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Engineers
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November 25, 1986

Ms. Janet O'Hara
U.S. EPA
Region X
1200 Sixth Avenue
Seattle, Washington 98101

RECEIVED

'86 [11 15] 11:53

Dear Ms. O'Hara:

Enclosed find the first set of comments for our review of portions of the Hanford RCRA Part B Applications. This review is for the Closure/Postclosure Plan for the Solar Evaporation Basins. This is the least complete of the three applications I have reviewed so far. As a result, many of the comments have been taken directly from the checklist. It appears that they were using an old checklist to write these applications; the numbering system is slightly different, although the major points appear to be "addressed" in the same order as the July 8, 1985, checklist.

One major concern that is applicable to all the applications: U.S. DOE Richland Operations appears to confuse EHW waste and acutely hazardous waste. As a result, the applications for both landfills state that EHW waste will be disposed of in the landfills (specifically U151 (mercury) in the Low Level Burial Grounds and various EHW U-listed wastes in the Nonradioactive Dangerous Waste Landfill). As you know, this violates WAC 173-303-665(1).

If you have any questions regarding the enclosure, feel free to call me at 206/453-5000.

Sincerely,

Elizabeth B. Luecker
Project Manager

pa/seSE3/207
Enclosure



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COMMENTS ON CLOSURE/POSTCLOSURE PLAN
SOLAR EVAPORATION BASINS

Questions

GENERAL

It should be noted that although the applicant may choose to remove and/or stabilize the waste and cap the basins, the basins are not officially closed until a closure plan has been approved by the regulatory agency and completion of the approved closure has been certified by the owner/operator and an independent registered engineer as described by 40 CFR 264.115.

Check List*

Number Comment

A.

PART A APPLICATION:

270.13, 270.11(a) and (d), 270.10(d)

1. Because the Hanford site has only one RCRA identification number for the entire area, the Part A application should cover all past, present, and future regulated waste disposal operations at U.S. DOE Richland operations, not just the solar evaporation basins. Recognizing that the applicant has submitted multiple applications covering various waste management operations at the Hanford site, please provide for clarification a listing of all RCRA permit applications submitted to date and the units/operations covered in each. Also provide a listing for all operations which are operating under interim status, but have not yet submitted the Part B portion of the RCRA permit application.

as usual to Part A specific

*Hanford
Hanford
Richland
Part A
Part B*

2. The following specific deficiencies were noted in the Part A application:

- a. A scale drawing showing the location of all past, present, and future treatment, storage, and disposal areas (or reference to location in Part B).
- b. Additional photographs of the facility clearly delineating all existing structures; existing treatment, storage, and disposal areas; and sites of future treatment, storage, and disposal.
- c. In Form 3, Section III, the process code (TO2--treatment in surface impoundments) does not agree with the unit of measure

site specific

*HTF
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(G--gallons). Throughout the Part B application, the basins are referred to as storage units. If so, the process code should be SO4, in which case G is an appropriate unit of capacity.

2. d. In Section IV of Form 3, the applicant has indicated that the waste classification for the solar basins is WT01 and D001. See comments under Subsection C of the Part B application regarding waste characteristics. The Part A and B portions of the application must be consistent with one another for the wastes to be permitted.

e. Section IIB of Form 3, the applicant has failed to indicate whether or not this facility has interim status. If interim status has not been granted in the past, indicate why. If previous Part A applications have been submitted for this facility, please provide copies of these applications and provide description of any differences between existing submittals and that provided.

2
Interim status
For all
Harford or just
183-H

site specific f. A listing of all permits or construction approvals received under the programs listed in §270.13(k). for all of Harford or just 183-H

g. A topographic map (see item IX, Form 1) that depicts the facility and each of its intake and discharge structures, each of its hazardous waste treatment, storage, and disposal facilities, each well where fluids from the facility are injected underground, and those wells, springs, other surface water bodies, and drinking water wells listed in public record or otherwise known to the applicant within 1/4 mile of the facility property boundary (or reference to location in Part B).

h. Neither Form 1 or Form 3 are signed and dated. For federal facilities, the Part A application must be signed by the principal executive officer of the federal agency. This means that either the chief executive officer or a senior executive officer having responsibility for the overall operations of a geographic unit of the agency must sign the application.

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B.

FACILITY DESCRIPTION

B-1 GENERAL DESCRIPTION: 270.14(b)(1)

The description should include the specific nature of the process(es) involved or that were involved in the past in generating the waste now stored in the Solar Evaporation Basins.

B-2 TOPOGRAPHIC MAP

B-2a General Requirements: 170.14(b)(19), 270.14(c)(3), and (4)(i)

The topographic map (drawing H-6-95) provided by the applicant is not adequate. Provide a topographic map showing the facility and a distance of at least 1,000 feet around it, at a scale of 1 inch equals not more than 200 feet. The map must include:

- o Contours sufficient to show surface water flow around the facility unit operations
- o Map date
- o 100-year floodplain area
- o Surface waters, including intermittent streams
- o Surrounding land uses
- o A wind rose
- o Map orientation
- o Legal boundaries of facility

The map must also indicate the location of:

- o Access control
- o Injection and withdrawal wells (including monitoring wells)
- o Buildings, structures
- o Sewers
- o Loading and unloading areas used during operations
- o Flood control or drainage barriers

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- o Runoff control systems
- o Proposed and existing hazardous waste management units

Note: Multiple maps may be submitted, but all must be at a scale of 1 inch equals not more than 200 feet.

The agency may allow the topographic map for the entire facility to be at a scale of 1 inch equals 1 mile, as submitted. However, the process area being permitted in this application and a distance of 1,000 feet around it should be at a scale of 1 inch equals not more than 200 feet. This map should also show the above-mentioned requirements. If the relief is less than 20 feet, then the contour interval should be a maximum of 2 feet.

B-2b

Additional Requirements for Land Disposal Facilities:
264.95, 264.97, 170.14(c) (3), and (4) (i)

The solar evaporation basins are surface impoundments [(40 CFR 260.10(a)]; a release to the environment has occurred (see Part B, page 5-1), and the unit may be closed as a land disposal facility (40 CFR 264.228 and Part B, page 6-3). Because of this, the topographic map also must indicate the following information:

- o The waste management area boundaries.
- o The property boundaries.
- o The proposed point of compliance.
- o The proposed groundwater monitoring well locations.
- o The locations of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility (including flow direction and rate).
- o If present, the extent of the plume of contamination that has entered the groundwater from a regulated or solid waste management unit.

This information was not on the topographic map submitted.

Note: Multiple maps may be submitted, but all must be at a scale of 1 inch equals not more than 200 feet.

FLOODPLAIN STANDARD: 270.14(b)(11)(iii)

Information presented in Section 2.3 needs documentation. It appears that this information is in conflict with that presented in Figure B-7 of the "RCRA Part B Application, Nonradioactive Dangerous Waste Landfill and Storage Facility," which shows the floodplain covering this portion of the 100-H area.

It would also be helpful if Figure 2-2, 100-H Area Map, would reference the location of the discussions of the various solid waste management units or regulated units shown on the map (e.g., solid waste burial grounds, liquid waste burial trench) in the Part B application.

in the text

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C.

WASTE CHARACTERISTICS

C-1

CHEMICAL AND PHYSICAL ANALYSES: 270.14(b)(2), 264.13(a)

The information provided by the applicant is inadequate because the majority of wastes are not specifically described. For each routine as well as nonroutine hazardous waste stored, treated, or disposed of at the facility, describe the waste, the hazard characteristics, the basis for hazard designation, and provide a laboratory report and other relevant information detailing the chemical and physical analyses of representative samples. The agency expects the applicant to provide this information in a clear and concise manner. It is not acceptable to merely reference an appendix which provides supporting information. It is the applicant's responsibility to summarize waste information, in such a manner that satisfies the regulatory requirements.

Because the solar evaporation basins received wastes unknown (to the reviewer) and chlorinated organics in unknown quantities (Appendix B, page 10, "The presence of halogenated hydrocarbons in the waste would most likely be due to carryover or discharge of tetrachloroethylene, a substance used in substantial quantities in the fuel fabrication process") and numerous other hazardous chemicals (see Appendix D to Appendix B, Summary of Chemical Waste Disposal Permits), more extensive testing is needed. 40 CFR 261 Appendix VIII constituents should be considered.

The applicant's presumption that the wastes in basins 2,3, and 4 is the same as that in 1 is not adequate. Sampling, analysis, and characterization must be done in the remaining three basins.

According to Appendix B, the dangerous waste list designation procedure was used. However, several of the pure chemical products mentioned as being disposed of in the solar evaporation ponds (see Appendix D ~~to~~ ^{of} Appendix B) are listed hazardous wastes, including:

Cuprous cyanide	P029
Sodium cyanide	P106
Potassium cyanide	P098
Vanadium pentoxide	P120
Cyanides	P030

According to 40 CFR 261.3(b)(2), WAC 173-303-081(3) and -082(3) a solid waste becomes a hazardous waste when a listed hazardous waste is first added. This waste remains a hazardous waste (in this case an EHW because the above chemicals are EHW) according to 40 CFR 261.3(c)(1), despite the results of chemical analysis. Since the applicant has provided information on "nonroutine" wastes (Appendix J to Appendix B) placed into the basins from 1975 through 1978, it is the agency's presumption, since no information was provided to the contrary, that similar wastes were placed into the basins between 1978 to 1985.

What about?

The information provided in Appendix B is rather mystifying, given the complex mixture of wastes and chemical products listed in Appendix D to Appendix B. Because of the unknown nature of the majority of wastes and the many types of known wastes, criteria designation (WAC 173-303-100) should be used.

no at all did?

C-2

WASTE ANALYSIS PLAN: 270.14(b)(3), 265.13(b), and (c)

The applicant's assumption that a waste analysis plan is not required, is not valid. A waste analysis plan is required in support of activities that will be undertaken during closure and postclosure ~~come~~ ^{care} of the facility.

Provide a copy of the waste analysis plan that describes the methodologies that will be used for conducting the analyses required to properly treat, store, or dispose of hazardous wastes during closure and postclosure. List the parameters chosen for analysis and explain the rationale for their selection. Describe the test methods to be used to test for parameters chosen. List the sampling methods to be used to obtain a representative sample of each waste to be analyzed. Describe the frequency at which the analyses are to be repeated. Describe the methods that will be used to meet additional waste analysis requirements necessary for treating, storing, or disposing of ignitable,

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reactive, or incompatible wastes, or the methods that will be used to demonstrate that the wastes removed during closure are not ignitable, reactive, or incompatible.

D. PROCESS INFORMATION

D-1 WASTE PILES: 270.18, 265.253

This section is not applicable to this application.

D-2 SURFACE IMPOUNDMENTS

D-2a List of Wastes: 270.17(a)

A list of wastes was not provided (see comments under Section C--Waste Characteristics). Provide a list of all hazardous wastes placed in the surface impoundment. If any treatment was accomplished in the surface impoundment (as indicated in the Part A application) during its active life, describe the nature and quantity of the wastes remaining in the impoundment after treatment was completed.

D-2b Liner System Description: 170.17(b)(1), 264.221(a)

Provide a description of the liner system for Basin 1, in addition to that provided for Basins 2, 3, and 4. This description should include the type of liner, its material and thickness, the manufacturer, the installation methods, and the product's name. The description of the liners of Basins 2, 3, and 4 appears adequate. Show the limits of liner coverage for all four tanks. Describe how the pipes discharging from the various ponds were sealed.

D-2b(1) Liner System Foundation Description: 270.17(b)(1), 164.221(a). No information is provided. Provide detailed plans for the foundation for the liner system, including the materials of construction and the foundation design (e.g., piping diagrams, sealing of pipes, thickness of concrete, etc.).

D-2b(2) Leachate Collection/Detection System Operation and Design: 270.17(b)(1), 265.221(a). No information is provided. Describe, including drawings, the design features of the leachate collection/detection system, if it exists, and how the system functioned to detect any leakage through the liner system in a timely manner. Describe how liquid was removed from the leachate detection system.

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D-3 LANDFILLS: 270.21, 264.301 and 302

This section is not applicable to this application.

D-4 LAND TREATMENT: 270.20, 264.278

This section is not applicable to this application.

E. GROUNDWATER MONITORING

This section to be addressed by US EPA 10.

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F. CLOSURE AND POSTCLOSURE REQUIREMENTS:
264.110 through 264.120

(Comment: substantial revisions to the closure and postclosure requirements were promulgated on May 2, 1986, and became effective on October 29, 1986.)

F-1 CLOSURE PLANS: 270.14(b)(13), 264.112

F-1a Closure Performance Standard: 264.111

Revise this section to reflect changes made to the closure performance standard.

Also state how closure will minimize the need for post-closure maintenance.

F-1b Inventory Removal, Disposal, or Decontamination of Equipment: 264.112(a)(3), 264.114

Under Section 6.1b the applicant has not provided sufficient information pertaining to closure activities. Provide the following:

- o Additional information on the sequencing of waste removal and decontamination of each basin.
- o A detailed description of the steps needed to remove or decontaminate hazardous waste residues from the basins.
- o Procedures for cleaning equipment (no demonstration that steam cleaning is adequate has been provided).
- o Procedures for removing contaminated soils in and around the basins (e.g., loading and unloading areas).

- o Methods for sampling and testing surrounding soils to determine the extent of contaminated soils to be removed or left in place and subject to postclosure care. Provide a sampling plan for this element of closure.
- o Description of how (e.g., containers or treatment methods) and where wastes will be stored, treated or disposed.
- o Description of run-on and runoff controls, if any, that will be used during closure.
- o Description of how all the hazardous waste inventory for all basins was or will be removed and/or treated and disposed of. Note that since May 8, 1985, wastes that do not pass the Paint Filter Test (Method 9095 in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846) may not be placed in landfills.
- o The applicant has indicated (page 6-2) that "wastes from the remaining three basins will be completely removed." The applicant has not provided any criteria as to what this statement means or how performance will be measured.
- o The applicant has indicated (page 6-3) what it will do if "contamination is not extensive", but has inadequately described what testing and criteria will be used to certify this assertion. Based on information provided by the applicant, it appears that listed as well as characteristic wastes have been placed into the basins. It is the agency's policy that closure cleanup (i.e., clean closure) must achieve background levels for all waste constituents. Provide detailed information on how the applicant will assure clean closure. Describe how all facility equipment (e.g., tank trucks, dump trucks, backhoes, shovels, etc.) and structures (e.g., piping and the top of the basin walls as well as inside the basins, etc.) were or will be decontaminated or disposed of during the closure period.

D-1b(1) Waste Pile Closure Activities: 270.18(h), 264.258(a) and (c).

This section appears to be adequately addressed.

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F-1b(2) Surface Impoundment Closure Activities: 270.17(f), 264.228(a) and (c).

Describe how, during closure, any hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate were or will be removed or decontaminated and managed as hazardous waste. Describe the sampling and testing program used to verify decontamination of equipment and subsoils. Include the parameters and criteria used to verify decontamination of equipment and subsoils. Include the parameters and criteria used to verify decontamination of equipment and subsoils (this discussion can be included in the closure plan or referenced to the waste analysis plan).

F-1b(3) Closure of Land Treatment Facilities: 264.280(a)
This section appears to be adequately addressed.

F-1c Closure of Disposal Units: 270.14(b)(13), 270.17(f), 264.228(c)

This section was addressed. However, the following additional information is needed.

F-1c(1) (a) Elimination of Liquids: 264.228(c). This information is not provided. Describe how free liquids are to be removed or solidified at closure.

F-1c(1) (b) Waste Stabilization: 264.228(c). Although no waste preparation is expected, describe the methods used to stabilize remaining wastes, including demolition of the basins, to support the final cover, including:

- o Stabilization methods, equipment, and materials
- o Required bearing strength of stabilized waste
- o Demonstration of stabilized waste bearing strength
- o Methods for bearing strength determination during closure

F-1c(2) Cover Design: 264.228(c), 264.228(a)(2)(E)

In addition to the information provided on the cover materials, the cover design and installation procedures should be thoroughly described. This submission should include:

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- o Drawings showing cover layers, thicknesses, slopes, and overall dimensions
- o Additional descriptions of synthetic liners to be used, thickness, and manufacturer's specifications
- o Descriptions of and specifications for protective materials placed above and below synthetic liners
- o Soil cap construction plans including lift sequencing
- o Description of the native soils in the area of the ponds.

The proposed cover crop and soil cap characteristics appear to be adequately addressed.

F-1c(3) Minimization of Liquid Migration: 264.310(b)(1), 264.310(c)

This section appears to be adequately addressed.

F-1c(4) Maintenance Needs: 264.228(b)(1)

In addition to the information given, discuss repairing the cap as necessary to correct the effects of settling, subsidence, erosion, or other events.

F-1c(5) Drainage and Erosion: 264.228(c), 264.228(a)(2)(iii), 264.228(b)(3)

Provide the following information:

- o Calculations showing that the final slopes will not cause significant cover erosion during construction and throughout the post-closure period.
- o Descriptions of drainage layer materials and their permeabilities here in addition to the previous section.
- o Engineering calculations demonstrating free drainage of precipitation off of and out of the cover.
- o Estimation of the potential for drainage-layer clogging.

- o Although no artificial drainage will be incorporated in the final cover system, provide descriptions, drawings, and calculations of the run-on and runoff control and diversion systems, including swales, and ditches.

F-1c(6) Settlement, Subsidence, and Displacement: 264.228(c), 264.228(b)(1)

A more specific description of potential cover settlement, subsidence, and displacement is needed. Consider immediate settlement, primary consolidation, secondary consolidation, and liquefaction. Include the following information:

- o Potential foundation compression
- o Potential soil liner settlement
- o Potential waste consolidation and compression resulting from waste dewatering, biological oxidation, and chemical conversion of solids to liquids

Describe the effects of potential subsidence/settlement on the ability of the final cover to minimize infiltration. Provide an analysis of the stability of slopes and dikes.

F-1c(7) Freeze/Thaw Effects: 264.228(c), 264.228(b)(1)

No information on freeze/thaw effects was provided. Provide data on the depth of frost penetration and describe the effects of freeze/thaw cycles on the cover.

F-1d Schedule for Closure: 264.112(b)(6)

The schedule for closure provided by the applicant (Section 6.1g) is inadequate. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included.) The schedule must also include a schedule and justification of the frequency of independent engineer inspections to adequately certify closure.

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F-1e Extensions for Closure Time: 264.113(a) and (b)

This section appears to be adequately addressed.

F-1f Certification of Closure: 264.115

Certification of closure must be submitted by registered mail to the USEPA Regional Administrator and/or WDOE Director within 60 days of final closure, not 90 days as indicated in the application.

F-2 POSTCLOSURE PLAN: 270.14(b)(13), 270.17(f), 270.18(h), 270.21(e), 264.117, 264.118, 264.228(b), 264.228(c)(1)(ii)

The postclosure plan requires additional and different information than the compliance groundwater monitoring plan. Include the following information, where applicable:

F-2a Postclosure Contact: 264.118(a)(3)

Provide the name, address, and phone number of the person(s) or office to contact about the facility during the postclosure period.

F-2b Post-Closure Security: 264.117(b)(1) and (2)

Demonstrate that there will be adequate security at the closed site during the postclosure period if either:

- o Wastes are to remain exposed after completion of closure.
- o Access to the closed site by the public or domestic livestock may pose a hazard to human health.

F-2c System Design Description: 264.118(a)

F-2c(1) Leachate Collection/Detection System: 264.118(a)

Provide a design description, including drawings, of the leachate collection/detection system (if different from that provided in Section D). If the system includes container or tank storage of the collected leachate, and storage onsite extends for greater than 90 days, a permit must be obtained in order to operate these container(s) or tank(s) as hazardous waste storage units. In addition, if the system includes surface impoundment storage, an operating permit also must be obtained.

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F-2c(2)

Gas Venting System: 264.118(a)

Provide a design description, including drawings, of the gas venting system (if applicable). If a gas venting system is not applicable, state why.

F-2d

Inspection Plan: 264.118(a), 264.228(b), 264.228(c)(1)(ii)

An inspection plan was provided; however, additional information is needed. Describe the inspection procedure and the logs to be kept of the inspections to be conducted during the postclosure care period. The following items, as applicable, in addition to those mentioned in the application, should be included in the inspection plan:

- o Integrity of run-on and runoff control measures
- o Cover drainage system functioning
- o Leachate collection/detection and removal system
- o Gas venting system
- o Well condition

The rationale for determining the length of time between inspections should be provided (note that certain regulatory requirements must be met).

F-2e

Monitoring Plan: 264.228(b), 264.228(c)(1)(ii)

Describe the monitoring to be conducted during the postclosure care period, including, as applicable, the procedures for conducting the following operations and evaluating the data gathered:

- o Groundwater monitoring (this may be the compliance monitoring plan; however, it should be included here as well).
- o Leachate collection/detection and removal.

F-2f

Maintenance Plan: 264.228(b), 264.228(c)(1)(ii)

A maintenance plan was provided; however, additional information is needed. Describe the preventative and corrective maintenance procedures, equipment requirements, and material needs. Include the additional following items in the maintenance plan, as applicable:

- o Repair of run-on and runoff control structures
- o Leachate collection/detection system maintenance
- o Well replacement

Describe the rationale to be used to determine the need for corrective maintenance activities for the additional items in a way similar to that used in the application.

F-2g Special Waste Management Plan: 270.1(i), 170.21(j), 270.20(i)

This section does not appear to be needed.

F-2h Land Treatment: 264.117(a), 264.280(c)

This section is not required.

F-2i Personnel Training: 270.14(b)(12)

A personnel training plan was not provided. Describe how the owner/operator will assure that personnel responsible for operation, inspection, monitoring, and maintenance programs are qualified to perform those functions throughout the postclosure period.

F-3 NOTICE TO LOCAL LAND AUTHORITY: 264.116, 264.119

This was addressed under the "Notice in Deed" section.

The submittal must be made within 60 days (or no later than the submission of the certification of closure for the survey plat), not 90 days as stated in the application, to the local land authority and to the USEPA Regional Administrator and/or the WDOE Director. The plat must contain the note described in the submittal.

F-4 NOTICE IN DEED: 270.14(b)(14), 264.120

See comments on F-3.

F-5 CLOSURE COST ESTIMATE: 270.14(6)(15), 264.142

The U.S. Department of Energy (DOE) is exempt from this requirement.

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F-6 FINANCIAL ASSURANCE MECHANISM FOR CLOSURE:
270.14(b)(15), 264.143

The U.S. DOE is exempt from this requirement.

F-7 POSTCLOSURE COST ESTIMATE: 270.14(b)(16), 264.144

The U.S. DOE is exempt from this requirement.

F-8 POSTCLOSURE TRUST FUND: 264.145(a), 264.151(a)(1)

The U.S. DOE is exempt from this requirement.

F-9 LIABILITY REQUIREMENTS: 270.15(b)(17), 265.147

The U.S. DOE is exempt from these requirements.

G. CORRECTIVE ACTION FOR SOLID WASTE
MANAGEMENT UNITS

This information will be provided by USEPA 10.

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H. OTHER FEDERAL LAWS:
270.14(b)(20), 270.3

final status

No information on compliance with other federal laws was provided. Demonstrate compliance with the requirements of applicable federal laws such as the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, Fish and Wildlife Coordination Act, and appropriate executive orders.

I.* PART B CERTIFICATION:
270.11

final status

No certification was provided. Applications must be accompanied by a certification letter as specified in 270.11(d). The required signature for a federal agency is either a principal executive officer or ranking elected official.

J.* EXPOSURE INFORMATION:
270.10(j)

final status

No exposure information was provided. Provide information on the potential for the public to be exposed to hazardous wastes or hazardous constituents through

releases related to the surface impoundment. At a minimum, such information must address:

- o Reasonably foreseeable potential releases from both normal operations and accidents at the unit including releases associated with transportation to and from the unit.
- o The potential pathways of human exposure to hazardous wastes or constituents resulting from the above-described potential releases.
- o The potential magnitude and nature of the human exposure resulting from such releases.

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