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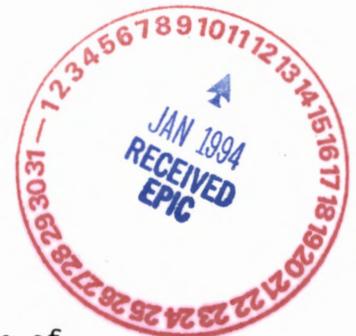
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STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

7601 W. Clearwater, Suite 102 • Kennewick, Washington 99336 • (509) 546-2990

February 26, 1993

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



Dear Mr. Wisness:

Re: Transmittal of Four Closure Plan Notice of Deficiencies

The Department of Ecology has reviewed the following Closure Plans submitted in November 1993:

- 200 West Ash Pit Demolition Site Closure Plan, M-20-26 25222
- 218-E-8 Borrow Pit Demolition Site Closure Plan, M-20-28 25221
- Hanford Patrol Academy Demolition Site Closure Plan, M-20-25 25323
- Hexone Storage and Treatment Facility Closure Plan, M-20-27 25217

Enclosed you will find Notice of Deficiencies (NODs) for each unit. The defect common to each of these plans is insufficient detail. Closure plans are intended to be stand-alone documents which provide instruction for closure activities.

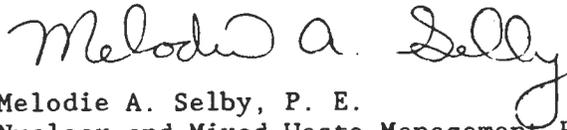
We agreed with your staff in a unit manager's meeting to provide these comments on schedule, with the understanding that there may be additional comments provided at up-coming unit manager's meetings. If you or your staff have any questions about this letter, please me at (509) 736-3021 with any questions regarding the Hanford Patrol Academy Demolition

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Steven. H. Wisness  
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Site closure plan or Jeanne Wallace at (509) 736-3019 with any questions regarding the remaining closure plans. Thank you.

Sincerely,



Melodie A. Selby, P. E.  
Nuclear and Mixed Waste Management Program

MS:mf  
Enclosures

cc: (w/enclosures): Randy Krekel, DOE  
Bob McLeod, DOE  
Fred Ruck, WHC  
Dan Duncan, EPA  
**Administrative Record**

cc: (w/o enclosures): Dave Nylander, Ecology  
G. Thomas Tebb, Ecology  
Toby Michelena, Ecology  
Jeanne Wallace, Ecology

Hexone Storage and Treatment Facility Closure Plan  
Revision 0  
Notice of Deficiency

February 26, 1993

**Note:** Review of this document is not yet complete at this time. Sections of the plan are expected to be disseminated to appropriate staff for review and comment.

<u>No.</u>	<u>Page/Line</u>	<u>Comments</u>
		<u>General</u>
1.		The level of detail in this closure plan is inadequate. The closure plan must contain enough detail to allow the evaluation of whether:  A. The activities described in the plan satisfy the regulations, WAC 173-303-610(5) and 173-303-640(8).  B. The conditions assumed in the plan adequately reflect the true conditions of the facility.
2.		Key elements of the closure plan are inadequately addressed. Please provide additional information regarding the following topics.  A. Adequate and complete post-closure plan and care.  B. The determination of the boundary locations.  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.

<u>No.</u>	<u>Page/Line</u>	<u>Comments</u>
		D. Detection limit capabilities, as well as action levels.
3.		<p>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.</p> <p>Revise the text accordingly to incorporate measures that deal with the radioactive components of the mixed waste.</p>
4.		<p>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 location for background soil measurements, etc., should be included in the closure plan.</p> <p><u>Specific</u></p>
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.
		<u>Chapter 1 - Introduction</u>
6.	1-1/15-19	See comment 3.
7.	1-1/29	Define the word "virtually" in the context used.

<u>No.</u>	<u>Page/Line</u>	<u>Comments</u>
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)?
<u>Chapter 2 - Facility Description</u>		
9.	2-2/23-26	<p>A. Poor reproductive quality of the 276-S Piping details (Appendix 2B-4). Unable to read dates and other pertinent information.</p> <p>B. Incomplete drawing number 952 (Appendix 2B-5). Drawing does not show entire schematic length of tank.</p>
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 Stride the word "Tentatively".
- 34. 7-1/47 Further define when EPA methods (EPA 1990) will be employed and why they may not.

HANFORD PATROL ACADEMY DEMOLITION SITES CLOSURE PLAN  
REVISION 0  
NOTICE OF DEFICIENCY  
February 26, 1993

No. Page/Line

Comments

General

1. 

Deficiency: The level of detail in this closure plan is inadequate.

Requirement: Provide additional information regarding the following topics:

  - a. The determination of the boundary locations.
  - b. When Comprehensive Environmental Response, Compensation and Recovery Act (CERCLA) cleanup is proposed to comply with Resource Conservation and Recovery Act (RCRA) regulations, explain in detail what will be done so that we may evaluate whether the cleanup will in fact meet RCRA requirements.
  - c. Action levels for constituents of concern.
  
2. 

Deficiency: Throughout the closure plan, there are references to using only a mobile laboratory for sampling and analysis. It is not stated that this is an EPA accredited lab or that any secondary or follow-up analysis will be conducted at an accredited stationary lab. A mobile lab cannot meet SW-846 requirements. A mobile laboratory is a good tool for a first evaluation to determine where contamination is located. For closure, you must follow the sampling and analysis requirements of WAC 173-303-110.

Requirement: Revise the plan to require sampling and analysis to meet WAC 173-303-110. See also comments 40, 51, 60, and 61.

No.	Page/Line	Comments
3.		<p><b>Deficiency:</b> The closure plan cites many internal Westinghouse procedural manuals. It is not clear if these documents fulfill the procedures mandated by the regulations.</p> <p><b>Requirement:</b> Revise the plan or provide copies of the procedures referenced.</p>
<b>Specific</b>		
4.	iii/25	<p><b>Deficiency:</b> "idenytification" is a typographic error.</p> <p><b>Requirement:</b> Correct the plan.</p>
5.	1-1/12-13	<p><b>Deficiency:</b> States that these demolition events were "a form of thermal treatment for <u>spent</u> or <u>abandoned</u> chemical waste." This is inconsistent with the waste description provided in Chapter 3, Process Information. On page 3-1, line 10, the waste is described as "discarded explosive."</p> <p><b>Requirement:</b> Revise the text to resolve the contradiction.</p>
6.	1-1/21	<p><b>Deficiency:</b> It is stated the closure plan will present the history of the waste treated, but the plan does not present adequate information to determine if the waste has been properly designated.</p> <p><b>Requirement:</b> Provide sufficient information to designate the waste, including information regarding the source of the waste (i.e., process derived from), and a distinction between wastes disposed in commercial form, and those which were spent material.</p>
7.	1-1/38-41	<p><b>Requirement:</b> Describe how you will determine that contamination is not associated with Hanford Patrol Academy Demolition Sites (HPADS). State if RCRA post-closure care will be performed until CERCLA action takes place.</p>
8.	2-2/1-51	<p><b>Deficiency:</b> The description of the demolition site does not provide adequate detail to allow potential exposure pathways to be evaluated.</p>

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No.	Page/Line	Comments
		<b>Requirement:</b> Provide description of depth to water table, soil characteristics, and any containment used during the detonation. Incorporate any available Hanford meteorological information for the times of the events. Weather conditions may have influenced the dispersion of contaminants.
9.	2-2/17-20 and 2-2/25-28	<b>Deficiency:</b> "The DOE-RL also has allowed usage of the firing ranges by non-Hanford personnel... but ended that practice in 1982." "Since 1986, ... the Richland Police department and other personnel have used the range for firearms training." These statements appear to contradict each other.  <b>Requirement:</b> Revise the text to resolve the contradiction.
10.	2-2/46-50	<b>Deficiency:</b> The plan states that the firing range containing Closure Area No. 1 has been repeatedly graded. Because of the grading, the entire firing range should be sampled to identify soil that may have been contaminated by the detonations.  <b>Requirement:</b> Revise the plan to increase the area to be sampled.
11.	2-3/17-22	<b>Requirement:</b> Determine if this paragraph is still accurate with the recent security downgrades.
12.	3-1/10	<b>Deficiency:</b> This description does not agree with Page 1-1, lines 12-13, which state that these demolition events were "a form of thermal treatment for <u>spent</u> or <u>abandoned</u> chemical waste."  <b>Requirement:</b> Revise the text to resolve the contradiction and define discarded explosive chemicals more clearly.
13.	3-1/14-16	<b>Deficiency:</b> This paragraph implies that the detonations took place at multiple locations. Thus, the boundary of Closure Area 1 should be enlarged.  <b>Requirement:</b> Revise the plan as necessary. See also comment 10.

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No.	Page/Line	Comments
14.	3-1/27-32	<p><b>Requirement:</b> The explosives used to initiate the detonation (and any regulated products potentially generated from the detonation) must be incorporated into the sampling and analysis plan.</p>
15.	3-2/30-38	<p><b>Deficiency:</b> This paragraph describes a demolition failure and a grass fire ignited by a detonation, but does not state when they occurred.</p> <p><b>Requirement:</b> Revise the plan to answer the following questions: When did the incidents described in this paragraph take place? Was it before or after 1984? After other detonations, how were the remains of the containers managed? Were the containers, or pieces of containers, removed from the site? If so, how were they managed?</p>
16.	4-1/10-11	<p><b>Requirement:</b> Provide the best estimate of the amount of material detonated before 1984. Clearly state the limitations of the data.</p>
17.	4-1/31-35	<p><b>Deficiency:</b> Table 4-3, referred to here, is not included in the closure plan.</p> <p><b>Requirement:</b> Revise the plan by including the table or removing the reference.</p>
18.	6-1/20-22	<p><b>Deficiency:</b> "The final closure area boundaries will be confirmed by the results of regulatory acceptable soil sampling and analyses." According to Page 7-6, lines 33-35, no samples are to be taken outside the boundaries of Closure Area 1. How will the boundaries be confirmed without taking samples outside the boundary?</p> <p><b>Requirement:</b> The boundary must be determined by sampling and analyzing for indicator parameters. See comment 37.</p> <p><b>Deficiency:</b> The term "regulatory acceptable" is open to interpretation.</p> <p><b>Requirement:</b> Please replace with more specific wording.</p>
19.	6-1/33-37	<p><b>Requirement:</b> The closure plan should state that the metal posts marking Closure Area 1 are removed for safety when the firing range is in use.</p>

No.	Page/Line	Comments
20.	6-1/38-39	<p><b>Deficiency:</b> The maximum soil depth of three feet for sampling is insufficient. Undetonated materials can be driven to considerable depths.</p> <p><b>Requirement:</b> The depth should be determined by sampling and analyzing for indicator parameters.</p>
21.	6-1/42	<p><b>Deficiency:</b> "... a series of field screening surveys might be performed." This is not sufficient detail.</p> <p><b>Requirement:</b> Explain how the decision will be made to perform field screening surveys, when the decision will be made, and how the screening methods will be chosen. Also provide the methods that will be used, the capabilities of the instruments to be used, and Data Quality Objectives.</p>
22.	6-2/4-5	<p><b>Deficiency:</b> The plan states that background will be Site-wide background threshold values as defined in the <i>Hanford Site Soil Background</i> (DOE/RL 1992d). At present, this study is not complete and Ecology has not yet received final data packages for constituents of concern.</p> <p><b>Requirement:</b> Ecology must review and approve the <i>Hanford Site Soil Background</i> (DOE/RL 1992d) before the values can be implemented for closure.</p>
23.	6-2/11-12	<p><b>Deficiency:</b> This paragraph discusses the proposed method to determine cleanup levels. It is said that the health-based levels will be based on equations and exposure assumptions presented in the <i>Hanford Site Baseline Risk Assessment Methodology</i> (DOE/RL 1992B). This is not appropriate.</p> <p><b>Requirement:</b> Health-based levels, if permitted for closure, are determined from the Model Toxic Control Act (MTCA).</p>
24.	6-3/25-26	<p><b>Requirement:</b> Strike "and implemented by the <i>Hanford Site Baseline Risk Assessment Methodology</i> (DOE-RL 1992c)." See comment number 23.</p>

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No.	Page/Line	Comments
25.	6-4/26-41	<p><b>Deficiency:</b> There is no way to determine if contamination is from HPADS activities or other sources, therefore all contamination at the site must be addressed.</p> <p><b>Requirement:</b> Revise the plan to address all contamination.</p> <p><b>Note:</b> You may wish to consider remediating the entire site under RCRA rather than deferring to CERCLA since the same waste types are present.</p>
26.	6-4/38-40	<p><b>Deficiency:</b> This sentence should state, "if the soil is contaminated <u>only</u> from sources other than HPADS activities."</p> <p><b>Requirement:</b> Revise the text.</p>
27.	F6-1	<p><b>Deficiency:</b> This flowchart shows actions based on whether the contaminants found are RCRA or CERCLA. I understand that CERCLA contaminants expected at the site include those from wastes detonated before 1984. Also, samples are to be analyzed only for RCRA waste constituents. In that case, you cannot identify contaminants as RCRA or CERCLA.</p> <p><b>Requirement:</b> Revise to agree with revised plan.</p>
28.	7-1/18-45	<p><b>Deficiency:</b> The text described possible existence of a canister of napalm B buried in either of the HPADS areas, and proposed a ground-penetrating radar (GPR) survey. The size of the canister is important in setting up the grid for a GPR survey. Nowhere in the text was the size of the object mentioned. A canister of very small size (eg., one or two feet length) would be difficult to detect at a five foot grid interval. Has an electromagnetic induction (EMI) survey been considered? Both GPR and EMI surveys show good results in identifying shallow buried metallic objects.</p> <p><b>Requirement:</b> Discuss the reasons for choosing a GPR survey in the closure plan.</p>
29.	7-2/1-2	<p><b>Question:</b> If the mobile laboratory is not available, what will be the effect on the schedule? Will the closure still be completed in 180 days? Note that the mobile</p>

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No.	Page/Line	Comments
		laboratory can only be used for indicator sampling to determine areas of contamination. See comment 2.
		Requirement: The name of the laboratory that will be conducting the analyses must be submitted to Ecology before closure begins.
30.	7-3/15-17	<p>Deficiency: Microbial activity in this area is not very efficient. The sentence should read, "Unreacted volatiles and semivolatiles contaminant levels might have been <u>reduced</u> via microbial activity." It is unlikely that they would have been eliminated.</p> <p>Requirement: Revise the text.</p>
31.	7-3/37-48	<p>Deficiency: This paragraph states, "It is generally acknowledged that detonation and thermal destruction are very efficient processes, and that any dangerous waste constituents that might remain in the soil at either closure area probably would exist at very low concentrations..." A reference should be provided for this statement.</p> <p>Requirement: Revise the text.</p>
32.	7-3/44- 48	<p>Deficiency: Portable field screening instruments are considered level I, not level I and II.</p> <p>Requirement: Revise the text.</p>
33.	7-3/21	Requirement: Define "action levels" for each constituent. The action levels must be approved by Ecology before closure begins. See comment 47.
34.	7-5/9-11	Deficiency: Benzoyl Peroxide is not unstable in the presence of moisture; it will explode when in the environment of <1 % water, and it should be mixed in an environment of at least 33% water (Hawleys Condensed Chemical Dictionary, Sax and Lewis, 1987, p. 134).

No.	Page/Line	Comments
		Requirement: Revise the text.
35.	7-5/41-42	Deficiency: Nitrate (NO <sub>3</sub> <sup>-</sup> ) is not "environmentally benign" at or above regulatory limits. The decomposition products listed should also be verified.  Requirement: Revise the text.
36.	7-6/26-29	Requirement: Add a provision to sample any visibly contaminated areas in addition to grid sampling.
37.	7-6/33-35	Deficiency: The sample locations given are all within the established boundaries of Closure Area 1. Page 6-1, lines 20-22, states that the boundaries may be adjusted based on the sampling results. How could the boundaries be adjusted if no samples are taken outside the boundaries?  Requirement: Samples must be taken outside the expected boundaries to determine the actual location of the boundaries. See also comment 10.
38.	7-7/20-38	Deficiency: At each sampling location, sampling and analysis for organics should be conducted at various depths to determine the depth of contamination. Closure Area 2 is gradually filling in as a result of erosion. The plan does not describe how the surface elevation of the pit during the detonations will be determined.  Requirement: Revise the plan to include sampling and analysis at a minimum of two feet intervals to a depth of twelve feet below the surface elevation during detonation.
39.	7-8/8-12	Requirement: Explain why the adequacy of currently available background data cannot be evaluated now.
40.	7-8/(all) 7-9/(all)	Deficiency: Any initial characterization analyses must be performed by level III criteria, which is an EPA certified licensed, stationary laboratory. The mobile laboratory (level II analyses) should only be used to aid in determining a sampling location for characterization and plume mapping during the remediation.

No.	Page/Line	Comments
		<b>Requirement:</b> Revise the plan.
41.	7-9/37-45	<b>Deficiency:</b> X-ray fluorescence is not an approved method for metals characterization. It is only to be used as an in-field screening method to determine sampling locations or areas of contamination (plume mapping).  <b>Requirement:</b> Revise the plan.
42.	7-9/47-51	<b>Requirement:</b> Detection limits for the constituents listed must be below the regulatory limits, when possible. If regulatory limits are below detection limits, the method with the lowest detection limit must be used.
43.	7-10/20	<b>Deficiency:</b> The capabilities of on-site mobile laboratories are not "equivalent" to analytical level III. In certain analyses, they may be similar.  <b>Requirement:</b> Revise plan to meet WAC 173-303-110 methods.
44.	7-10/29-36	<b>Deficiency:</b> The reasoning for doing duplicate samples is to determine the laboratory's precision. If the laboratory does the duplicate preparation, they will know which samples are the same and the reason for doing duplicate samples would be void.  <b>Requirement:</b> Revise the plan to meet SW-846 requirements.
45.	7-11/31-32	<b>Question:</b> Is a "sample lot" the same as a "sample batch" (defined on page 7-10, lines 30-32)? If so, use consistent terminology. If not, define "sample lot."  <b>Requirement:</b> Use terms as defined in regulations.
46.	7-13/3-29	<b>Deficiency:</b> Was the initial sampling plan statistically designed? The sampling plan must be evaluated by a statistician prior to any work, to determine if the sampling and analyses are adequate to answer the information listed in this section.  <b>Requirement:</b> Refer to Ecology statistical guidance.

No.	Page/Line	Comments
47.	7-13/34	<p><b>Requirement:</b> The action levels need to be determined prior to sampling. The text should mention when action levels will be proposed and contaminant levels will be compared against proposed action plans. More information is needed on the site background threshold values. At present, the Hanford soil background study is not complete and, as far as we know, we have yet to receive the final data packages for various inorganics and organics of our concern. The study must be approved by Ecology prior to use.</p>
48.	7-14/16-30	<p><b>Deficiency:</b> The random sampling method for the calculation of volume of contaminated soil is not acceptable. Although the determination of sampling locations by using random algorithm for initial characterization as specified in section 7.2.3 is acceptable, the location of sampling point for calculation of the volume of contaminated soil demands a systematic protocol. Sampling plans with well defined grid patterns will be a good approach for this. However, the grid spacing, location, etc. might vary depending on the results obtained in the initial characterization. The grid spacing, location, etc., must be approved by Ecology before it is implemented.</p> <p><b>Requirement:</b> Submit a sampling protocol to Ecology for approval before sampling.</p>
49.	7-14/35	<p><b>Deficiency:</b> Two feet vertical depth is not sufficient.</p> <p><b>Requirement:</b> Revise the text. See comment 38.</p>
50.	7-15/17-22	<p><b>Deficiency:</b> The application of water during removal to control dust needs careful examination and will depend on the contaminants of concern. There is a good chance that contaminants can migrate with water downward during the process. This is especially so since excavation is limited to the top two feet of the material. Other dust control devices may have to be applied depending on the nature of the contaminants. Also, creating a damp condition of the soil before excavation is risky.</p> <p><b>Requirement:</b> Determine the detailed process after we receive all the information on contaminants of concern. Submit to Ecology for approval before implementation.</p>

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No.	Page/Line	Comments
51.	7-16/13-26	<p>Deficiency: Regulatory requirements require that verification sample analyses be done at level III or IV. A mobile laboratory does not qualify. Verification analyses must be done in accordance with SW-846.</p> <p>Requirement: Revise the text.</p>
52.	F7-1 and F7-2	<p>Requirement: The map legend should explain what the black dots with a circle surrounding it means.</p>
53.	F7-1 and F7-2	<p>Deficiency: Sampling locations do not cover any areas in the downwind direction.</p> <p>Requirement: Sampling must be done to characterize all areas that could possibly be contaminated. See comment 18.</p>
54.	F7-2	<p>Requirement: Show location of demolition pit on grid.</p>
55.	F7-3	<p>This closure schedule does not allow for soil removal or show the times the firing range will be out of use.</p> <p>Requirement: Show on the schedule the times the firing range will be out of use. Provide an estimate of the additional time needed if soil removal is necessary.</p>
56.	F7-4	<p>Deficiency: If Westinghouse Hanford Company is the "co-operator" of the site, then a representative of Westinghouse Hanford Company should sign the closure certification. See page iii, lines 34-44.</p> <p>Requirement: Revise the figure.</p>
57.	T7-1 and T7-2	<p>Deficiency: These tables are inadequate.</p> <p>Requirement: Appropriate methodologies and detection limits need to be listed. Also list method modifications and metal analyses.</p> <p>Note: All method modifications must be approved by Ecology.</p>

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No.	Page/Line	Comments
58.	8-2/26-28	<p>Deficiency: The plan does not answer the following questions: How will access to the contaminated areas be controlled when even the fence posts marking the location must be removed during use of the firing range? Will the firing range be closed until CERCLA remediation takes place? When is the CERCLA study and remediation scheduled to take place?</p> <p>Requirement: Revise to provide answers.</p>
59.	APP 5A-4/27-28	<p>Requirement: Provide hydraulic properties that are available.</p>
60.	APP 7A-1/32-33	<p>Deficiency: Confirmation samples cannot be analyzed by a "mobile laboratory" to determine the presence of contaminants of concern.</p> <p>Requirement: Revise the plan.</p>
61.	APP 7A-1/40-45	<p>Requirement: If remediation is required, confirmatory samples are required and must be done in an Ecology approved laboratory, not a mobile laboratory.</p>
62.	APP 7A-2/1-15	<p>Requirement: EPA-QAMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans", should also be referenced.</p>
63.	APP 7A-3/23-44	<p>Requirement: These samples are not expected to be classified as "radioactive"; therefore, they must be shipped off-site to an Ecology approved laboratory.</p>
64.	APP 7A-5/9-11	<p>Deficiency: It states that Tables 7A-1 and 7A-2 identify the methodology and analyte-specific quantitation limits, but they do not.</p> <p>Requirement: Correct these tables to contain this information.</p>
65.	APP 7A-9/all	<p>Deficiency: This section is incomplete.</p> <p>Requirement: Call out methodology for characterization.</p>

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No.	Page/Line	Comments
66.	APP 7A-10/18-19	<p><b>Deficiency:</b> The reference provided for validation procedures, "Data Validation Procedures for Chemical Analysis" (WHC-SD-EN-SPP-002), is a validation procedure for Contract Laboratory Program (CLP) sample data, not analyses performed under SW-846.</p> <p><b>Requirement:</b> The correct reference should be "Sample Management and Administration" (WHC-CM-5-3).</p>

218-E-8 PIT DEMOLITION SITE CLOSURE PLAN  
REVISION 0  
NOTICE OF DEFICIENCY  
February 26, 1993

No. Page/Line

Comments

General

1. 

Deficiency. The level of detail of several chapters in this closure plan is inadequate.

Requirement. The closure plan must contain enough detail to allow the evaluation of whether:

  - a. the activities described in the plan satisfy the regulations, or
  - b. the conditions assumed in the plan adequately reflect actual conditions of the unit.
2. 

Deficiency. Throughout the closure plan there are references to using only a mobile laboratory for sampling and analysis. It is not stated that this is an EPA accredited laboratory or if any secondary or follow up analysis will be conducted at an accredited laboratory.

The mobile laboratory is good for initial site characterization to determine where contamination is located but it can not meet SW-846 requirements.

The impact on the closure schedule if the mobile laboratory is not available or acceptable is not addressed.

Requirement. Correct the deficiencies of the text.
3. 

Comment. The closure plan also cites many internal Westinghouse procedural manuals. It is not clear if these documents fulfill the EPA/Ecology requirements.

No. Page/Line

Comments

Specific

4. 1-1, 11 Deficiency. The text states that, "this event was a form of thermal treatment for spent or abandoned chemical waste." This is inconsistent with the waste description provided in chapter 3, Process Information. Chapter 3.0 describes the waste as excess or beyond shelf life. If this is the case, then the materials are not spent waste. The contradiction must be corrected because it affects the waste designation.
- Requirement. Clarify the specific source or process which generated the waste and the form (product versus spent/used material) in which it was disposed. Consult WAC-173-303 for designation guidance.
5. 1-1, 20 Deficiency. The plan does not present adequate information to determine if the waste has been properly designated. Information regarding the source of the waste (i.e., process derived from) and a distinction between wastes disposed in commercial form and those which were spent material is necessary to make such a determination.
- Requirement. See previous comment and WAC 173-303-070 for guidance.
6. 2-2, 1 Deficiency. The description of the demolition site does not provide adequate detail to allow potential exposure pathways to be evaluated.
- Requirement. Provide description of depth to water table, soil characteristics, and any containment used during the detonation. Because this was a one-time event which does not appear to have been contained, it will be required that Hanford meteorological information, for the time of the event, be incorporated into the closure plan. Weather conditions may have influenced the dispersion of contaminants.
7. 2-2, 11 Deficiency. The description of the borrow pit as being essentially void of vegetation is not consistent with the photograph provided in Appendix 3A. In the photograph, several species of grasses and bushes are apparent.
- Requirement. Correct inconsistency.

No.	Page/Line	Comments
8.	2-2, 22	<p>Deficiency. It is not clear how the exact location of the demolition site was determined in 1988, four years after the event. There is no discussion of markers, maps, or surveys used to initially define the demolition site.</p> <p>Requirement. Explain how the location was determined.</p>
9.	2-2, 30	<p>Note. This section of the closure plan, Security Information, may require revision due to the recent and upcoming security down grades on the Hanford Site.</p>
10.	3-1, 1	<p>Deficiency. A major deficiency of the plan is information on the actual demolition event. The process information does not provide a description of the event or associated actions. For example, was any post-treatment analysis conducted to verify treatment, or physical interaction with the site such as racking, shoveling, or watering down? Was waste containerized or free in pit during detonation? How were waste containers managed during and after the event? What color, how high, how wide was the explosion? Was material seen or heard hitting the ground?</p> <p>Requirement. Provide a detailed narrative of the event and associated actions. Address the following questions:</p> <ol style="list-style-type: none"> <li>a. Was the waste co-mingled and poured directly on the ground?</li> <li>b. How were waste containers managed during and after the event?</li> <li>c. What were the environmental conditions at the time?</li> <li>d. How, or was, waste inventory verified?</li> <li>e. What post-treatment activities were conducted?</li> </ol>
11.	3-1, 8	<p>Deficiency. First, the description of the "general" waste characteristic as being shock-sensitive or reactive is not appropriate. The major component of the waste (87%) was Phosphoric Acid, which is designated a corrosive and is neither shock-sensitive nor combustible.</p> <p>Second, this section of the plan describes the wastes as "excess or beyond designated stock life." Page 1-1, line 11 states that "this event was a form of thermal treatment for <u>spent</u> or <u>abandoned</u> chemical waste."</p>

No.	Page/Line	Comments
		<p><b>Requirement.</b> Correct or clarify the characteristic misrepresentation and specify if, or which, wastes were discarded chemical products. The process which generated the waste and the form (product versus spent/used material) in which it is disposed influences its designation. Consult WAC-173-303 for designation guidance. See comment 4.</p>
12.	3-1, 11	<p><b>Deficiency.</b> It is said that the wastes were contained, but no container description is provided.</p> <p><b>Requirement.</b> Provide a detailed description of the number, material, volume of container(s), and a description of the container management practices. Were the containers, or pieces of containers, removed from the site? If so, how were they managed? State exactly how the wastes were placed in the pit.</p>
13.	3-1, 13	<p><b>Deficiency.</b> Detonation materials are not included in the scope of sampling and analysis. Because these materials were derived from the treatment of dangerous waste and now are potentially mixed with dangerous wastes, they are now dangerous waste.</p> <p><b>Requirement.</b> The explosives used to initiate the detonation (and any regulated products potentially generated from the detonation) must be incorporated into the sampling and analysis plan. Revise text accordingly.</p>
14.	4-1	<p><b>Deficiency.</b> This chapter provides some valuable information, but overall it is inadequate.</p> <p><b>Suggestion.</b> Incorporate a column specifying the waste source (i.e., spent or in commercial form), the physical state, and action levels into Table 4-1 or generate a similar table.</p>
15.	T4-1	<p><b>Deficiency.</b> The function of the site is described as being for the detonation of shock-sensitive chemical waste. Comparing the relative quantities and characteristics of the wastes treated at the site indicates that Phosphoric Acid, a corrosive, comprised 87% of the total quantity of the waste treated at the unit. Phosphoric Acid is a liquid (unless</p>

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Comments

in pure form) which is not shock-sensitive or combustible. Because of the characteristics of the acid, it would have been dispersed during the detonation event without altering its hazardous characteristics.

Requirement. Sampling and analysis for this substance and its products is excluded from the closure plan.

16. Deficiency. It is not apparent how the dangerous waste codes presented in Table T4-1 were determined or if they are correct. Several of the sources of information are not appropriate for the purpose of designating waste.

Requirement. Waste must be designated in accordance with WAC 173-303-070, Designation of Dangerous Waste, using current information sources.

17. Deficiency. The detonation material is potentially regulated dangerous waste.

Requirement. Designate the material and products, and integrate into the cleanup process if determined to be hazardous waste.

18. Deficiency. Dangerous waste number U098 (1, 1-Dimethylhydrazine) is in the Part A, but is not included in Table 4-1. This waste has both ignitable and carcinogenic properties according to the National Institute of Occupational Safety and Health, *Registry of Toxic Effects of Chemical Substances*.

Requirement. Modify text and table to correct contradictions and correct deficiencies.

Deficiency. Sodium Azide is included in Table 4-1, but is not presented in the Part A. This is an Extremely Hazardous Waste with a Dangerous Waste number of P105, if disposed of in commercial form. The waste codes in Table 4-1 appear to contradict the representation of the wastes as outdated or excess chemicals. If this waste had been managed as an excess commercial product, it would carry the code P105.

Requirement. Modify text and table to correct contradictions and correct deficiencies.

No.	Page/Line	Comments
		<p>Deficiency. An asterisk is present on the "D" symbol in the key list following Table 4-1, typically indicating a reference to a clarifying statement, but no footnote or explanation is provided.</p> <p>Requirement. Modify text and table to correct contradictions and correct deficiencies.</p>
19.	5-1	<p>Deficiency. The text states that the Tri-Party Agreement (TPA) authorizes ground water to be remediated under CERCLA without intermittent RCRA monitoring.</p> <p>Requirement. This is not correct. RCRA monitoring is required. The monitoring can be coordinated with CERCLA monitoring. See comment regarding number 76.</p>
20.	6-1, 19	<p>Deficiency. Table 7-1 referenced here is said to take into account waste inventory, reaction products, and chemical degradation. The following sentence states that only analytes listed in Table 7-1 are traceable to 218-E-8 Demolition Site. Table 7-1 does not list all wastes detonated at the site or potentially regulated reaction or degradation products.</p> <p>Requirement. The closure plan must account for all dangerous wastes associated with the detonation site. This includes dangerous wastes generated from the treatment of the original wastes and materials used to treat the waste (i.e., the detonation materials).</p>
21.	6-1, 23	<p>Note. It is stated, "if at any time an imminent hazard is posed at the 218-E-8 Demolition Site, an expedited response will result to ensure worker safety."</p> <p>Requirement. Closure of the site must be conducted in a manner consistent with the closure plan. Deviation from the closure plan must be approved by Ecology.</p>
22.	6-1, 31	<p>Deficiency. The plan states that background will be Site-wide background threshold values as defined in the <i>Hanford Site Soil Background</i> (DOE/RL 1992a). At present, this study is not complete and Ecology has not yet received final data packages for constituents of concern.</p>

No.	Page/Line	Comments
		<p><b>Requirement.</b> Ecology must review and approve the <i>Hanford Site Soil Background</i> (DOE/RL 1992a) before the values can be implemented for closure.</p>
23.	6-1, 34	<p><b>Deficiency.</b> The plan states that if concentrations exceed initial action levels, health-based action levels will be assessed. This is not consistent with clean closure standards. It is expected that during the next revision of the Dangerous Waste Regulations, WAC 173-303, that the Model Toxics Control Act (MTCA) will be incorporated into the closure requirements. To date no guidance or policy has been issued allowing this approach to be implemented during present closure activities.</p> <p><b>Requirement.</b> If the concentration of waste at the site are below (or reduced to) background levels for listed or characteristic wastes, or to the designation limit for state-only waste managed at the site, clean closure will be achieved. If the site is closed with waste left in place post-closure requirements will be imposed.</p>
24.	6-1, 37	<p><b>Deficiency.</b> This paragraph discusses the proposed method to determine cleanup levels. It is said that the health-based levels will be based on equations and exposure assumptions presented in the <i>Hanford Site Baseline Risk Assessment Methodology</i> (DOE/RL 1992B). This is not appropriate.</p> <p><b>Requirement.</b> Health-based levels, if permitted for closure, are determined from MTCA. See two previous comments.</p>
25.	6-1, 47	<p><b>Deficiency.</b> The plan states that health-based levels will be based on values that are current at the time of approval of this closure plan.</p> <p><b>Requirement.</b> Ecology must approve all health-based levels implemented for closure.</p>
26.	6-1, 50	<p><b>Deficiency.</b> This paragraph discusses remedial activities and coordination with CERCLA remediation if it is determined that the action levels are exceeded.</p> <p><b>Requirement.</b> CERCLA <i>coordination</i> is acceptable if the time frame and other factors of remediation can be integrated with the RCRA closure. But the comprehensive RCRA closure will not be deferred to, or preempted by CERCLA remediation. If clean closure is not</p>

No.	Page/Line	Comments
		achieved, post-closure requirements will be imposed, including requirements to assure residual contamination will be addressed during CERCLA remediation.
27.	6-2, 36	<p><b>Deficiency.</b> The plan states that "actions will be/or have been taken". It is not clear which actions were conducted prior to preparation and approval of the closure plan.</p> <p><b>Requirement.</b> Actions previously conducted must be distinguished in order to evaluate the adequacy.</p>
28.	6-2, 43	<p><b>Deficiency.</b> This bullet states that the <i>Hanford Site Baseline Risk Assessment Methodology</i> implements WAC 173-304 (MTCA).</p> <p><b>Requirement.</b> See comment 24.</p>
29.	6-3, 20	<p><b>Deficiency.</b> The plan states that the samples will be analyzed by an on-site mobile laboratory capable of performing to EPA Analytical level III standards.</p> <p><b>Requirement.</b> See comment 2.</p>
30.	6-3, 34	<p><b>Deficiency.</b> The plan states that contamination at the 218-E-8 Demolition site is above the action level in the near-surface soils. The term near-surface is not defined or rationalized. It has not been justified why only near-surface sampling and analysis will be limited only to surface contamination.</p> <p><b>Requirement.</b> Removal of deeper contamination may be coordinated with CERCLA remediation, but investigation and planning can not be deferred. A plan will have to be developed and integrated into the closure plan.</p>
31.	7-1, 20	<b>Requirement.</b> "Substantially free" needs to be quantitatively defined.
32.	7-1, 31	<b>Requirement.</b> Explain analytical level III services as it applies to this closure. Specify if the mobile laboratory meets level III requirements.

No.	Page/Line	Comments
33.	7-1, 33	<p><b>Deficiency.</b> The text states that portable field screening instruments will provide adequate information for devising and implementing appropriate remedial action.</p> <p><b>Requirement.</b> Specify if further sampling will be conducted if constituents are found at significant concentrations.</p>
34.	7-1, 42	<p><b>Deficiency.</b> The closure plan states that it is necessary to have a general understanding of explosives and detonations in order to create a suitable soil sampling and analysis scheme. This is misleading because the major component of the waste detonated was a corrosive, Phosphoric Acid, which is non-combustible and non-explosive. When the detonation event occurred, this waste was probably dispersed over a larger area.</p> <p><b>Requirement.</b> Provide a discussion of the characteristics, impact of thermal treatment and final disposition of the Phosphoric Acid, in addition to the discussion presented.</p>
35.	7-2, 28	<p><b>Note.</b> This paragraph discusses the possibility for the generation of by-products from the detonation event.</p> <p><b>Requirement.</b> Incorporate regulated products into the analyte list.</p>
36.	7-2, 35	<p><b>Note.</b> This paragraph discusses the potential dispersion of waste from the detonation event. This factor will influence the final definition of the boundary.</p> <p><b>Requirement.</b> Modify text to reflect this consideration.</p>
37.	7-2, 49	<p><b>Deficiency.</b> This section refers to the waste inventory list which is inadequate.</p> <p><b>Requirement.</b> It must account for all dangerous wastes detonated or generated from the detonation at the site.</p>
38.	7-3, 11	<p><b>Note.</b> It is stated that the concentrations of any dangerous waste constituents that may remain in the soil after closure would probably exist in very low concentrations.</p>

No.	Page/Line	Comments
		<b>Requirement.</b> Specify whether the mobile laboratory will or will not be able to detect such concentrations.
39.	7-3, 18	<b>Deficiency.</b> Portable field screening instruments are considered level I, not level I or II.
		<b>Requirement.</b> Modify text to reflect this consideration.
40.	7-3, 43	<b>Deficiency.</b> It is not specified how it was determined that this was the only compound from the Toxic Characteristics List.
		<b>Requirement.</b> Provide a thorough discussion of this determination.
41.	7-4, 1	<b>Deficiency.</b> There is concern for on-site calibration of instruments. Is it conceivable that the instruments may be less sensitive because of local contamination?
		<b>Requirement.</b> Provide a discussion to demonstrate that this concern has/or will be addressed.
42.	7-4, 18	<b>Deficiency.</b> The exclusion of Sodium Azide and the Nitrate ion from the target analyte list is not appropriate.
		<b>Requirement.</b> Revise the sampling and analysis plan to reflect WAC 173-303 regulation of these substances. Sodium Azide and the Nitrate ion, which is not environmentally benign at certain concentrations, and any regulated decomposition products shall be incorporated into the sampling and analysis plan.
		<b>Note.</b> Due to the potential for implementing MTCA standards in the future, it may be advisable to address MTCA standards for these substances.
43.	7-4, 28	<b>Deficiency.</b> Phosphoric Acid consisted of 87% of the total quantity of wastes detonated at the site (Table 4-1). Because the acid is neither combustible nor shock-sensitive, it was probably dispersed rather than treated by the detonation.

No.	Page/Line	Comments
		<b>Requirement.</b> The acid and any regulated decomposition products shall be incorporated into the sampling and analysis plan.
		<b>Note.</b> Consult the Dangerous Waste regulations (WAC 173-303) for proper waste designation procedures and (the Model Toxic Control Act, WAC 173-340, for potential) cleanup standards.
44.	7-4, 38	<b>Requirement.</b> The sampling design must be evaluated by a statistician prior to conducting any work to determine if the sampling and analyses are adequate to determine extent of contamination.
		Add a provision for bias sampling in areas of visual contamination, down wind areas, and deeper in pit areas, in addition to random sampling.
45.	7-4, 48	<b>Deficiency.</b> Due to the heterogenous nature of the waste detonated at the site, and the fact that materials may have been driven to considerable depths from the explosion, contaminants are not likely to be evenly distributed. One surface sample from the approximate center is not adequate.
		<b>Requirement.</b> Sampling will have to be conducted not only at the surface, but also at substantial depth under the site. Refer to previous comment.
		<b>Note.</b> The small amount of samples proposed in this section does not appear to warrant the use of a mobile laboratory.
46.	7-5, 5	<b>Deficiency.</b> It is stated that surface sampling will be conducted at two locations. This is inadequate.
		<b>Requirement.</b> At each sampling location, sampling and analysis for organics should be conducted at a minimum for both the top layer and the next underlying layer.
47.	7-5, 19	<b>Deficiency.</b> The text states that the soil sampling will occur to a depth of 18 inches below grade at six inch intervals.

No.	Page/Line	Comments
		<b>Requirement.</b> In addition at each sampling location, sampling and analysis for organics will be conducted for both the top layer and the next underlying layer.
48.	7-5, 38	<b>Note.</b> One kilogram equals 2.2 pounds, not 2 pounds. Also, pounds is a unit of weight not volume.
49.	7-5, 49	<b>Deficiency.</b> Quantitation limits implemented as action levels must be justified.
		<b>Suggestion.</b> Modify Table 4-1 to incorporate columns specifying the action level associated with potential contaminants and the basis for such levels. For example, are specific action levels established from background measurements, detection limits, etc.
50.	7-6, 3	<b>Deficiency.</b> Action levels must be determined prior to sampling and analysis. The text should mention when action levels will be proposed and contaminant levels will be compared against proposed action levels. More information is needed on the site background threshold values. At present, the <i>Hanford Soil Background Study</i> is going on, and as far as we know, we have yet to receive the final values for various organics and inorganics of concern.
		<b>Requirement.</b> Modify the text to correct deficiencies. See comment 22.
51.	7-6, 11	<b>Deficiency.</b> Preparatory procedures lack detail and sample preparation is neglected.
		<b>Requirement.</b> Modify the text accordingly.
52.	7-6, 35	<b>Deficiency.</b> Supercritical fluid extraction (SFE) is not appropriate because it has yet to be approved for use.
		<b>Requirement.</b> Revise text to reflect the use of approved methods of sampling and analysis.
53.	7-6, 38	<b>Deficiency.</b> X-ray fluorescence is not an approved method for metals characterization. It is only to be used as an in-field method to determine sampling locations or areas of contamination.

No.	Page/Line	Comments
		Requirement. Revise text to reflect the use of approved methods of sampling and analysis.
54.	7-6, 45	Deficiency. The discussion of the configuration of series does not address potential impacts on analytical results (i.e., burn off organics before analyzing for them) from variations in the configuration.  Requirements. Address the influence of the configuration of the series on the analytical results.
55.	7-6, 47	Detection limits for Volatile Organics in ground water is 10 micrograms per liter according to SW-846.  Requirement. Address why the detection limit presented here is significantly higher.
56.	7-6, 50	Deficiency. Procedures for calibration of analytical equipment is said to be based on mobile lab and published EPA procedures. The concern is that combining the procedures could allow for manipulation of performance and not be consistent with EPA requirements.  Requirement. Provide supporting evidence that these procedures will be consistent with EPA requirements.
57.	7-7, 26	Deficiency. Using unapproved methods may lead to unacceptable data.  Suggestion. Do not rely solely on this procedure. See comment 52.
58.	7-7, 34	Deficiency. X-ray fluorescence is not an approved method for metals characterization. It is only to be used as an in-field method to determine sampling locations or areas of contamination.  Also the atomic number of Sodium is 11 and Phosphorous is 15. If the detection limit is atomic number 11, that is too close to target values and may introduce significant error in the analytical data.

No.	Page/Line	Comments
		<b>Requirement.</b> Revise text to reflect the use of approved methods of sampling and analysis. Consider contaminants when selecting analytical methods.
59.	7-7, 39	<b>Deficiency.</b> Detection limits for target RCRA metals are set to 20 micrograms per gram. Do these detection limits meet the Dangerous Waste requirements of background levels for characteristic and listed wastes and designation limits for state only wastes?  <b>Requirement.</b> Compare the detection limits with the WAC 173-303 regulatory levels.
60.	7-7, 44	<b>Deficiency/Requirement.</b> See previous comment.
61.	7-8, 16	<b>Deficiency.</b> The on-site mobile laboratory's capabilities are not equivalent to analytical level III. Verification analysis must be performed by EPA level III criteria (SW-846), which can only be performed by an EPA certified laboratory. The mobile lab provides only level II analyses.  <b>Requirement.</b> Unless certified, the mobile lab should only be used to aid in determining sampling locations and plume mapping during remediation.
62.	7-8, 52	<b>Requirement.</b> On-site mobile laboratory calibration procedures must be fully compliant with EPA requirements.
63.	7-9, 10	<b>Deficiency.</b> Calibration of instruments only once a day, or shift, may introduce significant error. Calibration may be affected by varying environmental conditions throughout the day, such as a change in temperature or humidity.  <b>Requirement.</b> Calibration schedules must respond to ambient environmental fluctuations.
64.	7-10, 33	<b>Requirement.</b> All clean closure sample data should be compiled in Contract Laboratory Procedure (CLP) format. Consult SW-846, chapter 1, for guidance on the forms which Ecology will accept.
65.	7-11, 32	<b>Deficiency.</b> WAC 173-303-610 is not included in the citations consulted for the development of soil cleanup action levels.

No.	Page/Line	Comments
		<p>Requirement. To be considered clean closure, soil contamination must be less than or equal to background or designation limits for state only wastes. If soil contamination concentrations are greater than those stated, they would be considered a modified landfill closure. This would require compliance with reduced landfill requirements. Also, see comment 23.</p>
66.	7-12, 12	<p>Deficiency. The determination of sampling locations by using random algorithm for initial characterization as specified in section 7.2.3 is acceptable. But the location of sampling points for calculation of the volume of contaminated soil demands a systematic protocol. Sampling plans with well defined grid spacing, locations, etc. might vary depending on the results obtained in the initial characterization.</p> <p>Requirement. The sampling plan will require approval prior to implementation.</p>
67.	7-12, 31	<p>Deficiency. The proposed two foot vertical depth for sampling is inadequate.</p> <p>Requirement. Significantly increase the proposed sampling depth. Consider twelve foot depth.</p>
68.	7-13, 12	<p>Note. The application of water during removal to control dust needs careful examination and will depend on the contaminant of concern. There is a good chance that contaminants can migrate with water downward during the process. This is especially so since excavation is limited. Other dust control devices may have to be applied depending on the nature of the contaminants.</p>
69.	7-14, 15	<p>Deficiency. Regulatory requirements require that verification sample analysis be done at level III or IV. A mobile laboratory does not qualify.</p> <p>Requirement. Verification analyses must be done by EPA approved methodology, some of which can only be done in a stationary laboratory.</p>
70.	7-15, 14	<p>Deficiency. A closure plan can be amended prior to final closure, but only with approval from the lead regulatory agency, which is Ecology in this case. This requirement was ambiguously presented in the closure plan.</p>

No.	Page/Line	Comments
71.	F7-1	<b>Requirement.</b> Provide a direction arrow.
72.	F7-1	<b>Requirement.</b> Show the location of the detonation pit.
73.	F7-1	<b>Deficiency.</b> Sampling locations do not cover downwind areas.
		<b>Requirement.</b> Sampling must be done to characterize all potentially contaminated areas.
74.	F7-1	<b>Deficiency.</b> Surface layer sampling in the middle of the site (probably the pit) is not appropriate. The contamination of wastes in the center of the site is suspected to be the greatest and deepest.
		<b>Requirement.</b> Modify sampling plan and figure to address deficiency.
75.	T7-1	<b>Deficiency.</b> This table is inadequate.
		<b>Requirement.</b> Regulated decomposition and reaction products must be included in the list of target analytes. Appropriate methodologies, action levels, and detection limits need to be listed. Also list method modifications and metal analysis.
76.	8-2, 15	<b>Deficiency.</b> This is not an adequate explanation of potential integration of RCRA with CERCLA.
		<b>Requirement.</b> If such an approach is to be considered, a much more complete discussion must be provided. Yearly inspection of the site until CERCLA remediation is not adequate. Methods to integrate sampling and analysis requirements, minimize the migration of wastes, and security of the site until remediation would have to be developed.
77.	Appendix	<b>Comment.</b> A general comment about the appendix is that it appears lacking.
		<b>Suggestion.</b> Information about process knowledge, spill/occurrence reports, and the detonation event (i.e., a description of the actual event and environmental conditions) would be helpful.

No.	Page/Line	Comments
78.	7A-1, 26	<p>Deficiency. Surface sampling is specified as the objective of the investigation. This is not appropriate.</p> <p>Requirement. The objective of the investigation is to determine the extent of contamination at the site. Revise the text accordingly.</p>
79.	7A-1, 42	<p>Requirement. If remediation is required, confirmatory samples are required and must be done in an EPA approved laboratory at level III analysis, not a mobile laboratory.</p>
80.	7A-2, 1	<p>Suggestion. EPA-QZMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," should also be referenced.</p>
81.	7A-10	<p>Deficiency. The reference provided for validation procedures, "Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002)," is a validation procedure for Contract Laboratory Program (CLP) sample data, not analyses performed under SW-846. The correct reference should be: Sample Management and Administration (WHC-CM-5-3)."</p> <p>Requirement. Revise the text to correct the error.</p>

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200 WEST ASH PIT DEMOLITION SITE CLOSURE PLAN  
 REVISION 0  
 NOTICE OF DEFICIENCY  
 February 26, 1993

No.	Page/Line	Comments
<b>General</b>		
1.		<p><b>Deficiency.</b> The level of detail of several chapters in this closure plan is inadequate.</p> <p><b>Requirement.</b> 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, or</li> <li>b. the conditions assumed in the plan adequately reflect actual conditions of the unit.</li> </ul>
2.		<p><b>Deficiency.</b> Throughout the closure plan there are references to using only a mobile laboratory for sampling and analysis. It is not stated that this is an EPA accredited laboratory or if any secondary or follow-up analysis will be conducted at an accredited laboratory.</p> <p>The mobile laboratory is good for initial site characterization to determine where contamination is located, but it can not meet SW-846 requirements.</p> <p>There is no discussion of the impact on the closure schedule if the mobile laboratory is not be acceptable or available for the closure.</p> <p><b>Requirement.</b> Correct the deficiencies of the text.</p>
3.		<p><b>Comment.</b> The closure plan also cites many internal Westinghouse procedural manuals. It is not clear if these documents fulfill the EPA/Ecology requirements.</p>

No. Page/Line

Comments

Specific

4. 1-1, 13 **Deficiency.** States that, "this event was a form of thermal treatment for spent or abandoned chemical waste." This is inconsistent with the waste description provided in Chapter 3, Process Information. Chapter 3.0 describes the waste as excess or beyond shelf life. If this is the case, then the materials are not spent waste. The contradiction must be corrected because it affects the waste designation.
- Requirement.** Specify the source or process which generated the waste and the form (product versus spent/used material) in which it was disposed. Consult the Dangerous Waste Regulations, Washington Administrative Code (WAC) 173-303-070 for designation guidance.
5. 1-1, 20 **Deficiency.** The plan does not present adequate information to determine if the waste has been properly designated. Information regarding the source of the waste (i.e., process derived from) and a distinction between wastes disposed in commercial form and those which were spent material is necessary to make such a determination.
- Requirement.** See previous comment (4).
6. 2-2, 1 **Deficiency.** The description of the demolition site does not provide adequate detail to allow potential exposure pathways to be evaluated.
- Requirement.** Provide description of depth to water table, soil characteristics, meteorological information, and waste containment, if any, used during the detonation. Because the events do not appear to have been contained, these conditions may have significantly influenced the dispersion of contaminants. Therefore, incorporate these factors into the development of an appropriate sampling and analysis plan.
7. 2-2, 10 **Deficiency.** The text states that portions of the ash pit were used for other activities. It is not evident from the discussion if these activities impacted the ash pit or not.
- Requirement.** Specify if activities not associated with the demolition events were conducted in or adjacent to the demolition site.

No.	Page/Line	Comments
8.	2-2, 22	<p><b>Deficiency.</b> It is not clear how the boundary of the demolition site was determined.</p> <p><b>Requirement.</b> Provide rationale for boundary determination. The boundary of the site may have to be revised if contamination from the unit is detected outside the designated area.</p>
9.	2-2, 27	<p><b>Note.</b> This section of the closure plan, Security Information, may require revision due to the recent and upcoming security downgrades on the Hanford Site.</p>
10.	3-1, 1	<p><b>Deficiency.</b> A major deficiency of the plan was information on the actual demolition event. The process information chapter does not provide a description of the event or associated actions. For example, was any post-treatment analysis conducted to verify treatment, or physical interaction with the site such as racking, shoveling, or watering down? Was waste containerized or free in pit during detonation? How were waste containers managed during and after the event? What color, how high, how wide was the explosion? Was material seen or heard hitting the ground?</p> <p><b>Requirement.</b> Provide a detailed narrative of the event and associated actions. The following questions need to be addressed:</p> <ul style="list-style-type: none"> <li>a. Was the waste poured directly on the ground, allowing wastes to be forced into the ground by the explosion?</li> <li>b. How were the waste containers managed during and after the event?</li> <li>c. What were the environmental conditions at the time?</li> <li>d. How, or was, waste inventory verified?</li> </ul>
11.	3-1, 8	<p><b>Deficiency.</b> This section of the plan describes the wastes as "excess or beyond designated stock life." Page 1-1, line 11 states that "this event was a form of thermal treatment for <u>spent</u> or <u>abandoned</u> chemical waste."</p> <p><b>Requirement.</b> Specify the source or process which generated the waste and the form (product versus spent/used material) in which it was disposed. Consult the Dangerous Waste Regulations, Washington Administrative Code (WAC) 173-303-070 for designation guidance.</p>

No.	Page/Line	Comments
12.	3-1, 25	<p><b>Deficiency.</b> The text states that chemicals were <i>placed at the bottom</i> of the pit with detonation devices placed around and <i>on top</i> of the chemicals. There is no discussion of how, or if, the waste was containerized.</p> <p><b>Requirement.</b> Provide a detailed description of the number, composition, volume, and management practices of the containers associated with the wastes detonated at the site. Were the containers, or pieces of containers, removed from the site? If so, how were they managed? State exactly how the wastes were placed in the pit (i.e., poured out of containers).</p> <p><b>Note.</b> Placement of the detonation devices on top of the waste is of concern because it may have forced the waste into the soil due to the force of the explosion.</p>
13.	3-1, 27	<p><b>Deficiency.</b> Detonation materials are not included in the scope of sampling and analysis. These materials are now dangerous waste, because they were both derived from the treatment of dangerous waste and now are potentially mixed with dangerous wastes.</p> <p><b>Requirement.</b> The explosives used to initiate the detonation (and any regulated products potentially generated from the detonation) must be incorporated into the sampling and analysis plan.</p>
14.	3-1, 29	<p><b>Comment.</b> The text states that inspections were conducted following the detonation event.</p> <p><b>Requirement.</b> Provide detailed description of the focus of inspection, environmental conditions, size, and intensity of the explosion, and any "unofficial" inspection reports or records.</p>
15.	4-1	<p><b>Deficiency.</b> This chapter provides some valuable information, but overall it is inadequate.</p> <p><b>Suggestion.</b> Incorporate a column specifying the waste source (i.e., spent or in commercial form), the physical state, and action levels.</p>

No.	Page/Line	Comments
16.	T4-1	<p><b>Deficiency.</b> Several blanks exist on the second and third page of the table. This is inappropriate. The missing components of the table and the statement that "the <i>known</i> inventory of chemicals that were detonated is listed in Table 4-1" (4-1, 12) raises concerns regarding the accuracy of the information presented.</p> <p><b>Requirement.</b> Provide the missing information.</p>
17.	T4-1	<p><b>Deficiency.</b> It is not apparent how the dangerous waste codes presented in Table T4-1 were determined, or if they are correct. The sources of information are not appropriate for the purpose of designating waste.</p> <p><b>Requirement.</b> Correct deficiencies and discrepancies of text.</p>
18.	T4-1	<p><b>Deficiency.</b> The detonation material is potentially regulated dangerous waste. However, the material and its products are not designated.</p> <p><b>Requirement.</b> Correct deficiencies and discrepancies of text. Designate the material.</p>
19.	T4-1	<p><b>Deficiency.</b> An asterisk is present on the "D" symbol in the key list following Table 4-1, typically indicating a reference to a clarifying statement, but no footnote or explanation is provided.</p> <p><b>Requirement.</b> Correct deficiencies and discrepancies of text.</p>
20.	5-1	<p><b>Deficiency.</b> The text states that the Tri-Party Agreement (TPA) authorizes ground water to be remediated under CERCLA without intermittent RCRA monitoring. This is not correct. RCRA monitoring is required, but it may be coordinated with CERCLA monitoring.</p> <p><b>Requirement.</b> Modify the text accordingly.</p>
21.	6-1, 17	<p><b>Requirement.</b> Action levels must be approved by Ecology.</p> <p><b>Suggestion.</b> A table should be generated which integrates this information in Table 4-1.</p>

No.	Page/Line	Comments
22.	6-1, 19	<p><b>Deficiency.</b> Table 7-1, referenced here, is said to take into account waste inventory, reaction products, and chemical degradation. The following sentence states that only analytes listed in Table 7-1 are traceable to the demolition site. Table 7-1 does not account for all wastes detonated at the site or potentially regulated reaction or degradation products.</p> <p><b>Requirement.</b> The closure plan must account for all dangerous wastes associated with the detonation site. This includes dangerous wastes generated from the treatment of the original wastes and materials used to treat the waste (i.e., the detonation materials).</p>
23.	6-1, 23	<p><b>Note.</b> The plan states, "if at any time an imminent hazard is posed at the Ash Pit Demolition Site, an expedited response will result to ensure worker safety."</p> <p><b>Requirement.</b> Closure of the site must be conducted in a manner consistent with the closure plan. Deviation from the closure plan must be approved by Ecology.</p>
24.	6-1, 31	<p><b>Deficiency.</b> The plan states that background will be site-wide background threshold values as defined in the <i>Hanford Site Soil Background</i> (DOE/RL 1992a).</p> <p><b>Requirement.</b> Ecology must review and approve the <i>Hanford Site Soil Background</i> study (DOE/RL 1992a) before the values can be implemented for closure.</p>
25.	6-1, 34	<p><b>Deficiency.</b> The plan states that if concentrations exceed initial action levels, health-based action levels will be assessed. This is not consistent with clean closure standards. It is expected that during the next revision of the Dangerous Waste Regulations, WAC 173-303, that the Model Toxics Control Act (MTCA) will be incorporated into the closure requirements. To date no guidance or policy has been issued allowing this approach to be implemented.</p> <p><b>Requirement.</b> If the concentration of waste are below (or reduced to) background levels for listed or characteristic wastes or to the designation limit for state-only waste managed at the site clean closure will be achieved. If the site is closed with waste left in place post-closure requirements will be imposed.</p>

No.	Page/Line	Comments
26.	6-1, 37	<p>Deficiency. This paragraph discusses the proposed method to determine cleanup levels. It is said that the health-based levels will be based on equations and exposure assumptions presented in the <i>Hanford Site Baseline Risk Assessment Methodology</i> (DOE/RL 1992B). This is not appropriate.</p> <p>Requirement. Health-based levels are determined from the Model Toxic Control Act (MTCA). See two previous comments.</p>
27.	6-1, 47	<p>Deficiency. The plan states that health-based levels will be based on values that are current at the time of approval of this closure plan.</p> <p>Requirement. Ecology must approve all health-based levels implemented for closure.</p>
28.	6-1, 50	<p>Deficiency. This paragraph discusses remedial activities and coordination with CERCLA remediation if it is determined that the action levels are exceeded.</p> <p>Requirement. CERCLA <i>coordination</i> is acceptable if the time frame and other factors can be integrated with the RCRA closure. But closure of the unit will not be deferred to, or preempted by, the CERCLA remediation. If clean closure is not achieved, post-closure requirements will be imposed, including requirements to assure residual contamination will be addressed during CERCLA remediation.</p>
29.	6-2, 10	<p>Requirement. Simply cite the regulations or incorporate the entire section.</p>
31.	6-2, 36	<p>Deficiency. The plan states that the following actions will be/or have been taken. It is not clear which actions were conducted prior to preparation and approval of the closure plan.</p> <p>Requirement. Actions conducted prior to submittal of the closure plan must be distinguished in order to evaluate the adequacy.</p>
32.	6-2, 43	<p>Deficiency. This bullet states that the <i>Hanford Site Baseline Risk Assessment Methodology</i> implements WAC 173-304 (MTCA).</p>

No.	Page/Line	Comments
		Requirement. See comment 24.
33.	6-3, 20	<p>Deficiency. The plan states that the samples will be analyzed in an on-site mobile laboratory capable of performing to EPA Analytical level III standards.</p> <p>Requirement. See comment 2.</p>
34.	6-3, 29	<p>Deficiency. Table 7-1, referenced here, provides a list of target analytes that is inadequate because it does not address by-product and degradation products.</p> <p>Requirement. Modify text accordingly. See comment 22.</p>
35.	6-3, 34	<p>Deficiency. This section of the plan addressed contamination at the demolition site above the action levels only in the near-surface soils. It is not appropriate to address only near-surface contamination.</p> <p>Requirement. Removal of deeper residual contamination may be coordinated with CERCLA remediation but investigation and planning can not be deferred. If such an approach were implemented a plan would have to be developed to assure that RCRA closure standards would be met by the final remediation.</p> <p>Note. Action levels described here are not consistent with other areas of the text. Health-based levels should not be used to define action levels at this point.</p>
36.	7-1, 28	<p>Deficiency. The plan specifies that samples will be analyzed by an on-site mobile laboratory capable of performing to EPA analytical level III standards.</p> <p>Requirement. Explain analytical level III services as it applies to this closure. Specify if the mobile laboratory meets level III requirements. See comment 2.</p>
37.	7-1, 32	<p>Deficiency. The text states that portable field-screening instruments will provide adequate information for devising and implementing appropriate remedial actions.</p>

No.	Page/Line	Comments
		<b>Requirement.</b> Specify if more elaborate sampling and analysis will be conducted if constituents are found at significant concentrations.
38.	7-2, 27	<b>Deficiency.</b> This paragraph discusses the possibility for the generation of by-products from the detonation event. <b>Requirement.</b> Incorporate regulated products into the analyte list.
39.	7-2, 34	<b>Deficiency.</b> This paragraph discusses the potential dispersion of waste from the detonation event. This factor will influence the determination of the boundary. <b>Requirement.</b> Modify text to reflect this consideration.
40.	7-2, 47	<b>Deficiency.</b> This section refers to the waste inventory list. The waste inventory list is inadequate. <b>Requirement.</b> It must account for all dangerous wastes detonated or generated from the detonation at the site.
41.	7-3, 5	<b>Requirement.</b> See comments 38 and 39.
42.	7-3, 11	<b>Note.</b> It is stated that the concentrations of any dangerous waste constituents that may remain in the soil after closure would probably exist at very low concentrations. <b>Requirement.</b> Specify whether the mobile laboratory will, or will not, be able to detect such concentrations.
43.	7-3, 15	<b>Requirement.</b> See comment 38 and 39.
44.	7-3, 18	<b>Deficiency.</b> Portable field screening instruments are considered level I, not level I or II. <b>Requirement.</b> Modify the text to reflect this consideration.

No.	Page/Line	Comments
45.	7-3, 43	<p><b>Deficiency.</b> It is not clear why Methyl Ethyl Ketone was the only compound selected from the Toxic Characteristics List.</p> <p><b>Requirement.</b> Provide a thorough discussion of this determination.</p>
46.	7-4, 1	<p><b>Deficiency.</b> There is concern for on-site calibration of instruments. Is it conceivable that the instruments may be less sensitive because of local contamination?</p> <p><b>Requirement.</b> Provide a discussion to demonstrate that this concern has or will be addressed.</p>
47.	7-4, 28	<p><b>Deficiency.</b> Table 7-1, cited here, is incomplete. Several metals are present in combined form as indicated by the list provided in chapter 4. Pure metals are not expected to be found at the site.</p> <p><b>Requirement.</b> Incorporate sampling and analysis for all regulated compounds detonated or generated at the site.</p>
48.	7-5, 45	<p><b>Requirement.</b> The sampling design must be evaluated by a statistician prior to conducting any work to determine if the sampling and analysis are adequate to determine the extent of contamination.</p> <p>In addition to random sampling, add a provision for bias sampling in areas of visual contamination, down wind, and deeper in pit areas.</p>
49.	7-6, 1	<p><b>Deficiency.</b> Due to the heterogenous nature of the waste detonated at the site, and the fact that materials may have been driven to considerable depths from the explosion, contaminants are not likely to be evenly distributed. One surface sample from the approximate center of the pit is not adequate.</p> <p><b>Requirement.</b> Sampling will have to be conducted not only at the surface but also at substantial depth under the site. See previous comment.</p>

No.	Page/Line	Comments
50.	7-6, 11	<p><b>Deficiency.</b> It is stated that surface sampling will be conducted at two locations. This is inadequate.</p> <p><b>Requirement.</b> At each sampling location, sampling and analysis for organics should be conducted at a minimum for both the top layer and the next underlying layer.</p>
51.	7-6, 26	<p><b>Deficiency.</b> The text states that the soil sampling will occur to a depth of eighteen inches below grade at six inch intervals. This is not adequate.</p> <p><b>Requirement.</b> At each sampling location, sampling and analysis for organics should be conducted for both the top layer and the next underlying layer and the depth of analysis must be substantially deeper. Provide explanation of how soil removed prior to sampling will be managed.</p>
52.	7-7, 6	<p><b>Deficiency.</b> Quantitation limits implemented as action levels must be justified.</p> <p><b>Suggestion.</b> Modify Table 4-1 to incorporate columns specifying the action levels associated with potential contaminants and the basis for such levels. For example, are specific action levels established from background measurements, detection limits, etc.</p>
53.	7-7, 10	<p><b>Deficiency.</b> Action levels must be determined prior to sampling. The text should mention when action levels will be proposed and contaminant levels will be compared against proposed action levels. More information is needed on the site background threshold values. At present, the <i>Hanford Soil Background Study</i> is going on, and Ecology has yet to receive and review the finalized values for various organics and inorganics of concern.</p> <p><b>Requirement.</b> Revise text accordingly. See comment 24.</p>
54.	7-7, 17	<p><b>Deficiency.</b> Preparatory procedures lack detail and sample preparation is neglected.</p> <p><b>Requirement.</b> Revise text accordingly.</p>

No.	Page/Line	Comments
55.	7-7, 19	<p><b>Deficiency.</b> Initial characterization analysis must be performed by EPA level III criteria (SW-846) which can only be performed by an EPA certified stationary laboratory. The mobile lab provides only level II analyses. Therefore, the mobile lab should only be used to aid in determining sampling locations and plume mapping during remediation.</p> <p><b>Requirement.</b> Modify text accordingly.</p>
56.	7-7, 41	<p><b>Deficiency.</b> Supercritical fluid extraction (SFE) is not appropriate due to the fact that it has yet to receive EPA approval.</p> <p><b>Requirement.</b> Revise the text to reflect the use of approved methods of sampling and analysis.</p>
57.	7-7, 44	<p><b>Deficiency.</b> X-ray fluorescence is not an approved method for metals characterization. It is only to be used as an in-field method to determine sampling locations or areas of contamination.</p> <p><b>Requirement.</b> Revise the text to reflect the use of approved methods of sampling and analysis.</p>
58.	7-7, 49	<p><b>Deficiency.</b> The discussion of the configuration of the analytical series does not address potential impacts on analytical results from variations in the configuration (i.e., burn off organics before analyzing for them)</p> <p><b>Requirements.</b> Address the influence of the configuration of the series on the analytical results.</p>
59.	7-8, 4	<p><b>Deficiency.</b> Procedures for calibration of analytical equipment is said to be based on mobile lab and published EPA procedures. The concern is that combining the procedures could allow for manipulation of performance or not be consistent with EPA requirements.</p> <p><b>Requirement.</b> Provide supporting evidence that these procedures will be consistent with EPA requirements.</p>

No.	Page/Line	Comments
60.	7-8, 31	<p><b>Deficiency.</b> Utilizing unapproved methods may lead to unacceptable data.</p> <p><b>Requirement.</b> Do not rely solely on this procedure.</p>
61.	7-8, 34	<p><b>Requirement.</b> See comment 57.</p>
62.	7-8, 44	<p><b>Deficiency.</b> Detection limits for target RCRA metals are said to 20 micrograms per gram. Do these detection limits meet the Dangerous Waste requirements of background levels for characteristic and listed wastes and designation limits for state only wastes?</p> <p><b>Requirement.</b> Compare the detection limits with the WAC 173-303 regulatory levels.</p>
68.	7-8, 51	<p><b>Requirement.</b> See previous comment.</p>
69.	7-9, 8	<p><b>Deficiency.</b> The on-site mobile laboratory's capabilities are not equivalent to analytical level III. Verification analysis must be performed by EPA level III criteria (SW-846), which can only be performed by an EPA accredited laboratory. The mobile lab provides only level II analyses.</p> <p><b>Requirement.</b> Unless accredited, the mobile lab should only be used to aid in determining sampling locations and plume mapping during site initial characterization.</p>
70.	7-10, 1	<p><b>Requirement.</b> On-site mobile laboratory calibration procedures must be fully compliant with EPA requirements.</p>
71.	7-9, 10	<p><b>Deficiency.</b> Calibration of instruments only once a day, or shift, may introduce significant error. Calibration may be effected by varying environmental conditions throughout the day, such as a change in temperature or humidity.</p> <p><b>Requirement.</b> Calibration schedules must respond to fluctuations in ambient environmental conditions.</p>

No.	Page/Line	Comments
72.	7-11, 35	<b>Requirement.</b> All clean closure sample data should be compiled and submitted in Contract Laboratory Procedure (CLP) format. Consult SW-846, Chapter 1, for guidance on the forms which are appropriate.
73.	7-12, 34	<b>Deficiency.</b> WAC 173-303-610 is not included in the citations consulted for the development of soil cleanup action levels.  <b>Requirement.</b> To be considered clean closure, soil contamination must be less than or equal to background or designation limit for state only wastes. If soil contamination concentrations are greater than those just stated, they would be considered a modified landfill closure. This would require compliance with reduced landfill requirements. Also see comment 25.
74.	7-13, 12	<b>Deficiency.</b> The determination of sampling locations by using random algorithm for initial characterization as specified in section 7.2.3 is acceptable. But the location of sampling points for calculation of the volume of contaminated soil demands a systematic protocol. Sampling plans with well defined grid spacing, locations, etc., might vary depending on the results obtained in the initial characterization.  <b>Requirement.</b> The sampling plan will require approval prior to implementation.
75.	7-13, 29	<b>Deficiency.</b> The proposed two feet vertical depth for sampling is inadequate.  <b>Requirement.</b> Significantly increase the proposed sampling depth. Consider twelve foot depth.
76.	7-14, 12	<b>Note.</b> The application of water during removal to control dust needs careful examination and will depend on the contaminant of concern. There is a good chance that contaminants can migrate with water downward during the process. This is especially so since excavation is limited. Other dust control devices may have to be applied depending on the nature of the contaminants.
77.	7-15, 15	<b>Deficiency.</b> Regulatory requirements require that verification sample analysis be done at level III or IV. A mobile laboratory does not qualify.

No.	Page/Line	Comments
		Requirement. Verification analyses must be done by EPA approved methodology, SW-846, some of which can only be done in a stationary laboratory.
78.	7-16, 14	Deficiency. A closure plan can be amended prior to final closure but only with approval from the lead regulatory agency which is Ecology in this case. This requirement was ambiguously presented in the closure plan.  Requirement. Revise the text.
79.	F7-1	Requirement. Provide a direction arrow.
80.	F7-1	Requirement. Show the location of the detonation pit.
81.	F7-1	Deficiency. Sampling locations are not biased to include downwind areas.  Requirement. Sampling must be done to characterize all potentially contaminated areas.
82.	F7-1	Deficiency. Surface sampling in the middle of the site (probably the pit) is not adequate. The contamination of wastes in the center of the site is suspected to be the greatest and deepest.  Requirement. Modify the sampling plan and figure to address deficiencies.
83.	T7-1	Deficiency. This table is inadequate.  Requirement. Regulated decomposition and reaction products must be included in the list of target analytes. Appropriate methodologies, action levels, and detection limits need to be listed.
84.	8-2, 15	Deficiency. This is not an adequate explanation of potential integration of RCRA with CERCLA.  Requirement. If such an approach is to be considered, a much more elaborate discussion must be provided. Yearly inspection of the site until CERCLA remediation is not adequate.

No.	Page/Line	Comments
		Methods to integrate sampling and analysis requirements, minimize the migration of wastes, and security of the site until remediation would have to be developed.
85.	Appendix	<p>Comment. A general comment about the Appendix is that it is inadequate.</p> <p>Suggestion. Provide information about process knowledge, spill/occurrence reports, and the detonation event (i.e., a description of the actual event and environmental conditions).</p>
86.	7A-1, 25	<p>Deficiency. The objective of the investigation is to determine the extent of contamination at the site. Surface sampling is specified as the objective of the investigation. This is not correct.</p> <p>Requirement. Revise the text accordingly.</p>
87.	7A-1, 43	<p>Requirement. If remediation is required, confirmatory samples are required and must be done in an EPA approved laboratory at level III analysis.</p>
88.	7A-2, 4	<p>Suggestion. EPA-QZMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," should also be referenced.</p>
89.	7A-10, 17	<p>Deficiency. The reference provided for validation procedures, "Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002)," is a validation procedure for Contract Laboratory Program (CLP) sample data, not analyses performed under SW-846. The correct reference should be: Sample Management and Administration (WHC-CM-5-3).</p> <p>Requirement. Revise the text accordingly.</p>