-7f(2) continued) required for each facility considered separately. Documents must be submitted to each Region where facilities are located. Financial test applies to the sum of closure and post-closure costs for all facilities.				
I-8 Liability Requirements Where applicable, a copy of the insurance policy or other documentation which comprise compliance with the requirements of 264.147. (Coverage is for all facilities owned and operated and applies until certification for closure and post-closure is completed. For facilities in Phase I authorized states, originally signed duplicates of executed instruments or certificates of insurance are not required until the time of permit issuance, except as required by state law.)	270.14(b)(17) 264.147(a) 264.147(b)	Ref. 142	missing	see deficiency no. 65
I-8a Sudden Insurance Hazardous waste treatment, storage, or disposal facilities must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences. • Amount of at least $1 million per occurrence • An annual total of at least $2 million, exclusive of legal costs • A signed duplicate original of the Hazardous Waste Facility Liability Endorsement worded as specified in 264.151(i), or • A Certificate of Liability Insurance worded as specified in 264.151(j) • Financial test - Letter form CFO - Auditor report - Auditor opinion - Other information requested by R.A. - Acceptable ratios	264.147 (a through d) 264.151 (g, i, j) 264.147(a)			

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Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-8b Nonsudden Insurance This applies to high risk storage facilities (designated by Regional Administrator), surface impoundments, land disposal and land treatment. • At least $3 million per occurrence • An annual total of at least $6 million is required, exclusive of legal costs • Same endorsement or certification requirements as for sudden insurance coverage • Financial test - Letter from CFO (264.151(g)) - Auditor's report - Auditor's opinion - Other information requested by RA	264.147(b) and (d) 264.151(i) and (j) 264.147(f) 264.151(g)			Na storage piles do not require nonsudden insurance.
I-8c Variance Procedures and RA Adjustments Evaluation of degree and duration of risk sufficient to allow RA to make a judgement on reduction of required liability. The financial responsibility levels specified above for liability insurance for sudden accidental occurrences may be adjusted downward if the owner or operator can prove to the Regional Administrator that these levels are not consistent with the degree and duration of risk at the owner's or operator's facility. Conversely, the Regional Administrator may adjust the levels of financial responsibility up or down, based on the Administrator's assessment of the degree and duration of risk associated with the facility.	264.147(c) and (d)			
I-9 State Financial Mechanism Where appropriate, proof of coverage by a State financial mechanism in compliance with 264.149 or 264.150.	270.14(b)(18)			Na
I-9a Use of State-Required Mechanisms Where a state has hazardous waste regulations with equivalent or greater liability requirements for financial assurance for closure and post-closure care, evidence of establishment of the state-required financial mechanisms, including the facility EPA ID number, name, address,	264.149(a)			

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Subject requirement	40 CFR section Nos.	References	Location in application	Comments
I-9a (continued) and amounts of coverage. If state-required mechanism does not satisfy amount of funds required, funds may be made available through increasing funds available through the state-required mechanisms or by using additional mechanisms specified in 264.143.	264.149(b)			
I-9b <u>State Assumption of Responsibility</u> If a state assumes legal responsibility for compliance with closure, post-closure, or liability requirements or the state assures that state funds are available to cover those requirements, then facility is in compliance and must include a copy of a letter from the state describing the state assumption of responsibility and a letter from the owner or operator requesting that the state's assumption of responsibility be considered acceptable in meeting the financial coverage requirements, and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state.	264.150			
PART J - OTHER FEDERAL LAWS Demonstration of compliance if applicable with the requirements of applicable other federal laws such as the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, Fish and Wildlife Coordination Act.	270.14(b)(20) 270.3	Ref. 3	missing	see deficiency no. 66
PART K - CERTIFICATION • Certification of application by a principal executive of the company of at least the level of vice president. • Certification by a general partner or proprietor for a partnership or sole proprietorship, respectively. • Certification by a principal executive officer or ranking elected official for a municipality, state, federal, or other public agency.	270.11		missing	see deficiency no. 67

REGULATORY COMPLETENESS CHECKLIST
FOR HAZARDOUS WASTE STORAGE, TREATMENT,
AND DISPOSAL FACILITIES
August 1983

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