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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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November 10, 1994

Mr. Robert G. Holt
Acting Hanford Project Manager
U.S. Department of Energy
Richland Field Office
P. O. Box 550
Richland, WA 99352



Dear Mr. Holt:

Re: 100 NR-1 Limited Field Investigation Report Document Number
DOE/RL-93-80 Draft A

38268

The Washington State Department of Ecology and the Environmental Protection Agency have reviewed the above referenced document and are providing you with our comments. The applicable section precedes the comment and suggested resolution.

Should you or your staff have questions regarding this submittal, please do not hesitate to contact me at (509) 736-3029.

Sincerely,

Handwritten signature of Phillip R. Staats in cursive.

Phillip R. Staats
Unit Manager
Nuclear Waste Program

PS:skr
Enclosure

cc: Bryan Foley, USDOE ✓
Pam Innis, EPA

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INTRODUCTION

The Washington State Department of Ecology (Ecology) and the Environmental Protection Agency (EPA) have reviewed the *Limited Field Investigation Report for the 100-NR-1 Operable Unit (DOE/RL-93-80, Draft A)*. The document, dated August 1994, was prepared by the U.S. Department of Energy (USDOE) for the Hanford site in Richland, Washington, and was reviewed against the *RCRA Facility Investigation/Corrective Measure Study Work Plan for the 100-NR-1 Operable Unit, Hanford Site, Richland, Washington* (DOE 1994). The general and specific comments which follow focus on the technical accuracy and completeness of the report.

GENERAL COMMENTS

The text and tables presented in the limited field investigation (LFI) report are inconsistent in many cases. Table ES-1 lists the 116-N-3 site as one of the Resource Conservation and Recovery Act (RCRA) facility sites for which LFI data are available. However, Section 3.2.2 of this report indicates a field investigation and soil sampling for this site were not included in the LFI. Task 9A in Table 1-1 indicates the cultural resources are reviewed in Section 1.3.2, but this discussion is actually found in Section 1.4.3. Table 1-2 and Table ES-1 list sites 1322-N/NA (sample buildings), 116-N-2 (treatment and storage facility), and others as high-priority sites for which LFI data are available. Table 5-2, however, describes these sites as being of medium priority. All the tables in the report should be reviewed for accuracy and consistency with the text.

SPECIFIC COMMENTS

Table ES-2, page EST-2

Deficiency: The occasional use scenario is the only scenario included in the table. This does not represent the other options available such as residential (frequent) use.

Recommendation: Please include a residential (frequent) use scenario in the table.

Table ES-2, page EST-2

Deficiency: The table cites the environmental hazard quotient as being above, below, or not rated against a value of 1. This does not give the reader the true value of the potential hazard associated with the unit. Replacing the generic terms with the number calculated would provide the necessary information.

Recommendation: Replace the terms yes, no, and not rated with the calculated numeric values.

Section 1.2, page 1-3, first paragraph

Deficiency: The use of the word integration in reference to the new strategy for the implementation of RCRA/CERCLA requirements is inappropriate.

Recommendation: Please revise the sentence to replace the word integration with the word coordination.

Section 1-2, page 1-4, third paragraph

Deficiency: The statement is made an ERA for skyshine abatement has been identified. If this is the case, Ecology looks forward to receiving the Engineering Evaluation/Cost Analysis (EE/CA) study for this ERA.

Recommendation: Please include a date by which time the EE/CA will be available for agency comment.

Section 2.9, page 2-6, first bullet

Deficiency: This section refers to data validation and states "some of the maximum concentrations were changed, as necessary, to the next lowest detected value if blank evaluation changed a listed maximum concentration." Detected contaminants cannot be changed to lower levels based on blank contamination or any other quality control problem.

Recommendation: Samples for which concentrations have been lowered should be identified, and their original concentrations listed.

Table 2-1, page 2T-1a

Deficiency: The LFI investigation approach column of this table indicates chemical and radionuclide analyses were conducted for sites 120-N-2 and 120-N-1. However, Sections 3.3.2.2 and 3.4.2.2 indicate no radionuclide analyses were conducted for either of these sites. In addition, Sections 3.1.2.1, 3.1.2.2, and 3.1.2.3 indicate chemical and radionuclide analyses and field screening were conducted at 116-N-1 site, whereas, Table 2-1 does not list these activities for this site.

Recommendation: These inconsistencies should be corrected.

Table 2-3b, pg. 2T-3b

Deficiency: In the last column of the table (Final Results) the qualifier seems to be 'JU.' The explanation for this table lists qualifiers "UJ, U, and J", but not specifically "JU." Is this qualifier J plus U? In which case, it is ambiguous because they are listed as meaning opposite things.

Recommendation: Please clarify this.

Table 2-4a, page 2T-4aa

Deficiency: This table presents the 100-NR-1 LFI results of inorganic blank evaluation. The third column is titled "Ten Times Laboratory Blank Result." Inorganic blank contamination follows the "five-times" rule, which is correctly used in this table.

Recommendation: The column title should be corrected to show the five-times rule has been used.

Section 3.1, page 3-2, fourth paragraph

Deficiency: The cumulative inventory of selected radionuclides with half lives >1 year excludes tritium. Why has this contaminant of concern been specifically excluded? This comment is also applicable to Section 3.2

Recommendation: Please include the value for tritium.

Section 3.1, page 3-3, dangerous waste table

Deficiency: The table does not agree with the revised Part A submittal for this TSD unit. This comment is also applicable to Section 3.2.

Recommendation: Insure the constituents and amounts listed agree with the Part A for each unit.

Section 3.1.2.1, page 3-4

Deficiency: The detection of methylene chloride and acetone are explained as being, among other things, typical laboratory contaminants. This may, in fact, be the case as the Part A for this unit indicates laboratory wastes were among the wastes disposed of in this unit. This comment is also applicable to Sections 3.1.4 and 3.4.3.

Recommendation: Include a statement in this section which identifies the on-site laboratory as being a possible source of this contamination.

Section 3.1.3.3, page 3-7, first and second paragraphs

Deficiency: It is stated radiation surveys were conducted from April to July 1992, while the N Reactor was in operation. This cannot be, as the use of this crib was converted to the 1325N crib

in 1983 with complete cessation of use in 1985. Beyond that, N Reactor was placed in shutdown condition in 1987.

Recommendation: Please correct the dates when the survey was completed, or revise the text which describes the conditions which existed at the time of the survey.

Section 3.1.4, pg. 3-8

Deficiency: The concentrations of VOC at depth in borehole N-80 indicates more than a "possibility these compounds are . . ." of concern. It seems to be a probability (regardless of lack of mention in historic records) they are here.

Recommendation: Plans should be made to investigate this further as the IRM is implemented.

Section 3.2.3.3, page 3-11

Deficiency: The statement is made a radiation survey was conducted at this unit June 17, 1985, at a time when no effluent waters were being received. As stated above, at least some or all effluent water from the reactor would have been discharged to this unit at the time of the survey. Perhaps the information describing the 116-N-1 and 116-N-3 cribs may have been transposed.

Recommendation: Please verify the data, time of collection, and the unit described are correct.

Section 3.3.3, pg. 3-14

Deficiency: In section 3.3.2.1, chemical analyses indicate the presence of VOC in well borehole 120-N-2. In section 3.3.2.3, it is stated VOC were detected by field screening methods during well drilling. In section 3.3.3, "acetone was also detected in soils in well N-77." Then, in the same section, it is concluded, "these low levels of VOC are likely attributable to sampling media or laboratory contamination." VOC are detected in the field, in the laboratory, and there is a potential source, but the conclusion is, they are not there.

The same argument can be made for the following sections where conclusions are given which state the presence of VOC in samples is due to sampling error or laboratory contamination. A more fully developed stream of logic is in order to convince the reader this dismissal is appropriate. See sections: 3.4.3, 3.5.3, 3.11.3, 3.12.3, and 3.13.3.

Recommendation: Clarify why the VOC are not present?

Section 3.3.3, page 3-15, second paragraph

Deficiency: This section states copper is the only inorganic element detected above the Hanford background levels at 120-N-2. Table 3-25a and 3-25b indicate cadmium is also present at levels above the Hanford site background at 120-N-2.

Recommendation: Revise the section to include cadmium as being present above Hanford background levels.

Section 3.5.3, page 3-20

Deficiency: The detection of acetone, methylene chloride, and toluene are dismissed as being attributable to contamination from sampling equipment or the laboratory, even though none of the reported values were flagged as being suspect. Is there another source for this contamination, such as it exists at this unit? This comment is also applicable to Section 3.13.3.

Recommendation: Please revise the text to provide a full explanation why the reader should discredit the laboratory results for these constituents, while being asked to believe the remainder of the data or provide other reasonable sources for this contamination.

Section 3.14.3, page 3-43

Deficiency: It is noted in this section, there is a potential source for VOC unrelated to UN-100-N-17. Possible causes of this could relate to the other sampling hits in some way?

Recommendation: Please expand this section to include where other sources of VOC contamination may have come from.

Section 3.15, page 3-45

Deficiency: The last sentence on the page describes a future work item: what is the source of the elevated radiation readings at grid number 377? Will this be done as part of an IRM?

Recommendation: Please expand this section to include a description of the pathway which will be followed to identify the source.

Figures 3-14, page 3F-14

Deficiency: Since this figure shows the dose rates detected around the 116-N-3 crib and trench, dose rate units should be identified in the legend.

Recommendation: Revise the legend to include the dose rate units.

Section 4.2.2.1, pages. 4-8 and 4-9

Deficiency: There are numerous references to tables 4-8a-d and table 4-9. These tables were not included with this draft.

Recommendation: Please include all references in the document.

Section 5.2.2, page 5-2

Deficiency: In discussing the conceptual model for each waste site, the text refers to high- and medium-priority sites. The sites investigated under this LFI have been categorized as high- and low-priority waste sites, not medium-priority. Medium *risks* have been established based on the qualitative risk assessment (QRA).

Recommendation: If the intent of this section and Table 5-2 is to reprioritize some high-priority sites as medium priority, then this process should be discussed in detail.

Table 5-2, page 5T-2a

Deficiency: This table summarizes the nature and extent of contaminants for the high- and medium-priority sites at the 100-NR-1 operable unit. Nickel is listed as one of the contaminants at site 116-N-1. Nickel was not, however, included as one of the detected inorganics at this site as listed in Tables 3-8a and 3-8b, nor was it discussed in the text.

Recommendation: Detected contaminants should be consistently identified both in tables and in the text of this report.

Section 5.2.5, page 5-4

Deficiency: This section identifies contaminants of potential concern (COPCs) for the 100-NR-2 LFI. It would be beneficial to the reader if maximum contaminant levels and maximum groundwater concentrations for the COPCs are presented in this section.

Recommendation: Please include the maximum contaminant levels and maximum groundwater concentrations for the COPCs.

Section 5.3.4, page 5-7

Deficiency: This section indicates the 120-N-1, 120-N-2, and south settling pond sites were not included in the QRA for the 100-NR-1 operable unit. However, these sites *were* included in the QRA.

Recommendation: This section should be corrected. This comment also applies to Sections 5.3.5 and 5.3.6.

Table 5-4, page 5T-4

Deficiency: This table presents the IRM recommendations for 100-NR-1 high- and medium-priority sites, and shows no potential for natural attenuation by the year 2018 at site 116-N-2. Section 5.2.4, however, states risk will be reduced by natural attenuation at this site. In addition, Tables 3-9 and 3-10 of the QRA show the frequent-use risk drops from greater than 1E-2 to 1E-3 from 1992 to 2018. Finally, the table indicates the environmental hazard quotient (EHQ) was not above 1 for the 1322-N/NA site. On the other hand, Section 5.3.3 of this LFI indicates the EHQ was >1. Similar inconsistencies were noted for site 166-N (Section 5.3.5).

Recommendation: This table should be reviewed and corrected where necessary.