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Mr. E. R. Skinnarland  
200 Area Section Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
1315 West 4th Avenue  
Kennewick, Washington 99336-6018

Dear Mr. Skinnarland:

NONRADIOACTIVE DANGEROUS WASTE LANDFILL (NRDWL) SAMPLING AND ANALYSIS PLAN (SAP) AND DATA QUALITY OBJECTIVES (DQO) PROCESS SUMMARY REPORT, BHI-01073, REV. 0

Please find enclosed, the subject document (Enclosure 1) for your information. This document was revised based on comments received from the U.S. Department of Energy, Richland Operations Office (RL), and the State of Washington Department of Ecology (Ecology). Dispositions to these comments are provided, as Enclosure 2.

The SAP defines the approach and methods to be followed in performing a soil gas survey at NRDWL. The SAP is based on the DQO developed through meetings with RL, Ecology, and the Environmental Restoration Contractor. The DQO Process Summary Report is provided as Appendix A of the SAP.

If you have any questions, please contact me at 376-7087.

Sincerely,

  
Bryan L. Foley, Project Manager  
Groundwater Project

GWP:BLF

Enclosures: As stated

cc w/encls:  
L. Cusack, Ecology  
G. Mitchem, BHI  
S. Mohan, Ecology

13) I think the QAPjP can ve improved upon. I don't have time to finish writing comments about this portion but I can refer the author to EPA/600/9-89/087, Preparing Perfect Project Plans, A Pocket Guide for the Preparation of Quality Assurance Project Plans. I have a copy on my bookshelf in my office. Feel free to borrow it. I think this QAPjP falls into the Category 2 type outlined in the pocket guide.

*Response: Applying a graded approach, Section 3.0 "Quality Assurance Project Plan" is considered to have an appropriate level of detail considering that this sampling effort is a simple field screening job. The pocket guide was reviewed and category IV was felt to be the appropriate level. The combined SAP, QAPjP, and referenced supporting procedures are considered to be adequate for this level. One item that was not addressed is the comparability of the data sets; this will be added to the QAPjP.*

12) The draft DQO summary report at Appendix A must be signed by DOE and Ecology and included in the SAP as a final agreed to set of DQO's. An alternative would be to reference that DOE and Ecology approval of the SAP reflects final approval of the DQO summary report too. There must be objective evidence of the DOE and regulator agreement on the DQO's and of SAP approval.

*Response: Agree: The document title will be modified to include the DQO report and the document approval form will modified to include DOE and Ecology approval lines. In addition, a sentence will be added to Section 1.2 stating that DOE and Ecology approval of the SAP reflects final approval of the DQO summary report (Appendix A).*

13) The SAP should contain a schedule reflecting start-up and ending dates, including key preliminary activities and laboratory activities.

*Response: Agree: a schedule will be added.*

Given the fact that I am going to be on leave during the time you will be resolving comments and revising the SAP, you will disposition my comments without RL review of the proposed comment resolution. I expect BHI will be reponsive and complete in resolving regulatory comments on this SAP. I must insist that the DQO summary report in Rev 0 is a final draft with objective evidence of it having been agreed to by both DOE and Ecology.

I am copying Mike Thompson, my senior project manager on this note. Please feel free to contact him if you need signatures or guidance in my absence.

Thanks.  
Bryan

**Ecology Comments with Responses on the  
Nonradioactive Dangerous Waste Landfill Sampling and Analysis Plan,  
BHI-01073, Draft A.**

**General Comment:**

The Plan is a well written document. It is concise and for the most part, contains the information essential to describe the elements and logic behind the sampling approach. There are no serious reservations with respect to the locations and prioritization of sampling, as long as Phase 1 and Phase 2 are both completed. It is very important that soil gas samples are collected at all target depths for sampling to be determined whether it is NRDWL or SWL that is responsible for groundwater contamination. The data from these locations will also facilitate intelligent close decisions.

*Response: Agree; No changes are required.*

**Specific Comments**

Page 1-3, para 5

The actual procedures used to emplace drums into the trenches is questionable. This paragraph portrays the procedure too ideally. Chemicals may not have been placed in the trenches as described in this paragraph. According to former workers, drums containing chemical waste were often crushed with heavy equipment. Reportedly, the equipment operator was sometimes sprayed with the contents of these drums as they were being crushed.

*Response: Agree; The level of detail provided by this paragraph is not needed and will be deleted.*

Page 1-4

No mention is made in this section that NRDWL lies on the north flank of the Cold Creed Syncline, and that as a result, the subunits comprising the vadose zone dip to the south-southwest. It is the south-southwest dip of the soil subunits, and the south easterly dip of the axis of the syncline, which may be acting together, to control the movement of contaminants to the south-southwest.

*Response: Per Ecology's comment on page 2-2, a new paragraph will be added to clarify the logic behind the sampling scheme. The local geology will be discussed as a factor in this new paragraph.*

a figure that shows the boundary as described in relation to SWL. Please reference where the southern border was originally defined (closure plan, part A permit???)

*Response: Agree; the paragraph will be clarified accordingly*

8) Section 2.5: Are there established "holding times" specified for soil gas samples? Where is the field sampler and analytical lab tracking sample holding times? I do not see that listed as an item of information on the sample label. Should it be? Is it possible for a soil gas sample to degrade in concentration from the time the sample is pulled to the time it is analyzed? The SAP specifies samples will not be held longer than 8 hrs prior to analysis. What is the reference standard for this holding time?

*Response: Per procedure BHI-EE-05, 1.6 "Analysis of Volatile Organic Compounds in Soil", soil gas samples should be collected and analyzed on the same day. This is reflected in the SAP. Holding times are not recorded on the label. The holding time for the analysis is specified on the Field Sampling Requirements (FSR) form required per BHI-EE-01, 2.1 "Sample Event Coordination". Upon receipt of the samples, the analyst verifies that the holding time per the FSR, has not been exceeded based on chain of custody records. Specifically, we are planning to sample in the morning and to perform the analyses in the afternoon. This holding time is specified to minimize the effect of degradation.*

9) Section 3.1: Please specify that the technical lead's authority to direct and approve all technical aspects of this sampling activity must remain within the direction provided by the DQO summary report signed by DOE and Ecology and the final approved SAP.

*Response: Agree; the paragraph will be clarified accordingly.*

10) Somewhere in this SAP or in the DQO summary report the consequences of incorrect decisions or conclusions based on the sampling results should be clearly stated.

*Response: Since no agreement was reached regarding decisions in the field, both Phase I and II sampling will be performed. As a result, no consequences related to incorrect field decisions will be realized. No changes required.*

11) Are there any measurements that are critical to achieving the sampling objectives? If so, the critical measurements should be identified.

*Response: Critical measurements are considered to be the Phase I effort (see section 2.3). This will be clarified in Section 2.3.*

Section 2 is the heart of the SAP. It summarizes the determination of sampling location and frequency, (depth) but does not go far enough.

There should be a more detailed explanation of the logic behind the determination and prioritization of deep sampling locations. It appears that the groundwater flow direction is the determining factor in deciding on the locations and priority of sampling locations whereas should be the dip of the subunits in the vadose zone. Sampling of locations D11, D12, D13 and D14 is agreeable before locations D7, D9 and D10, on the basis that the dip of the soil subunits has a greater effect on contaminant movement than does groundwater flow direction. This may give us more flexibility in defining the contaminant plume within and downdip from NRDWL, and in selecting target depths. The sequence or priority of sampling the different locations will to a large extent be determined in the field, based on the success of Geoprobe in penetration to the target depths, however not looking for contamination downgrading of NRDWL before we are able to ascertain if whether it is moving straight south toward SWL may be advantageous for us.

*Response: A paragraph will be added to Section 2.3 to clarify the logic. D12, D13, and D14 are part of the Phase II investigation and will be performed in that order since any changes would necessitate reopening the DQOs. No changes to the sampling scheme.*

This section looks good. No comments.

*Response: none needed*

Ecology, DOE and ERC have met to develop guidelines to convert soil gas to soil cleanup levels. The guidelines should be defined in the document and made available to the field staff before the commencement of the fieldwork. It should also be explained as to how the data will be used for placement of the probes during the characterization process.

*Response: DOE and Ecology have initiated discussions on guidelines to convert soil gas concentrations to soil cleanup levels using either MTCA or MCLs. However, these*

**DOE-RL Comments with Responses on the  
Nonradioactive Dangerous Waste Landfill Sampling and Analysis Plan,  
BHI-01073, Draft A.**

1) Last sentence of paragraph 1.1 should also include the fact that the resulting data will assist in validating the waste site's current priority for remediation.

*Response: Agree; the paragraph will be clarified accordingly.*

2) I also think the SAP should address what the resulting data will do for the existing closure plan (and reference the closure plan and submittal date). Perhaps a "background history section is needed.

*Response: Agree; A background section will be added. If the plan is to proceed with the 200 Soil Remediation Strategy, the resulting data would not impact the existing closure plan but rather the Nonradioactive Landfill group LFI Work Plan.*

3) I believe it is also important to state that the original intent of this sampling was to supplement the SWL's plan to do similar work in FY97 and that DOE agreed to sample NRDWL too to provide a more complete, current picture of contaminant presence and potential migration.

*Response: Agree; This will be addressed in the new background section.*

4) In section 1.2 please replace DOE-RL NRDWL Project Manager with DOE-RL Environmental Restoration Program's 200 Area Remedial Actions Project Manager.

*Response: Agree; The correction will be made as stated.*

5) Also please state reference that both Ecology's NRDWL unit manager (Shri) and project manager (Laura) were present at the DQO workshop.

*Response: Agree; the paragraph will be clarified accordingly.*

6) Section 1.3 first sentence can be made clear by stating that the COC's for this SAP are TCE, etc...based on previous soil gas data (Jacques, 1993) from the NRDWL.

*Response: Agree; the paragraph will be clarified accordingly.*

7) Section 1.4: The sentence added referring to definition of the southern boundary of NRDWL is confusing. Please clarify and refer to

*discussions have not been completed. The intent of these discussions was to determine a de minimus value for which all parties were in agreement that additional sampling would not be required. Since an agreement has not been reached at this time, the SAP will not include these values, but both Phase I and Phase II activities will be performed.*

Page A-8

Correct the organization of E. M. Mattlin.

*Response: Agree; the correction will be made.*