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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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February 28, 1994

Mr. Steven H. Wisness
U.S. Department of Energy
P.O. Box 550 MSIN: A5-15
Richland, WA 99352-0550

Dear Mr. Wisness:

Re: Transmittal of 4843 Alkali Metal Storage Facility (AMSF) Closure Plan,
Revision 0, Notice of Deficiencies Response Table (S-4-1, M-20-14)

This letter transmits the Washington State Department of Ecology's (Ecology) response table in response to the U.S. Department of Energy's Notice of Deficiency Response Table dated October 14, 1993, submitted on November 4, 1993. If you or your staff have any questions regarding this transmittal, please call me at (509) 736-3034.

Sincerely,

Alisa D. Huckaby
Nuclear and Mixed Waste Management Program

AH:mf

- cc: Cliff Clark, USDOE
- Randy Krekel, USDOE
- Fred Ruck, WHC
- Jason Adler, WHC
- Dan Duncan, EPA
- Doug Sherwood, EPA
- Administrative Record



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**4843 ALKALI METAL STORAGE FACILITY CLOSURE PLAN REVISION 0
NOTICE OF DEFICIENCY RESPONSE TO RESPONSE TABLE
FEBRUARY 28, 1994**

**RESPONSE
NUMBER**

COMMENT

1. **General Comment.** Should the deficiencies be addressed sufficiently, this comment is considered closed.
2. **General Comment. Concur.** Should the deficiencies be addressed sufficiently as agreed upon in the response and in the November 10, 1993, and December 14, 1993, Unit Manager meetings, this comment is considered closed.
3. **General Comment. Concur.** Comment is closed. The reviewer requests that the additional information provided in RL/WHC's Response #2 be included in the revised closure plan.
4. **General Comment.** The oil may not be regulated in its pure form (as an unused commercial chemical product), but once added to the dangerous waste, it is considered dangerous waste (WAC 173-303-070(2)(a)). Therefore, during clean closure decontamination verification, for purposes of biased sample location selection, the reviewer considers the oil to be part of the waste. The reviewer proposes that the utilization of oil constituents for decontamination verification purposes be deferred to the data quality objectives process (DQO) during which it is hoped that an agreement may be reached on closure objectives. In addition, the reviewer requests that the descriptive information regarding the oil as it is related to the waste and the management of the waste provided in RL/WHC's Response #1 be included in the revised closure plan.
5. **2-2/15-16 (Section 2.2).** Concur with the ten foot boundary from exterior walls of facility, upon review of all available aerial photographs and/or interviews with past waste management personnel. Upon review and/or interviews, this comment is considered closed.
6. **2-2/38 (Section 2.2).** Concur with the rationale that waste was probably not dispersed from exhaust fan, therefore, this portion of the comment is considered closed. The remaining portion of this comment has been consolidated with comment number 3.
7. **3-1 (Section 3.1).** The additional information provided by responses to comments number 3, 10, 12, 23, 51, 53, 73, and 81 satisfies the request of information on past operations. This comment is considered closed.

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8. 3-1/7 (Section 3.0). The first portion of the comment was closed by Ecology NOD Response Table 7-20-93 concurrence.

In response to the second portion of the comment, this portion has been closed and consolidated with comment number 7.

9. 3-2/10-16 (Section 3.2). Concur with descriptions of container inspection procedures and numerical definition of releasable containers to be included within the text of the closure plan. This portion of the comment is considered closed.

Regarding the last paragraph of the comment, the additional information provided by responses to comments number 3, 10, 12, 23, 51, 53, 73, and 81 satisfies the request of information on past operations. This portion of the comment is considered closed.

10. 3-2/36-40 (Section 3.3). Concur with the inclusion of the additional description and explanation in the text of the closure plan. This comment is considered closed.

11. 4-1/10 (Section 4.1). This comment has been closed and consolidated with comment number 4.

12. 4-1/28 (Section 4.2). Regarding RL/WHC Response #1, concur with the addition of the information provided in the response to the closure plan.

Regarding RL/WHC Response #2, concur with the additional explanation of the Health Physics Technician (HPT) coverage for radiological surveys during any movement of material into or out of the 4843 AMSF unit. The reviewer requests that the additional information provided by RL/WHC Response #2 also be included in the closure plan.

Regarding the second portion of RL/WHC's Response #1, the additional information provided by responses to comments number 3, 10, 12, 23, 51, 53, 73, and 81 satisfies the request of information on past operations. This portion of the comment is considered closed.

13. 4-2/1 (Section 4.2). This comment has been closed and consolidated with comment number 52.

14. 4-2/23 (Section 4.2). This comment has been closed and consolidated with comment number 52.

15. 6-1/18 (Section 6.1). Concur with first paragraph of the response.

The second paragraph of the February 23, 1993, response states that the definition of "action level" for this closure plan is provided on page 6-1, lines 7-8 (Section 6.1). The referenced statement reads, "these standards will be achieved by removing dangerous waste from the 4843 AMSF and decontaminating to levels protective of human health and the environment . . ." This statement is

consistent with the closure performance standards of WAC-173-303-040. However, neither WAC 173-303-040, nor proposed WAC 173-303-610(2) (to incorporate provisions of WAC 173-340-200) provide a definition for "action level."

On page 6-2, line 33 (Section 6.2), "action level" is defined as a concentration that prompts "an action." This statement could be interpreted as being consistent with the closure performance standard statement on page 6-1, lines 7-9 (Section 6.1). Although on page 6-2, lines 34-35 (Section 6.2), the action level for the metal surfaces is defined as "the limit of quantification of the wipe sample method." Without identifying which particular analytes or analytical methods are to be utilized, the limit of quantification cannot be established. Similarly, on page 6-2, lines 35-44 (Section 6.2), the action level for the concrete floor is proposed to be based on WAC 173-303-084, "Dangerous Waste Mixtures." Again, without including all applicable parameters and not identifying the corresponding analytical methods, appropriate "action levels" cannot be established. To avoid any further confusion on this subject, delete all "action level" references and phrases. It is recommended that after the waste characteristics of Chapter 4.0 are properly identified, the sampling and verification parameters and the analytical methods be re-evaluated and revised as appropriate. In addition, for simplicity, it is requested that a table be inserted into the plan which identifies parameters/analytes, detection levels, practical quantification levels, and corresponding analytical methods that the various medias will be sampled for. Another table to address analyte specific "cleanup levels" (as defined by WAC 173-340-200) for the various media should be considered for inclusion, if applicable.

Although the term "action level" is now proposed (by NOD Response Table dated October 14, 1993) to be defined as "the concentration of contaminate that requires cleanup activity when that concentration is greater than some predetermined level," the term is not defined by WAC 173-303. Furthermore, it is the reviewer's understanding that the term "action levels" only occurs once within the rule (WAC 173-340-400(4)(c)(xi)) with regard to cleanup actions. It is also the reviewer's understanding that for purposes of conducting a RCRA closure through WAC 173-303-610, MTCA "cleanup standards" (of Part VII of the MTCA Rule) are to be utilized rather than the MTCA "cleanup process." As the closure plan addresses a RCRA unit, and to avoid further confusion on this subject, delete the "action level" phrase and definition. It should be noted that a definition for "cleanup level" is provided by WAC 173-340-200 which may be utilized by reference of proposed WAC 173-303-610 (promulgated in January 1994 to amend WAC 173-303-610 to include WAC 173-340-200).

16. 6-1/22 (Section 6.1). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.
17. 6-1/26-30 (Section 6.1). The first portion of the comment was closed by Ecology NOD Response Table 7-20-93 concurrence.
In response to the second portion of the comment, this portion has been closed and consolidated with comment number 52.
18. 6-1/34 (Section 6.1). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.

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19. 6-1/35-36 (Section 6.1). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.

20. 6-1/37 (Section 6.1). The first portion of the comment was closed by Ecology NOD Response Table 7-20-93 concurrence.

In response to the second portion of the comment, this portion has been closed and consolidated with comment number 52.

21. 6-1/40-46 (Section 6.1). This comment has been closed and consolidated with comment number 3.

22. 6-2/7-10 (Section 6.2). Concur with including the requested information in Section 7 and in the Decommissioning Work Plan. It should be noted that it is the reviewer's understanding that the Decommissioning Work Plan provides detailed descriptions of procedures while Section 7 of the closure plan includes closure criteria from which the Decommissioning Work Plan is based upon and subsequently written. It is also the reviewer's understanding that the Decommissioning Work Plan will be added either to the 4843 AMSF administrative record or to the closure plan as an appendix.

23. 6-1/13 (Section 6.1). The first portion of the comment was closed by Ecology NOD Response Table 7-20-93 concurrence.

Addressing the second portion of the comment, this portion has been closed and consolidated with comment number 15.

24. 6-2/11 (Section 6.2). This comment has been closed and consolidated with comment number 15.

25. 6-2/33-35 (Section 6.2). The portion of this comment pertaining referencing the wipe sample method was closed by Ecology NOD Response Table 7-20-93 concurrence.

Addressing the action level portion of the comment, this portion has been closed and consolidated with comment number 15.

26. 6-2/35-39 (Section 6.2). The first paragraph of the response was closed by Ecology NOD Response Table 7-20-93 concurrence.

Addressing the second paragraph of the response, the discussion of concrete composition variability as presented in the attachment to the February 23, 1993, response table is accepted as valid. The proposal to utilize the Toxic Characteristic Leachate Procedure (TCLP) solely as a measure of decontamination verification is inappropriate. The purpose of the TCLP as it occurs in WAC 173-303-090 is to determine if the waste is dangerous waste by the characteristic of toxicity after it has been determined, not to be designated as a dangerous waste under any of the dangerous waste lists identified by WAC 173-303-090(8)(b). It should be noted that contaminants can be detected several magnitudes above background and may not leach using the TCLP. For this reason, these concentrations, if left in the environment, may be deleterious to the environment or human health. Therefore, the proposal to utilize TCLP for decontamination verification in the second paragraph of the response table cannot be approved.

Addressing clean closure verification in regard to the concrete, several sampling approaches should be considered. The establishment of background for the concrete taking the variables as identified in the discussion of concrete composition variability, as presented in the attachment to the February 23, 1993, response table, into consideration is the approach as specified by WAC 173-303-610. If this approach is deemed not to be feasible, a combination of analytical methods whereby total metals analysis (using the hot acid leach method), TCLP analysis, and rat and fish bioassays are conducted and evaluated, should be considered. Another approach to be considered is that of utilizing cleanup levels established by proposed WAC 173-303-610 (promulgated in January 1994 to amend WAC 173-303-610 to include WAC 173-340-200) whereby those cleanup levels specified in proposed WAC 173-340-740 for soils may be applied to concrete. Revision 1 of the closure plan should identify exactly which standards are to be utilized.

In response to the proposal (NOD Response Table dated October 14, 1993), to utilize a step-wise Hot Acid Leach - Total Metals Analysis/Toxic Characteristic Leaching Procedure/Rat and Fish Bioassay Methodology for the analysis of inorganics in concrete, the reviewer has attempted to better understand the referenced methodology. In so doing, the reviewer reviewed the Unit Manager meeting minutes of the February 10, 1993, meeting regarding 303-K Radioactive Mixed Waste Storage Facility and the applicable portions of "303-K Storage Facility Closure Plan," (DOE/RL-90-04 Revision 2). As the October 14, 1993, response does not include sufficient detail to identify procedural steps and criteria by which to make a decontamination determination, the following questions/concerns were generated.

From the February 10, 1993 Unit Manager meeting minutes for the 303-K Radioactive Mixed Waste Storage Facility, it is indicated that the total metal analysis using hot acid leach will be the initial step. It is also stated that "[I]f any species exceed 20 times the TCLP detection limit, then TCLP is required." The reviewer does not understand the purpose of utilizing the TCLP detection limit rather than the TCLP regulatory limit. It is the reviewer's understanding that during the initial steps of the TCLP procedure, the solid phase of the sample material is extracted at a 20 to 1 ratio, therefore, as a screening approach (for designation purposes), if the total metals analysis does not yield values which exceed 20 times the TCLP regulatory limits, the material is unlikely to "fail" the TCLP test. Please clarify what criteria/values the total metals would be compared to (detection limits or regulatory limits). It should be noted that the constituents of concern (alkali metals, alkali carbonates, or alkali hydroxides) do not have TCLP regulatory limits. In addition, in the same meeting minutes, it is stated that "this procedure is used statewide for designation of concrete." It should be noted that the goal during closure is to confirm decontamination and that "designation of concrete" does not achieve the desired confirmation. Therefore, it is requested that an explanation of the utilization of the TCLP procedure, if applicable, be provided. In addition, if the TCLP procedure is to be utilized, an identification of which portions of the TCLP method will be utilized/followed.

As requested in Ecology's July 20, 1993 response table, several approaches should be considered when addressing clean closure verification in regard to the concrete. For purposes of resolving this deficiency, an identification of procedures is requested. It should be noted that Ecology's draft "Guidance for Clean Closure of Dangerous Waste Facilities" (April 1993), states "[T]he cleanup levels specified in WAC 173-340-740 for soils may be applied to concrete; however, the facility proponent may prefer to conduct

individual risk assessments on concrete structures that will be left in place after closure." It is proposed that the identification of procedures be deferred to the DQO process during which it is hoped that an agreement may be reached on sampling logic and objectives. Should the deficiency be resolved during the DQO process, this comment is considered closed by deferral.

- 27. 7-3 (Section 7.3.3). Regarding RL/WHC's Response #1, the response does not concur with the existence of a pathway to the environment via jointing cracks. Therefore, the response does not address Ecology's comment #1. The reviewer proposes to defer this issue to the DQO during which it is hoped that an agreement may be reached on sampling logic and objectives. Should the deficiency be resolved during the DQO process, this portion of the comment is considered closed by deferral.

Regarding RL/WHC Response #2, concur with the inclusion within the closure plan of discussion on any cracks in the joints.

- 28. 7-3/9 (Section 7.3.2). It is appropriate to use bias sampling (visual inspection and radiation survey) to locate suspect contamination within a unit. But it is not adequate to limit sampling to these areas for clean closure verification. Even though contamination of the walls is unlikely, it is not impossible. Therefore, random sampling of the walls will be required. Also, during a July 9, 1993, site visit, the insulation covered wall located above the sheet metal was noted to be torn/ruptured in many places. As drums were stacked three drums high, it is appropriate to verify clean closure of the walls above the sheet metal. The closure plan addresses only the sheet metal and should also include a description of how decontamination verification samples above the sheet metal will be collected.

Regarding RL/WHC's Response #2, the reviewer proposes that the decontamination verification of the insulation covered wall located above the sheet metal be deferred to the DQO process during which it is hoped that an agreement may be reached on sampling logic objectives. Should the deficiency be resolved during the DQO process, this comment is considered closed by deferral.

- 29. 7-3/46 (Section 7.3.3). This comment has been closed and consolidated with comment number 10.
- 30. 7-4/1 (Section 7.3.3). This comment has been closed and consolidated with comment number 52.
- 31. 7-4/9 (Section 7.3.3). Concur with the addition of a reference to appendix G to identify SW-846 protocols being used.

Specify why the number of samples (seven) proposed for the floor sampling is considered adequate. Has the number been based on a statistical goal to achieve a particular confidence interval?

Regarding RL/WHC's Response #2, the particular reference for the U.S. Environmental Protection Agency (EPA) guidelines is requested to be identified. In addition, an identification of the statistical confidence level to be achieved by the proposed number of samples is requested.

32. 7-4/14-31 (Section 7.3.3). Concur with deletion of lines 11 to 31 on page 7-4.

The reviewer requests that the concurrence with the proposed rewrite of this section be deferred to the DQO process, due to the concerns as identified in comment number 26. Prior to beginning the DQO process, it should be noted that the reviewer concurs with the proposed authoritative concrete sampling, an evaluation of applicable inorganic contaminants, and concrete chipping.

Please see comment number 15 regarding the usage of the term "action levels."

33. 7-4/50 (Section 7.3.4). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.
34. 7-5/40-48 (Section 7.3.6.2). Concur. As the text identifies that the QA/QC "program will meet the criteria of SW-846," and the mechanism exists to verify this through the Hanford Federal Facility Agreement and Consent Order (Article XXX), this comment is considered closed.
35. 7-6/7 (Section 7.3.6.3). Concur. Comment is closed.
36. 7-6/27-31 (Section 7.3.7). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.
37. 7-7/33-34 (Section 7.3.9). This comment has been closed and consolidated with comment number 3.
38. 7-7/33 (Section 7.3.9). This comment has been closed and consolidated with comment number 3.
39. 7-9/3-24 (Section 7.4). The work plan will need to be incorporated into the closure plan.

The "decommissioning work plan" procedures as referenced on page 7-9, Section 7.4, are required to be detailed within the closure plan. Again, as the document is a stand alone document, the inclusion of a description of decontamination procedures within the closure plan is required by WAC-173-303-610(3)(v). In addition, the Washington State Department of Ecology's "Guidance for Clean Closure of Dangerous Waste Facilities" (Draft) dated April 1993 recommends that at the start of closure, all surface areas be visually inspected for cracks and other openings through which washing fluid may reach the environment. The guidance recommends that all identified cracks or openings be sealed with a sealant resistant to both water and any cleanser designated for use in the area. During a July 9, 1993, site visit, it was noted that the unit does not have a containment system. The decommissioning work plan procedures should identify what provisions will be made to prevent washing fluid, sandblasting sand, etc., from reaching the environment.

Regarding the first paragraph of RL/WHC's Response #2, concur with the revision of Sections 7 and 7.4 to include additional detail. In addition, the reviewer proposes to defer the identification of the level of detail to be included in the closure plan, to the DQO process, during which it is hoped that an agreement on decontamination activities to be performed during closure can be reached.

Regarding the second paragraph of RL/WHC's Response #2, the documentation of activities is not questioned, but rather, the appropriate identification, within the closure plan, of activities to be performed/conducted during closure which may require concurrence prior to implementation or design. Again, the reviewer proposes to defer the identification of activities to be performed during closure to the DQO process, during which it is hoped that an agreement on decontamination activities to be performed during closure can be reached.

40. 7-9/29 (Section 7.5). Concur. Comment is closed.
41. F7-1. This comment has been closed and consolidated with comment number 3.
42. F7-2. This comment has been closed and consolidated with comment number 31.
43. F7-3. This comment has been closed and consolidated with comment number 3.
44. 8-1/52 (Section 8.1). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.
45. Appendix C. This comment has been closed and consolidated with comment number 4.
46. Appendix D. This comment has been closed and consolidated with comment number 52.
47. Appendix D. Regarding the first paragraph of RL/WHC's Response #1, the additional information and description of procedures as well as the response to comment number 51 satisfies the request for a discussion of waste acceptance at the unit. This portion of the comment is considered closed.

Regarding the second paragraph of RL/WHC's Response #1, the additional information provided by responses to comments number 3, 10, 12, 23, 51, 53, 73, and 81 satisfies the request of information on past operations. This portion of the comment is considered closed.

48. 7-9/22 (Section 7.4). Comment closed by Ecology NOD Response Table 7-20-93 concurrence.

Please see comment number 15 regarding the usage of the term "action levels."

ADDITIONAL COMMENTS, GENERAL

49. General Comment (Section 2.2, page 2-2, lines 18 to 28/ Figure 2-3/ Section 3.2, page 3-2, lines 3 to 4/ Section 3.3, page 3-2, lines 35-39/ Section 3.0, page 3-1, lines 28 to 29, and other areas if required). Concur with the proposal to modify the referenced sections and to provide additional details on the past storage configurations. Comment is closed.

50. General Comment (Section 4.2). Concur. Comment is closed.

51. Appendix C appears to contain the April 1991 waste inventory for the 4843 AMSF. During review of the inventory, it was noted that the wastes were not presented in numerical order and also that numbers appear to have been omitted (i.e., numbers 13-43, 46, 48, etc.). Please provide an explanation of the omissions. Also, please provide an explanation of the radiological material counts.

Concur with the inclusion of additional explanatory information to Appendix C "Current Waste Inventory." The original comment was intended to generate a complete identification of all wastes stored at this unit

Therefore, while an explanation of the omissions is appreciated (and may explain the data gaps), please confirm if the information included within Appendix C represents the complete waste inventory for the applicable life of this unit.

Concur with the explanation of the radiological material counts. It is requested that a footnote or explanation be added to the Appendix C inventory to provide this additional information regarding the description of the wastes.

52. (Section 7.3.3, page 7-4, lines 1-4/Section 7.3.3, page 7-4, lines 11-12, and Appendix G). Where applicable, the closure plan must specify what specific parameters will be analyzed. For example, Page 7-4, lines 1-4 refer to sodium carbonate and sodium hydroxide with no mention of total metals (sodium and lithium). Similarly, Page 7-4, lines 11-12 describe only the concern for carbonates. Currently, within the text of the closure plan, it is proposed to quantify concentrations of compounds. Conversely, Appendix G, proposes to utilize SW-846 Method 6010 which will not yield a concentration of a compound. It should be noted that the sampling parameters are selected based on the waste characteristics. Upon identification of the characteristics associated with the wastes stored at this facility, all references to specific sampling parameters throughout the closure plan should be corrected accordingly. In addition, when deciding upon sampling parameters and analytes, applicable regulations should be evaluated to ensure that clean closure can be achieved in accordance with WAC 173-303.

Regarding RL/WHC's Response #1, the reviewer concurs with deferral of an identification of the additional details concerning sampling parameters to the Data Quality Objective (DQO) process during which it is hoped that an agreement may be reached on sampling for closure decontamination verification purposes. Should the deficiency be resolved during the DQO process, this portion of the comment is considered closed by deferral.

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Regarding RL/WHC's Response #1 proposal to revise the closure plan prior to completing the DQO process, the reviewer requests that the closure plan not be revised until after the DQO process is completed. It is Ecology's intention to be a participant in the DQO process. In addition, Ecology has recently proposed to modify the review cycle of the dangerous waste closure plans. The proposal includes a period of Unit Manager workshop meetings during which a set of notice of deficiency (NOD) comments is assigned to be resolved during the workshop meetings. The reviewer proposes to discuss this modification during a Unit Manager meeting for possible implementation if concurrence is obtained.

- 53. Part A Application. Concur. Comment is closed.
- 54. Radiation Survey Log Request. This comment has been closed and consolidated with comment number 2.
- 55. Aerial Photographs Request. This comment has been closed and consolidated with comment number 5.

SPECIFIC COMMENTS

- 56. Chapter 4.0. This comment has been closed and consolidated with comment number 2.
- 57. Section 7.3.3. This comment has been closed and consolidated with comment number 2.
- 58. Section 7.3.2. This comment has been closed and consolidated with comment number 2.
- 59. 7-6/36-40 (Section 7.3.8). The procedures of Environmental Investigation Instruction EII 1.11 are referenced for evaluation of data. This particular procedure (EII 1.11) of the EII manual was not available to the reviewer prior to issuance of this NOD Response to Response Table. Please provide a copy of EII 1.11 for review.

During an attempted review of EII 1.11, the Manual Revision Instructions (MRI) dated October 20, 1993, indicates that EII 1.11 has been cancelled. Delete the reference on page 7-6/lines 36-40 to utilize this data management evaluation. In place of the reference to utilize EII 1.11, please include a description of how the data will be statistically evaluated.

7-2/17-20 (Section 7.3). The procedures of Environmental Investigation Instruction EII 2.3 are referenced for unit characterization. This particular procedure (EII 2.3) of the EII manual was not available to the reviewer prior to issuance of this NOD Response to Response Table. Please provide a copy of EII 2.3 for review.

During an attempted review of EII 2.3, the Manual Revision Instructions (MRI) dated October 20, 1993, indicates that EII 2.3 has been cancelled. Delete the reference on page 7-2/lines 17-20 to utilize this EII. It is noted that EII 1.15 and WHC-CM-4-10 were

referenced. If the procedures of EII 2.3 are to be utilized, the reviewer requests that a copy be provided. It should be noted that the documents (document numbers WHC-CM-1-6 and WHC-IP-0718) provided during the December 14, 1993, Unit Manager meeting, appear to describe radiological control procedures which may be appropriate to reference in place of EII 2.3.

60. Section 7.3.9. The details on sample packaging, shipping, preservation, quality assurance/quality control procedures, analytical methods and analytes, media identification, etc., are required by WAC-173-303-610(3)(v) to be included in the closure plan. Also, as the document is a stand alone document, the reference to packaging specifications included in "Sample Packaging and Shipping" (WHC 1988) in Section 7.3.9, Page 7-7, in lieu of a detailed description is inappropriate.

Concur with the inclusion of the additional information to identify quality assurance/quality control procedures, analytical methods and analytes, media identification, etc., which may not be addressed/included within EII 5.11. Concur with the referencing of EII 5.11. Should the additional information to be included, along with the procedures to be referenced, provide the requested detail, this comment is considered closed.

61. Additional Appendix. It has been agreed that USDOE will submit annual closure cost estimates. For the purpose of identifying closure goals (clean closure by decontamination versus clean closure by removal), closure cost estimates for this unit are requested to be included as an appendix.

Concur with the submittal of unit-specific closure cost estimates for those units included in Part V of the draft "Permit for the Treatment, Storage, and Disposal of Dangerous Waste for the Hanford Facility." The reviewer requests an estimate/interpretation of when the actual closure cost information may become available as the unit may not be included in the permit in the immediate future. If the information is currently available, the reviewer requests that the information be included as an appendix to the closure plan.

62. 7-4/50 (Section 7.3.4). Concur. Comment is closed.
63. 7-4/47-49 (Section 7.3.4). Concur with the inclusion of additional details regarding decontamination wash water and field decontamination procedures.
64. Section 7.3.5. Please include a provision for the field team leader or assignee identified in the EII 1.5, to document factory tracking numbers (i.e., batch or lot numbers associated with factory decontamination practices) for all containers and preservatives (where applicable) utilized during closure sampling activities.

Regarding RL/WHC's Response #1, the reviewer has attempted to confirm if the Process & Analytical Laboratory (PAL) procedures exist which document the requested information. The reviewer understands that neither the HEIS nor the SAMTRAC

systems track this type of information. The reviewer requests an identification of the particular site-wide tracking system which is currently utilized to track the requested information.

65. 7-4/17-20 (Section 7.3.3). It is stated, "samples may be obtained by chip or coring method." The Washington State Department of Ecology's "Guidance for Clean Closure of Dangerous Waste Facilities" (Draft) dated April 1993, recommends that surface sampling be accomplished by collecting chips to a depth of approximately 1/2 inch from the surface. The guidance document also recommends that where surface contamination is present or in areas containing constituents that can permeate the concrete, core samples may be appropriate. The closure plan must specify what kind of concrete samples will be obtained (chip or core) from which locations. If random sampling is conducted, surface sampling (chip) may be the most appropriate. If biased sampling or decontamination verification after contamination confirmation is conducted, "subconcrete" sampling (core) may be appropriate.

Concur. Comment is considered closed. It should be noted that the reviewer's concurrence is based upon the above referenced guidance which represents the most current guidance reviewed. Should alternate sampling techniques be agreed upon during the DQO process, the reviewer requests the agreement be described/reflected in the revised closure plan.

66. Appendix G/Table G-1. This comment has been closed and consolidated with comment number 52.

67. Figure 7-1. Please add a rinsate component sampling flow path line to Figure 7-1.

Concur with the omission of detail from Figure 7-1 for the purposes of clarity. The comment is considered closed.

The reviewer requests an identification of possible decontamination procedures which may be utilized prior to the building's release regarding radiological controls. It is the reviewer's understanding that decontamination relating exclusively to the radiation survey may occur. The reviewer requests that a description of possible decontamination procedures be included in the text of the applicable sections (Section 7.3).

68. Appendix G-5/Table G-1. This comment has been closed and consolidated with comment number 52.

69. Section 7.7. Concur with not including the field logbook as part of the closure plan. Comment is closed.

The reviewer requests that a copy of the logbook be entered into the 4843 Alkali Metal Storage Facility administrative record (M-20-14/S-4-1).

70. Section 7.7. Please include a provision to submit to the Department of Ecology Unit Manager, copies of all analytical results generated during closure sampling activities including radiation surveys.

The reviewer requests an interpretation of Section 9.6 of the Action Plan of the "Hanford Federal Facility Agreement and Consent Order," as it relates to how the above requested analytical data may be added to the 4843 Alkali Metal Storage Facility administrative record (M-20-14/S-4-1). If the data is not added to the closure plan, the reviewer is requesting that it be entered into the administrative record.

71. Section 7.7. Please include a provision to submit to the Department of Ecology Unit Manager, supporting documentation supplied by the independent professional engineer's certification, if applicable.

The reviewer requests that a copy of "documentation supporting the independent professional engineer's certification" be entered into the 4843 Alkali Metal Storage Facility administrative record (M-20-14/S-4-1).

72. 3-1/6-7 (Section 3.0). Concur. Comment is closed.

73. Appendix C/C-11. Concur. Comment is closed. As addressed by response #1 to comment number 51, concur with the inclusion of "additional explanatory information added to Appendix C."

74. 7-3/12-13 (Section 7.3.2). It is indicated that the wall wipe samples will be analyzed for lithium and sodium carbonates. Similarly, on page 7-4, lines 22 and 23, it is indicated that the concrete samples will be analyzed for "soluble" sodium and lithium carbonates. Appendix G, page App G-5, identifies SW-846 Method 6010 as the analytical method to be utilized. It should be noted that Method 6010 will yield detection concentrations as elements rather than as carbonate and hydroxide compounds. In the response to number 13 of the NOD, it is indicated that the plan will be modified to address both hydroxides and carbonates. If hydroxides and carbonates are to be sampled for, Table G-1 of Appendix G should reflect specific analytical methods other than SW-846 Method 6010.

This comment has been closed and consolidated with comment number 52.

75. 7-6/20-22 (Section 7.3.6.4). The referenced references a modification process as outlined by EII 1.4. Include a provision that the modification procedures of WAC 173-303-610(3) will be followed in the event that the closure plan must be amended.

Regarding RL/WHC's Response #1, concur with the explanation of EII 1.4 as affecting only modifications to other EIIs. In comparing Sections 7.3.6.4 and 7.6, the reviewer has concluded that there may be more than one way to modify or amend the closure plan. It is requested that clarification be added to Section 7.3.6.4 which identifies that the modification process of WAC 173-303-610(3) will be followed in the event that the closure plan must be amended.

76. 7-2/17-20 (Section 7.3). This comment has been closed and consolidated with comment number 59.

77. 7-3/43 (Section 7.3.3). Concur. This comment is closed.
78. 2-2/33-35 (Section 2.2) and 7-3/44-46 (Section 7.3.3). This comment has been closed and consolidated with comment number 27.
79. Section 7.3.3. This comment has been closed and consolidated with comment number 27.
80. Section 7.3.3. During a site visit on July 9, 1993, the dirt within about a foot long section of concrete control joint was removed. A substantial crack was noted to run the length of the dirt-cleared section. Prior to Revision 1 of the closure plan, propose to identify and document the extent of this crack noted within the control joint.

Regarding RL/WHC's Response #1, concur with the inclusion of an identification of all cracks in the closure plan until after the described evaluation of the status of the radiation zone and radiological controlled area at the 4843 AMSF unit for potential release. The reviewer requests that the closure plan not be revised until after the unit can be described in detail (i.e., after the radiological evaluation).

81. Section 7.3.3. During a site visit on July 9, 1993, numerous stains were noted on the concrete floor. As a forklift has been reported to have been utilized at the storage unit and oil stains may have been generated from its usage, the exact locations of the two spill incidents are requested to be identified.

Regarding the first, second, and third paragraphs of RL/WHC's Response #1, concur with the additional information and request that it be included in the closure plan.

Regarding the fourth paragraph of RL/WHC's Response #1, photographs of the described oil stains were provided during the Unit Manager's meeting on February 18, 1994. The reviewer proposes to defer the possible incorporation of oil stains into the decontamination confirmation process to the DQO process during which it is hoped that an agreement may be reached on closure objectives.

82. 2-3/12-18 (Section 2.3.2). Concur. Comment is closed.
83. Section 7.3. During a site visit on July 9, 1993, it was mentioned that a radiological survey may be conducted at the unit prior to the approval of the closure plan. Describe how this will affect the closure plan.

RL/WHC's Response #1 addresses the scenario of the unit being released from radiological controls. If radiological contamination exists, the reviewer has requested that the information of the contamination be utilized during the selection of biased sample

locations. The reviewer requests that the utilization of radiological contamination information, if applicable, to select biased sample locations for decontamination confirmation purposes, be deferred to the DQO process during which it is hoped that an agreement may be reached on closure objectives.

84. Section 7.3. Through the NOD and response process, it appears that there is an agreement that biased sampling is appropriate and will be utilized during closure activities. Unlike the description on page 7-3 of incorporating survey results into a biased sampling plan relating to the walls, the description of the initial radiation survey of the floor on page 7-4 does not include the incorporation of the survey results as defining biased sampling locations. Include provisions within Section 7.3.3 to incorporate the results of the radiation and visual surveys to define biased sampling locations relating to the floor. The provisions should include a precise method of locating those sampling locations generated during the visual and radiation surveys. Please note, the sampling location scale utilized in Figure 7-2, on page F7-2, would be insufficient to define/determine the biased sample locations.

Concur with the utilization of a random and biased sampling approach.

Concur with the utilization of radiation survey results and visual inspection for corroded concrete as methods to select biased sample locations.

Regarding the utilization of visual inspection for oil stained concrete as a method to select biased sample locations, the reviewer proposes to defer the possible incorporation of oil stains into the decontamination confirmation process to the DQO process during which it is hoped that an agreement may be reached on closure objectives.

85. Section 7.3.3. A more detailed description of decontamination verification procedures should be included. The details should specify how decontamination verification will be conducted in the event that it is necessary to repeat decontamination verification. To further explain, if decontamination verification is repeated, the closure plan should specify if samples will be collected from the same random and biased locations, if samples will be collected using chipping, coring, or a combination of chipping and coring methods, etc.

Concur with the inclusion, in Section 7, of additional information on the activities associated with repeat verification sampling. The reviewer requests an identification of the requested additional information during the DQO process or the above referenced Unit Manager workshop meetings prior to the revision of the closure plan.

86. Additional Section. During a site visit on July 9, 1993, fiberglass insulation was noted above the sheet metal walls. It was also noted that the fiberglass insulation was torn, worn, and stained in numerous places. On page 7-7, line 34, it is indicated that the surface of the fiberglass insulation will be sampled for decontamination verification purposes. Include an additional section within the closure plan similar to Sections 7.3.2 and 7.3.3 which addresses sampling and verification of the fiberglass insulation.

Regarding RL/WHC's Response #1, the reviewer proposes that the decontamination verification of the insulation covered wall located above the sheet metal be deferred to the DQO process during which it is hoped that an agreement may be reached on sampling logic objectives. Should the deficiency be resolved during the DQO process, this comment is considered closed by deferral.

87. 2-2/37-38 (Section 2.2). Concur. Comment is closed.

88. Section 7.3.9. Concur. Comment is considered closed. The reviewer requests that a status of planned activities such as radiological release surveys, decontamination activities related to the RCRA closure, sampling, etc., continue to be provided at the monthly Unit Manager meetings. It is the reviewer's opinion that five days notice prior to sampling may be insufficient time to organize Ecology's collection of split or duplicate samples.

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Subject: TRANSMITTAL OF 4843 ALKALI METAL STORAGE FACILITY (AMSF) CLOSURE PLAN, REVISION 0, NOTICE OF DEFICIENCIES RESPONSE TABLE (S-4-1, M-20-14)

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