



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION I  
JOHN F. KENNEDY FEDERAL BUILDING  
BOSTON, MASSACHUSETTS 02203-0001

May 20, 1997  
Mr. Fred Evans  
Department of the Army  
Northern Division  
Naval Facilities Engineering Command  
10 Industrial Hwy., Mail Stop #82  
Lester, PA 19113-2090

Re: Draft Work Plan  
Teepee Incinerator (Site 29) and Building 238 (Site 10)  
Portsmouth Naval Shipyard  
Kittery, Maine

Dear Fred:

The United States Environmental Protection Agency (EPA) has reviewed the draft document entitled "Work Plan, Teepee Incinerator (Site 29) and Building 238 (Site 10) for Portsmouth Naval Shipyard, Kittery, Maine". The document is dated March 1997.

EPA's comments on this document are provided in Attachment I to this letter.

If you have any questions regarding the comments, please contact me at (617)573-5785.

Sincerely,

A handwritten signature in cursive script that reads "Meghan F. Cassidy".

Meghan F. Cassidy  
Remedial Project Manager

Enclosure

cc: Marty Raymond/PNS  
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## ATTACHMENT I

The following are EPA's comments on the draft document entitled "Work Plan, Teepee Incinerator (Site 29) and Building 238 (Site 10) for Portsmouth Naval Shipyard, Kittery, Maine". The document is dated March 1997.

### GENERAL COMMENTS

1. In general, the work plan for the preliminary investigations at Sites 10 and 29 is comprehensive and presented in a readily accessible format. There are some areas as identified in the comments below which require additional clarification or correction. It should be noted that some of the specific comments directly impact other sections of the report and that the entire report should be reviewed again with respect to the modifications for consistency.
2. Several errors were noted in the text including missing words, typographical errors and incorrect SOP numbers. The work plan should be reviewed carefully and corrected as needed.
3. Several specific comments are provided on Table 3-4, Table 5-1, Table 5-2 and the text of the work plan concerning analytical methods and the number of samples. Changes made to any of the tables or text should also be made to the other tables to ensure that they are consistent with each other.
4. Consideration should be given to the installation of an upgradient monitoring well at Building 238, Site 10 to distinguish between contamination as a result of the leaking tank and building pipes from contamination which may originate from upgradient sources.

### SPECIFIC COMMENTS

1. Section 2.2.1, Site 29 (Teepee Incinerator), Page 2-6. This section is missing a discussion on the ash disposal area shown in Figure 2-3. If available, the estimated volume of ash disposed and the estimated dimensions of the disposal area should be included.
2. Page 2-7, Figure 2-3: Show the approximate location of the former tank on the figure.
3. Section 2.2.2, Site 10 (Building 238), Page 2-8. The *On-Shore Feasibility Study Report for the Portsmouth Naval Shipyard, Volume 1, March 1995*, contains additional information on Site 10 including the 2-inch hole discovered in the bottom of the tank, the liquid level inside the tank which fluctuated with the tide, etc., which should be included in this section.
4. Section 3.1.1, Site 29 (Teepee Incinerator), Page 3-1, Paragraph 1. It is stated that the boundaries of the ash disposal (fill) area are known as shown on Figure 2-3. The source of information, or the method applied, which determined the boundaries should be presented. Section 3.1.2, Site 10 (Building 238), Page 3-6, Paragraph 2. It is stated that a single soil boring/monitoring well will be installed near the source area of the former UST removal and Figure 3-2 is referenced. Comparing this location to Figure 2-8, Page 2-77 of the *On-Shore*

*Feasibility Study Report* shows that the proposed boring/well location may be within the backfill material placed in 1986 after the tank was removed. It is recommended that the proposed monitoring well location with respect to the backfill area be verified and that a rationale for the location of the well and well screen be provided.

It is recognized that the tidal fluctuations in the former tank area have caused a distribution (vertical and horizontal) and dilution of the waste battery acid in the soil and ground water over time; however, the information in Table 3-3 indicates that borings were only sampled to a maximum of 5 to 7 ft [During Phase IV of the RFI, three test borings were drilled around the perimeter of the tank and sampled to depths which were more than 6.5 feet above the location of the leak in the tank. Table 3-3 indicates sampling intervals of 1 to 3 feet at BASB-03, 1 to 5 ft at BASB-02, and 5 to 7 ft at BASB-01]. Drilling the proposed boring to the depth, and below, of the leak and sampling at appropriate intervals is recommended. There is a possibility that, if the waste battery acid was neutralized sufficiently as a result of neutralizing agents or dilution, the metals may have had the opportunity to adsorb to the soil (e.g., partition to organic carbon and/or clay).

With respect to the monitoring well, it would also be good practice to install the well to a depth below 13.5 feet to capture the general zone where the leak occurred and place the screen accordingly. The depth to which soil was removed during the tank excavation, and clean fill was placed, is not available in the *On-Shore Feasibility Study Report*; however, all available information from the removal action should be reviewed carefully to ensure that the boring/monitoring well is installed in at a location and depth which will provide data that represents the source being characterized.

5. Page 3-5, Figure 3-1: The figure should designate the former open burning area.
6. Section 3.1.1: The Work Plan proposes only one soil boring near the location of the former incinerator. This is based on the premise that there have been previous samples collected in this area. These samples (SS-10, SS-11, SS-26 and SS-27) however, appear to have been sampled for pesticides and metals only.

EPA does not consider the proposed work at Site 29 sufficient to characterize the nature and extent of contamination that may be present due to the operation of the teepee incinerator. Additional soil boring locations are necessary. In addition, analytical work on soils from these locations should include volatiles and semivolatiles.

7. Section 3.1.2, Site 10 (Building 238), Page 3-6, Paragraph 2. It is stated that confirmatory sampling was not performed after the tank was removed. However, Section 2.1.4. of the *On-Shore Feasibility Study Report for the Portsmouth Naval Shipyard, Volume I, March 1995*, states that soils were sampled at the time of the tank removal and no further clean up action was required by the MEDEP. This is an important point and the statement in the work plan should be corrected or clarified.

8. Section 3.2: The text indicates that borings in the natural material and the boring proposed in the vicinity of the incinerator will be sampled to a depth of only four feet. These borings should extend through the overburden to bedrock or to a depth of 12 feet with representative sampling.

9. Section 3.2, Field Activities, Page 3-9, Paragraph 4. It is stated that one monitoring well will be drilled to the water table to monitor local ground water conditions at Site 10 (Building 238). Because the water table fluctuates as a result of the tide at the current proposed location of this monitoring well, this statement does not provide adequate information regarding the depth of screened interval of the well. It is recommended that additional well construction details be provided to account for tidally influenced groundwater fluctuations.

10. Table 3-4, Field Activities, Page 3-10. This table indicates that both total and filtered samples will be collected from the monitoring well to be installed at Site 10. Section 4.0 and Table 5-1 do not include the sampling and analysis of filtered ground water samples. Based on this discrepancy, it is unclear whether the groundwater samples will be subject to field filtering. Because low-flow groundwater sampling techniques are to be employed during this investigation, field filtering would not be anticipated without sufficient justification. This issue should be clarified.

11. Table 3-4: There is a discrepancy between the text (Section 3.2) and Table 3-4 with regards to the pH analysis. pH analysis has not been specified in the text for the soil samples collected at the Teepee incinerator and the surface soil samples collected in the basement of building 238. It is presumed, because Table 5-1 supports Table 3-4 with regards to the number of pH analyses, that the text is incomplete and should thus be corrected to include this analysis.

12. Table 3-4, Field Activities, Page 3-10. Cyanide is included in the analyses for ground water from Building 238; however, cyanide is not included in the analysis of soil from the monitoring well soil boring. It is not clear why cyanide would be analyzed for in one media and not the other. It is recommended that this section be clarified as appropriate.

13. Table 3-4, Field Activities, Page 3-10. Table 4-1, Page 4-3, of the *Groundwater Investigation and Monitoring Plan for the Portsmouth Naval Shipyard, November 1996*, states that groundwater would be analyzed for phenols since phenols were detected in soil near the Old Incinerator east of the DRMO. Consideration should be given to including soil analysis for phenols at the Teepee Incinerator site.

14. Table 3-4, Field Activities, Page 3-10. Table 4-1, Pages 4-2 and 4-3, of the *Groundwater Investigation and Monitoring Plan for the Portsmouth Naval Shipyard, November 1996*, includes analytical parameters such as chloride, nitrate, bromide, sulfate and alkalinity for baseline conditions monitoring in support of general water quality information. The inclusion of these parameters should be considered at Building 238.

15. Section 4.1.3, Monitoring Well Purging and Sampling:

- a) Paragraph 2: This paragraph describes how those monitoring wells that are tidally influenced will be sampled at low tide and those that are not will be sampled independent of tide. The one well that is being installed and sampled at Site 10 is so close to the shoreline that it is most likely to be tidally influenced, however, the work plan does not specify how and when this will be determined. Thus, it is recommended that the procedures used to determine and document tidal influence be included as part of the Work Plan.
- b) Second paragraph, page 4-5: This paragraph infers that the only turbidity measurement to be read outside the flow-through cell (with a visible light source meter) is the measurement just prior to sampling. As stated in the low flow sampling procedure, all turbidity measurements are to be taken outside the flow-through cell. Particulate can build up in the cell during purging and greatly affect the turbidity readings. In addition, the only EPA approved technique for measuring turbidity is through the use of a visible light source, which the YSI turbidity probe does not provide. Note, the YSI turbidity readings can be used as an effective way to monitor any build up of particulate in the cell, and thus, determine if the cell requires rinsing out during the well purging process (i.e., when turbidity readings do not correlate between the probe and the visible light source meter). It is recommended that the above procedures related to turbidity measurements using a visible light source meter be incorporated into the Work Plan.
- c) First paragraph, page 4-6: The last sentence of this paragraph states that "The field crew will verify the preservation of each sample except VOCs using pH paper." EPA recommends that, prior to collecting the groundwater samples for VOC analysis, a test VOA vial and pH paper should be used to determine the appropriate amount of acid to be added to the groundwater sample to properly preserve it. This quick pre-test takes only a few moments to perform, but can save possible headaches later on if the VOC samples were to arrive at the laboratory improperly preserved. Note, the groundwater test sample can merely be added to the purge waste for disposal later. Thus, it is recommended that the sentence in question be modified to include this pre-test procedure.

16. Section 4.1.2, Monitoring Well Installation, Page 4-2, Paragraphs 1 and 2. The use of a 0.020-inch slot opening well screen with a standard sieve size No. 20 - 30 sand filter pack is not consistent with the SOP Section 5.2.2, Paragraph 5, which states that a No. 10 - 20 standard sieve size filter pack is typically appropriate for a 0.020-inch slot screen. This paragraph should be corrected or if stated correctly, any deviations from the SOP should be explained.

17. Section 4.1.3, Monitoring Well Purging and Sampling, Page 4-3. A section should be inserted after Section 4.1.2 and before Section 4.1.3 to discuss Water Level Measurements. It should be clearly stated in this section that water level measurements will be collected before purging and sampling.

18. Section 4.1.4, Building 238 Sampling, Page 4-6. The depth at which the surface soils will be collected (i.e., 0 to 1 ft) in the basement of Building 238 should be specified in this section.

19. Section 4.1.5, Background Soil Sampling, Page 4-6. The rationale for selecting the two new background locations should be presented. Also, borings will be drilled at the Teepee Incinerator site and sampled at intervals for dioxin analysis to a maximum depth of 12 ft; however, only surface soils at the background locations are proposed for analysis. Since it would not be appropriate to compare background surface soil dioxin results to subsurface dioxin results at the Teepee Incinerator site, the collection of subsurface background samples for dioxin analysis should be considered.

20. Section 4.2, Sample Identification System, Page 4-8. There are several inconsistencies in this section. The sample identification example presented (BA-01-GW-97) is not consistent with the format of the diagram. Additionally, since subsurface samples will be collected at multiple depths, it is recommended that the sample depth be included in the sample tracking number. The sample identification system presented is also not consistent with SOP CT-04, Section 5.0. This section should be carefully reviewed and revised.

21. Section 4.1.5, Background Soil Sampling: A primary concern in collecting background samples is that they be representative of the matrix of the samples being collected. The work plan for the Teepee incinerator differentiates the soil sampling locations between those in natural soil material and those in fill material. Thus, it is recommended that the background sample locations be evaluated with respect to this fact, such that both matrices get sampled.

22. Table 5-1, Analytical Program Sampling:

- a) There is a error between Tables 5-1 and 5-2 for the analysis methods chosen for TAL metals and cyanide. It is presumed that Table 5-2 is reflective of the correct methods, however, the tables should be corrected appropriately.
- b) The text of the work plan (Section 3.2 and Table 3-4) does not indicate that TAL pesticides/PCBs will be analyzed for in the groundwater sample. Tables 5-1 and 5-2, or the text, should be corrected to reflect the appropriate analyses for the groundwater samples.
- c) Based on Table 3-4, the number of samples collected for pH analysis in column 4 of Table 5-1 should be 23, not 22.
- d) Based on the work plan stated frequency of 10% duplicate analyses, and the fact that the plan distinguishes between the two soil matrices for natural material and fill material, EPA recommends the number of duplicate soil samples shown in Table 5-1 be increased to two (2) for the TAL pesticides/PCBs and dioxin analyses (one for each soil matrix at site 29) and three (3) for the "TAL metals and pH analyses (one for each soil matrix at site 29 and one for the soil matrix at site 10).

Note, although no duplicate pH analyses have been specified in this work plan, EPA feels that an understanding of the precision of this method is as important as any other method and thus, highly recommends that duplicates be included.

23. Table 5-1, Analytical Program Summary, Page 5-2. TCL Pesticides/PCBs is specified here; however, this analysis is not included for ground water in Section 3.2 or Table 3-4. This discrepancy should be corrected.
24. Table 5-1, Analytical Program Summary, Page 5-2. The method specified for TAL Inorganics and Cyanide in ground water, RCRA SW3010/6010, is not consistent with Table 5-2 which specifies CLP ILM03.0 in ground water. This discrepancy should be corrected.
25. Table 5-2, Sample containers, Preservation and Holding Times: The pH holding time for groundwater analysis specifies 28 day. EPA recommends that this be changed to the same holding time, "analyze immediately", as that is used for the soil analyses.
26. Table 5-2, Sample Containers, Preservation Methods, and Holding Times, Page 5-3. The preservative  $\text{Na}_2\text{SO}_3$  should be removed from the soils - dioxin analysis under the column for Preservation.
27. Table 5-2, Sample Containers, Preservation Methods, and Holding Times, Page 5-3. The color of the container (e.g., amber glass) should be specified as this is important for certain samples to be protected from exposure to light such as the dioxin samples.
28. Section 9.0, Analytical Procedures, Page 9-1, Paragraph 1. As a result of the expected salinity in the samples to be collected, the laboratory will need to make modifications to compensate for matrix interference. In turn, the detection limits may increase. If this is addressed in a SOP, this SOP should be referenced. If not addressed in an SOP, a discussion of this issue should be included.
29. Section 14.3.1, Comparison with PRGs and Other Criteria, Page 14-5, Paragraph 3. It should be clearly stated that the monitoring well to be installed at Building 238 will be tidally influenced and therefore the water will be saline or brackish and not fresh water.
30. Section 14.3.2, Risk Assessment, Page 14-6, Paragraph 3, Bullets 1 and 2. The hazard quotient referenced as 0.1 should be 1.0.