

# STAR



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STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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December 9, 1992

Mr. Randy N. Krekel  
Office Of Environmental Assurance, Permits and Policy  
U.S. Department of Energy  
P.O. Box 550  
Richland, WA 99352-0550

Dear Mr. Krekel:

Re: Notice of Deficiency (NOD) for the 4843 Alkali Metal Storage  
Facility Closure Plan

This letter transmits Ecology's NOD for the 4843 Alkali Metal Storage Facility Closure Plan, DOE/RL-90-49, Revision 0. The Plan was reviewed for compliance with the Dangerous Waste Regulations (WAC 173-303) and the Nuclear and Mixed Waste Management Program interim policy titled Soil Cleanup/Remediation for Hanford. The NOD comments are intended to be a guide to the major defects of the closure plan.

If you have any questions regarding this notice, please contact me at (509) 545-2293.

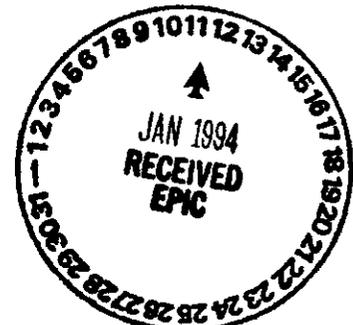
Sincerely,

A handwritten signature in cursive script that reads "Jeanne Wallace".

Jeanne Wallace  
Nuclear and Mixed Waste Management Program

JJW:mf  
Enclosure

cc: Steve Wisness, DOE  
Fred Ruck, WHC  
Dan Duncan, EPA  
Dave Jansen, Ecology  
G. Thomas Tebb, Ecology  
Melodie Selby, Ecology  
Administrative Record, M 20-14  
Project File, 4843 AMSF



4843 ALKALI METAL STORAGE FACILITY CLOSURE PLAN  
 REVISION 0  
 NOTICE OF DEFICIENCY  
 December 3, 1992

No.	Page/Line	Comments
		<b>General</b>
1.		<p>The level of detail in this closure plan is inadequate. The closure plan must contain enough detail to allow the evaluation of whether:</p> <ol style="list-style-type: none"> <li>1. the activities described in the plan satisfy the regulations, or</li> <li>2. the conditions assumed in the plan adequately reflect the true conditions of the facility.</li> </ol>
2.		<p>According to section 4.0, Waste Characteristics, most of the waste is mixed (containing both hazardous and radioactive components). But the plan makes few references to safety protocol or cleanup procedures for the mixed waste. Control of health and safety hazards associated with the radioactive component of the waste are inadequately addressed. It is not acceptable to omit the management of the radioactive constituents from the closure plan.</p> <p>Revise text accordingly to incorporate measures that deal with the radioactive component of the mixed waste.</p>
3.		<p>All facilities are likely to have some soil contamination as a result of routine drips and spills which must be removed. The closure plan must describe the procedures and criteria to be used for evaluating the extent of soil contamination, and demonstrate that the level of decontamination will satisfy the closure performance standard.</p> <p>The following information should be included in the closure plan:</p> <ol style="list-style-type: none"> <li>1. the location for background soil measurements, etc., and</li> </ol>

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## Comments

2. the sampling and analysis methods to be used to evaluate the extent of contamination.

The closure plan must describe how contaminated soils will be managed at closure. The plan should include the following:

1. an estimate of the volume of contaminated soil, and
2. a description of potential treatment or disposal techniques.

4. The plan does not adequately address potential contamination from the oil the waste was stored in. Petroleum wastes are regulated under WAC 173-303, and therefore needs to be accounted for in the closure plan. All potentially regulated dangerous waste contaminants must be considered in closure. All probable dangerous waste contamination must be targeted for sampling and analysis. Incorporate sampling, analysis, and potential decontamination for petroleum wastes into the closure plan. Address potential Polychlorinated Biphenol (PCB) contamination of the oil.

## Specific

5. 2-2/15-16

The closure plan describes the boundary as the area 10 feet from the exterior wall of the facility. It is not stated if the loading pads are within the specified boundary, or how the boundary determination was reached.

The closure plan must account for the maximum extent of operation of the facility. Describe how the boundary determination was made, and if the boundary would include the loading pads. Discuss the temporary storage of waste outside the building and any evidence that this storage area was within the defined boundary. Identify all areas requiring decontamination, and describe in detail all the steps necessary to decontaminate equipment, structures, and soils during partial or final closure. Provide a list of potentially contaminated areas and equipment.

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6.	2-2/38	<p>Exhaust fans may have allowed contaminants to be dispersed to the external environment. This, along with the storage of waste outside the unit and the potential of residual spills of waste during loading and unloading, justifies soil sampling.</p> <p>Incorporate soil sampling into the plan as appropriate.</p>
7.	3-1	<p>It is not clear if the spent piping and equipment containing waste was internally purged with inert gas before being sealed.</p> <p>Elaborate on the management of the spent equipment. Specify if the equipment was purged before being sealed, if the equipment was containerized after being sealed, and if not containerized, was secondary containment utilized.</p>
8.	3-1/7	<p>Incorporate the QA/QC procedures for sealing spent equipment and drums. See previous comment.</p>
9.	3-2/10-16	<p>Section 3.2 discusses container management practices. Four parameters are said to be evaluated. The standard of evaluation is not provided.</p> <p>Elaborate on the standards used (i.e. references used).</p>
10.	3-2/36-40	<p>Non-waste Na/K mixture is stored in this unit, yet the facility is described as having only two storage areas - one for hazardous waste and the other for mixed waste.</p> <p>Discuss the dual function of the unit and any impact this may have on the closure. Discuss QA/QC procedures used to segregate mixed waste from hazardous waste, and waste material from product material.</p>
11.	4-1/10	<p>This sentence refers to Appendix C. See comments on Appendix C.</p>

- | No. | Page/Line | Comments  |
|-----|-----------|---|
| 12. | 4-1/28    | <p>Segregation of waste is based on the radioactivity of the waste.</p> <p>Provide a detailed discussion of procedures taken to assure and maintain segregation of mixed and dangerous waste.</p>   |
| 13. | 4-2/1     | <p>The text states that records of laboratory analysis of waste samples are maintained at the 340 Facility and Tanker.</p> <p>Was analysis conducted on spilled material to determine the composition of compounds formed? If so, provide analytical records. If not, provide a detailed discussion of how the conclusion was reached. If it cannot be substantiated that carbonates are the only product of this reaction, sampling for both hydroxides and carbonates will be required.</p>   |
| 14. | 4-2/23    | <p>There is question about the actual composition of spilled waste, once reacted with its ambient environment. The text states "Carbonates are the only products considered to be produced from the reaction of the metal wastes with air." Support for this conclusion is not provided. This determination is contradicted by spill reports and later sections of the closure plan. One of the spill reports submitted with the closure plan states that Sodium Hydroxide (NaOH) was formed when the waste reacted with moisture in the atmosphere. Also, during a walk-through of the unit, it was again stated that NaOH was formed when wastes were spilled.</p> <p>Discuss the chemical/physical properties that govern the outcome of the reaction. Justify not considering other potential products. Provide supporting facts, references and/or analytical records. See previous comment.</p> |
| 15. | 6-1/18    | <p>Ambiguous terms such as, "potentially dangerous" and "action levels" are not appropriately defined for the function of this document. The removal or decontamination of waste residues, equipment, soils, or other materials contaminated with dangerous waste or dangerous waste residue must not exceed background environmental levels for listed or characteristic wastes or designation limits for state only waste (WAC 173-303-610(2)(b)).</p>  |

No.	Page/Line	Comments
		Modify text to include background as the clean closure performance standard. Replace ambiguous terms, or define them in reference to the regulation cited above. Citations of health-based standards must be changed to background. Correlate the term "action level" with the clean closure requirements.
16.	6-1/22	The text states that no post closure activities are expected. No discussion is provided to support this decision.  Elaborate on why post closure will not be necessary, and explain standards used in the determination.
17.	6-1/26-30	Again, explain why carbonates are considered the only possible reaction products.  See comment number 14.
18.	6-1/34	The sentence reads, "[t]he action level of the metal surfaces (walls) is the limit of quantitation of the wipe sample method".  First, provide reference or detailed description of sample method used. Second, define the "quantitation limit" and state what it is for specific analytes. Action levels must be adequately defined.
19.	6-1/35-36	The closure plan does not describe methods employed for removing contaminants from the unit.  Provide a detailed description of procedures utilized to remove contaminants. Be explicit.
20.	6-1/37	This sentence refers to Appendix D.  See comment number 14.

No.	Page/Line	Comments
21.	6-1/40-46	<p>Because wastes were externally stored, sampling and analysis outside the unit will be required.</p> <p>Modify text accordingly.</p>
22.	6-2/7-10	<p>The detail of this section is insufficient.</p> <p>Explain how and where the waste will be removed. Describe or reference sampling, analysis, and decontamination procedures.</p>
23.	6-1/13	<p>Decontamination of building equipment below action levels is specified as the second step in the closure activities.</p> <p>The first comment associated with these activities evolved out of a tour of the unit on October 5, 1992. During the tour, loading/unloading practices were discussed. It was stated that a forklift was used to move pallets of waste drums, however, the lift was not present during the tour. Provide a list of equipment utilized in the operation or closure of the unit in the closure plan, and a detailed discussion of decontamination or disposal of equipment associated with the unit.</p> <p>Again, "action levels" are not adequately defined and therefore are not appropriate for the closure plan. See comment regarding 6-1/18.</p>
24.	6-2/11	<p>Action levels are not adequately defined. See comment number 14.</p>
25.	6-2/33-35	<p>Action levels are not adequately defined. Compliance with regulatory requirements is not discussed, nor is the wipe sample method appropriately defined, referenced or adequately explained.</p> <p>See comment regarding 14.</p>

No.	Page/Line	Comments
26.	6-2/35-39	<p>The intent of this sentence is unclear. Is it that the concrete floor is being considered a component of the mixture for designation purposes?</p> <p>The floor cannot be considered a component of the waste unless it is intended to remove the entire floor and dispose of it as dangerous waste. It appears the floor is not intended to be waste, therefore it can not be considered when designating the concentration of the waste.</p> <p>See WAC 173-303 for designation procedures. The mixture rule does not apply to the concrete floor. Refer to WAC 173-303-610 for decontamination guidance.</p> <p>Any sodium hydroxide or carbonate embedded in the floor needs to be sampled and compared with the background concentration in the clean concrete it is adhered to.</p>
27.	7-3	<p>Section 7.3.3 describes procedures for taking concrete samples of the floor, but does not address the rubber seams in the floor. Seams and joints in an old facility provide a pathway to the environment. They should be treated in a similar manner for sampling. No discussion of other potentially contaminated items is provided.</p> <p>The plan must identify the equipment or structures that will require decontaminating at closure, including floors and walls of the building, unit parking lots, roads, truck staging areas, structures associated with the unit, and trucks and heavy equipment, such as forklifts. Provide additional sampling, similar to that being done for cracks, or provide detailed justification for the proposed sampling method.</p>
28.	7-3/9	<p>Because not all of the waste was mixed waste, using radiation surveys to determine locations to collect samples is not sufficient verification, nor is limiting sampling to rusted or stained areas.</p> <p>Samples will need to be collected and analyzed that will depict the condition of the entire facility.</p>

No.	Page/Line	Comments
29.	7-3/46	<p>The text states that the unit is divided by a rope into two storage areas, but section 3.0 indicates that Na/K product was stored in the facility.</p> <p>Discuss the dual function of the unit. See comment number 10.</p>
30.	7-4/1	<p>See comment number 14.</p>
31.	7-4/9	<p>Many distinct procedures are compiled into SW-846. Specific procedures used should be referenced by number, and any alteration of procedures require prior regulatory approval.</p> <p>Specifically describe "the protocol" used. It is suggested that a grid pattern of the unit, inside and out, be implemented for sampling utilizing both stratified random and biased sampling methods.</p>
32.	7-4/14-31	<p>See comment number 26.</p>
33.	7-4/50	<p>Laboratory procedures are cited in this sentence.</p> <p>Specify that the current version of referenced material will be used.</p>
34.	7-5/40-48	<p>This section is ambiguous.</p> <p>Elaborate on the actual procedures or simply reference the procedures and submit a copy of the QA/QC manual with the closure plan for review and approval.</p>
35.	7-6/7	<p>It is unclear if an EII is being referenced.</p> <p>Clarify whether the exact EII method will be used (i.e. incorporate method by reference) or whether the method is only similar to an EII, in this case.</p>
36.	7-6/27-31	<p>It is not clear who is responsible for reviewing and evaluating the reports.</p> <p>Specify to whom the reports will be submitted.</p>

No.	Page/Line	Comments
37.	7-7/33-34	<p>It is premature to assume that sampling will be limited to the media specified. Because waste has been stored outside the unit, soil sampling will be required.</p> <p>Provide procedures for soil sampling and analysis.</p>
38.	7-7/33	<p>Soil sampling will need to be integrated into the sampling and analysis. See comments number 3 and 5.</p>
39.	7-9/3-24	<p>The contents of section 7.4 are inadequate. The decommissioning work plan must be submitted to allow the procedure to be evaluated as part of the closure.</p>
40.	7-9/29	<p>Insufficient information is provided to determine if the schedule for closure is reasonable. This is also inconsistent with the regulatory time frame allowed by the Dangerous Waste Regulations.</p> <p>A schedule for closure must include, at a minimum, the total time required to close each dangerous waste management unit and the time required for intervening closure activities which will allow tracking of the progress (WAC 173-303-610(3)(a)(vii). A discussion of the time line provided on F7-3 will help.</p>
41.	F7-1	<p>Incorporate soil sampling and analysis into the flow diagram.</p>
42.	F7-2	<p>The sampling locations presented here are inadequate. The locations do not appear capable of providing unbiased results representing the entire floor.</p> <p>The sampling locations of the floor need to be more appropriately distributed. Provide figures indicating the locations for wall and soil samples. See comment number 31.</p>
43.	F7-3	<p>Incorporate soil sampling.</p>
44.	8-1/52	<p>Specify the agencies that will file the survey plat.</p>

No.	Page/Line	Comments
45.	Append C	Appendix C indicates the presence of oil in some of the waste stored at the unit. Therefore, incorporate sampling and analysis for petroleum waste into the closure plan. Address potential PCB contamination.
46.	Append D	One of the spill reports states that NaOH formed when a container leaked allowing the waste to react with water. This contradicts earlier statements in the closure plan that only metal carbonates were formed from such an incident.  Correct inconsistency.
47.	Append D	The waste receiving procedures are not adequately defined.  Give a detailed discussion on the procedures used for acceptance of waste at the unit. This must include any documentation available on verification of types of waste received at the unit. In other words, can it be verified that the waste identified in Appendix C table are the only wastes sent to the unit? Section 3.0 would be an appropriate location to include this discussion.
48.	7-9/22	The text states that if portions of the building do not meet the action levels presented in this closure plan, these portions will be removed and disposed of.  This is not adequate. All remediation activities associated with the building, in regard to dangerous wastes, must be accomplished via the closure plan. This includes the potential demolition of the site.