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April 15, 1993

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

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Dear Mr. Wisness:

Re: Revision To Initial Notice of Deficiency (NOD) For The Hexone Storage  
and Treatment Facility Closure Plan

This letter transmits additional Department of Ecology NOD comments regarding the Hexone Storage and Treatment Facility Closure Plan, Revision 1.0. These comments were generated from a more thorough review of the document. This NOD is transmitted as agreed upon in the Unit Managers Meeting of March 17, 1993. Please note that comments 1 - 34 were provided to U.S. Department of Energy on March 1, 1993. *2753*

If you have any questions regarding this notice, please contact Jeanne Wallace at (509) 736-3019.

Sincerely,

*Melinda A. Delley*  
for

Jeanne Wallace  
HSTF Unit Manager  
Nuclear and Mixed Waste Management Program

JJW:sr  
Enclosure

cc: Bob McLeod, DOE  
Don Butcher, WHC  
Fred Ruck, WHC



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Hexone Storage and Treatment Facility Closure Plan  
Revision 1 <sup>0</sup> <sub>LN1</sub>  
Notice of Deficiency

April 15, 1993

<u>No.</u>	<u>Page/Line</u>	<u>Comments</u>
		<u>General</u>
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> <ul style="list-style-type: none"><li>A. The activities described in the plan satisfy the regulations, WAC 173-303-610(5) and 173-303-640(8).</li><li>B. The conditions assumed in the plan adequately reflect the true conditions of the facility.</li></ul>
2.		<p>Key elements to the closure plan are inadequately addressed. Please provide additional information regarding the following topics.</p> <ul style="list-style-type: none"><li>A. Adequate and complete post-closure plan and care.</li><li>B. The determination of the boundary locations.</li><li>C. When CERCLA cleanup is proposed to comply with RCRA regulations, explain in detail what will be done so that we may evaluate whether the cleanup will in fact meet RCRA closure requirements.</li><li>D. Detection limit capabilities, as well as action levels.</li></ul>

3. According to Section 4.0, waste characteristics, the waste is mixed waste by definition (containing both hazardous and radioactive components). 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.

Revise the text accordingly to incorporate measures that deal with the radioactive components of the mixed waste.

4. 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.

The following information should be included in the closure plan:

- A. The location for background soil measurements, etc.

Specific

5. iii/34-44 Westinghouse Hanford Company is described here as "co-operator." What entity is the operator as defined in WAC 173-303-040? Name the operator identified in the plan.

Chapter 1 - Introduction

6. 1-1/15-19 See comment 3.
7. 1-1/29 Define the word "virtually" in the context used.

8. 1-1/42-49 See comment 2B. How can soil cleanup be deferred, given the requirements of WAC 173-303-610(2) and 173-303-640(8)(b)?

Chapter 2 - Facility Description

9. 2-2/23-26
- A. Poor reproductive quality of the 276-S Piping details (Appendix 2B-4). Unable to read dates and other pertinent information.
  - B. Incomplete drawing number 952 (Appendix 2B-5). Drawing does not show entire schematic length of tank.

10. 2-2/36 See comment 9B.

11. 3-1/27-29 Further define the text which states in part, "It is possible that small amounts of hexone from the hot semi-works (pilot scale plant operating in the 1940's and 1950's for developing and refining plutonium extraction methods) also were placed in the tanks." Or reference applicable table.

12. 3-1/51 Further define the text which states, "Some water was added to float the remaining Hexone." Provide a better quantitative estimate of water addition.

Chapter 4 - Waste Characteristics

No comments.

Chapter 5 - Groundwater Monitoring

13. 5-1 Explain why HSTF is not subject to closure/post-closure requirements per WAC 173-303-610(5) and 173-303-640(8).
- If clean closure is not achieved a post-closure plan must be submitted. Since it cannot be certain that the Hexone unit can achieve clean closure, please provide a contingent post-closure plan. The post-closure plan must adequately address ground water monitoring.
14. 5-1/25-27 How was it determined that organic waste was not detected? How much surface area is representative of one end of a single tank? Were samples obtained? If so, describe procedure constituents tested and methods to support the text.
15. 5-1/33-38 Provide data input into the computer automated surveillance system (CASS), and statistical justification from other similar tanks to support the conclusion that "No leakage is believed to have taken place from these tanks."
16. 5-1/42-43 Describe how the surrounding soil bed will be examined. Are video and photographic documentation planned during this crucial process? What other means of examination are planned? Please provide complete process, procedure, and equipment to be used during this examination. How will soil sampling correspond to this process?
17. 5-1/43-47 It is not appropriate to discuss how contaminants which may have come from HSTF will be characterized and remediated under CERCLA operable unit 200-PO-2. Discuss and demonstrate that the requirements under WAC 173-303-610 and 173-303-640 are being appropriately applied for RCRA closure performance standards.

Chapter 6 - Closure Strategy and Performance Standards

18. 6-1/10-17 The removal or decontamination of waste residues, equipment(s), solid, or other materials contaminated with dangerous waste or dangerous waste residue must not exceed background environmental levels for characteristic or listed waste or designation limits for state only waste (WAC 1273-303-610(2)(b)).
19. 6-1/39 See comment 16.
20. 6-1/43 Further define the decision making process as to why additional soil samples would not be taken to evaluate soil contamination.
21. 6-1/49 Ambiguous terms such as "action levels" are not appropriately defined for the function of this document. Also, see comment 18.
22. 6-2/1-5 Does this strategy meet closure performance standards? Provide technical and legal justification for this strategy. Elaborate on why post-closure will not be necessary, and explain standards used in the determination.
23. 6-2/10-19 See comment 21.
24. 6-2/12-13 Further define "limit of quantitation" as it is being used in the surrounding text.
25. 6-2/18-19 Why are CERCLA action levels being applied rather than background environmental levels for listed or characteristic wastes or designation limits for state only waste (WAC 173-303-610(2)(b)).
26. 6-2/38-42 Radioactive detection may be used to supplement chemical analytical methods; however, radioactive detection methods will not replace chemical analytical methods.

27. 6-3/14-29 Either simply cite WAC 173-303-610(2)(b) and WAC 173-303-640(8) or quote the complete section of the regulation.
28. 6-4/9-11 Strike the text which states, "And implemented by the Hanford Site Baseline Risk Assessment Methodology (DOE-RL 1992 C)."
29. 6-4/42-44 See Comments 18 and 22.

Chapter 7 - Closure Activities

30. 7-1/6-7 Closure activities may need revision if additional unit conditions become apparent or changes to the closure strategy are made.
31. 7-1/7-9 These details i.e., work plan, dangerous waste operating plan, and radioactive work permit, are not considered beyond the scope of the closure plan.
32. 7-1/11-12 These standard documents specific to HSTF are requested.
33. 7-1/41 Strike the word "Tentatively."
34. 7-1/47 Further define when EPA methods (EPA 1990) will be employed and why they may not.

Additional Comments:

35. 1-1/11 This unit is potentially contaminated with radionuclides. Section 6.3 of the TPA states "TSD units containing mixed waste will normally be closed with consideration of all hazardous substances, which includes radioactive constituents." This closure plan does not fulfill the intent of the TPA. Revise text accordingly.

36. 2-2/16-19 Describe how rinsate generated during decontamination efforts was managed (i.e., as a hazardous waste).
37. 2-3/14-20 Specify if tank monitoring and inspections were conducted in compliance with the requirements of WAC 173-303-640, Tank Systems.
38. 2-3/29 Specify the length of time distillate was stored in the railcars.
39. 2-3/23 Specify if any releases to secondary containment occurred; and, if so, how were they managed.
40. 2-3/32-44 Specify if the heat-transfer oil contained Polychlorinated Biphenols (PCBs) and if any release of oil occurred.
41. 2-4/15-32 Revise security information due to the recent security downgrades onsite.
42. 3-1/10 The loading platform and hose connection discussed here must be included in the boundary of the unit.
43. 3-1/37 The closure presented in this plan does not account for the Sodium Hydroxide or its regulated reaction products. State exactly how much Sodium Hydroxide, and at what concentration, was added to the tank(s).
44. 3-1/41-44 Revise text to elaborate on the chemical composition of the sludge remaining in the tanks.
45. 3-1/48 Explain how the dismantled piping and equipment was managed with respect to the Dangerous Waste Regulations.
46. 3-2/31-34 See comment 45.



47. 4-1 Failure to fully designate waste is the major deficiency of this chapter. Revise text to incorporate designations for all wastes associated with the unit.
48. 4-1/15-16 See comment 35.
49. 4-1/20-25 The discussion of the properties of normal paraffin hydrocarbon and tributyl phosphate is enlightening but far from complete. The information provided does not allow for accurate designation of these substances. Provide a full designation and present all pertinent characteristics used to do so, preferably in table format.
50. 4-1/27-35 The disposition of the substances discussed in this paragraph is not clear. Clarify if these substances are components of the distillate, which has been incinerated, or if they are still present at the unit. If these substances were incinerated provide evidence that the treatment was appropriate and complete.
- The Sodium Hydroxide has not been appropriately addressed throughout this plan. See comment 43.
51. 4-1/37-43 This paragraph contradicts itself. The first sentence states that esters, acetone, and fluoride were detected in analysis of the distillate. Then the last few sentences qualify discussions of the acetone and fluoride with the phrase "if present". Are acetone, fluoride, and esters present in the distillate but not in the waste remaining in the tanks? State what compounds are present in the tanks and in the distillate.
- Also chapter 6.0, Closure Strategy and Performance Standards, states that Chromium, Cadmium, Barium, and Lead were detected in trace amounts from analysis of the still vessel contents. Why are these not discussed as waste characteristics? Expand the waste characterization

discussion to address all wastes associated with the unit and analysis conducted to determine their presence. A table coordinated with a thorough discussion would be helpful.

52. 4-2/1-52

The discussion of the tank contents over the period of use raises many questions. It appears that tank 276-S-141 never held radioactive material, unless contaminated by the configuration of the venting system. Therefore it is absolutely inappropriate to consider using rad surveys for the detection of potential contamination as suggested in other areas of the plan. Line 17 states that 0.25 curies alpha emitters and fission products remain. Specify curies per what, (per tank, per gallon)? Provide a complete description of activity, distribution and source of radioactive contamination. This requirement is necessary in order to allow the Closure Plan to function as intended. The plan must provide adequate information and instruction to allow closure to be conducted in a safe, appropriate, and acceptable manner.

53. 4-2/18-21

Throughout the life of the tanks water was added several times for various reasons. The volume and function of these additions, especially to tank 276-S-142, have been difficult to follow as presented in the plan. For example, it is not clear why 1,300 gallons were added to 276-S-142 in 1967. The volume of Sodium Hydroxide has not been adequately accounted for. Specify the amount, purpose of, and final disposition of each addition of water.

54. 4-2/24-26

It is stated that the tanks were sampled twice; once in 1976 and once in 1992. Then it is said that the 1988 work obtained representative samples, and measured radioisotopic concentrations. The association, or independence, of the 1988 sampling with the other events is not clear. Describe all analysis performed and their findings, including radiochemistry.

55. 4-2/30-46  
The analytical results and historical knowledge presented here is incomplete and is not representative of the waste. A major deficiency is that process knowledge is not distinguishable from analytical results. The phrase "tarry sludge" is an inappropriate description. The chemical composition and physical properties of the sludge must be addressed.
56. 4-3/6  
See previous comment.
57. T4-1  
This table misrepresents the composition of the waste. Trace metals, esters, acetone, fluoride, other degradation products, and sodium hydroxide have been identified as components of the waste from various analysis. Therefore, incorporate them into the table(s), specifying their current disposition.
58. T4-2  
This table is inadequate. Properties utilized to designate the waste and appropriate waste designations codes should be incorporated into the table. If possible, specify whether components are degradation products, or original components, and if whether process knowledge or analytical results were used to designate.
59. 5-1/1-10  
The plan contradicts itself. First, it states that groundwater monitoring will not be required if wastes are not left in place (which is consistent with the requirements of WAC 173-303). Then, the same paragraph states that if clean or protective closure can be attained, groundwater monitoring is not required (which is incorrect).
- Current regulatory requirements are that waste concentrations be reduced to background levels for listed or characteristic wastes, or to designation limits for state-only waste, in order to achieve clean closure. If clean closure is not achieved and the unit is closed with waste in

place, it will be closed as a landfill and groundwater monitoring will be required (see WAC 173-303-640(8)(c)(v)).

60. 5-1/6-9 I believe there is an incorrect citation here. WAC citation 173-303-645(1)(a) addresses releases for solid waste management units not landfill requirements. WAC 173-303-665 addresses landfills.
61. 5-1/12-15 Specify why integrity testing was initiated. Was it due to the corrosion of the weight factor dip tube? Also, state if the integrity testing was conducted in compliance with the requirements of WAC 173-303-640, Tank Systems.
62. 5-1/32-37 It has been demonstrated that the tanks contained corrosive material. Due to the dissimilarity of properties of the tank contents to those of petroleum, it is inappropriate to assume that the tanks did not leak because petroleum tanks of similar age and construction did not leak. Revise text accordingly and specify if the monitoring was continuous or periodic.
63. 5-1/40 See previous comment.
64. 6-1/14 See comments regarding figures 6-1 and 6-2 which are referred to here.
65. 7-3/40 Provide a definition of how close a "close grouping of pipes" will be before they will be treated as one.
66. 7-3/51 Provide criteria for the judgmental location of the connect/disconnect point for sampling.
67. 7-4/12-14 It is recommended that at least six samples are taken rather than four.

68. 7-4/21 The phrase "selected randomly" is not correct for such a limited sampling plan. A plan should be discussed; history, field instruments, field observations, etc.
69. 7-4/28-34 Areas which contain valves or connections must be integrated into the pipe sampling plan.
70. 7-5/  
line 16  
line 21  
line 27  
line 39  
line 40
- All methods need to be verified. It appears that the wrong methods are listed:
- Method for Hexone should be SW 846 method 8260
  - Method for NPH should be SW 846 method 8015, GC-fixed which is more specific
  - Method for TBP should be SW 846, method 8146, GCFTP or NPDES 1657
  - Butanol should be SW 846 method 8270 GGFID, PB-WAX
  - Butene should be SW 846 method 8260
71. 7-5/11 See comment 35.
72. 7-6/23 Change the word "reviewed" to "validated".
73. 7-6/42 Equipment blanks must be included as part of field quality assurance and quality control.
74. 7-6/52 The words "used as goals" is not acceptable and should be replaced with "...adhered to".
75. 7-8/26 More verification is needed in regards to sampling and how it was determined that the car was clean enough to close.
76. 7-8/50 Results of the sampling and analysis must be provided.
77. 7-9/38 Specify if the liquid residue was sampled and analyzed. If so, provide the results of analysis.

78. 7-10/9 Insert "based on radionuclide and chemical analysis" after "designated".
79. 7-10/49 Wastes generated from the closure will require analysis and designation for radioactive constituents.
80. 7-11/4 See comment 17.

## CORRESPONDENCE DISTRIBUTION COVERSHEET

Author: J. J. Wallace, Ecology      Addressee: S. H. Wisness, RL      Correspondence No.: Incoming 9302923

Subject: REVISION TO INITIAL NOTICE OF DEFICIENCY (NOD) FOR THE HEXONE STORAGE AND TREATMENT FACILITY CLOSURE PLAN *TS-2-2*

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