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

June 5, 1996

Commanding Officer
Attn: Code 1823/Lt. Conroy
NORTHNAVFACENGCOM
10 Industrial Hwy., MSC 82
Lester, PA 19113-2090

Re: Draft Groundwater Investigation and Monitoring Plan
Portsmouth Naval Shipyard
Kittery, Maine

Dear Jim:

The United States Environmental Protection Agency (EPA) has reviewed the document entitled "Draft Groundwater Investigation and Monitoring Plan" for the Portsmouth Naval Shipyard in Kittery, Maine. The document was dated April 1996.

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

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

Sincerely,

Meghan F. Cassidy

Meghan F. Cassidy
Remedial Project Manger

Enclosure

cc: Fran Endyke/PNS
Nancy Beardsley/ME DEP
Andrea Sewall/CDM FPC
RAB Members

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ATTACHMENT I

EPA's comments on the document entitled "Draft Groundwater Investigation and Monitoring Plan, for Portsmouth Naval Shipyard, Kittery, Maine" are provided below. This document was dated April 1996.

EPA has reviewed the above-referenced document submitted by the Navy in consideration of technical completeness, previous EPA comments on the "Draft Interim Groundwater Monitoring Plan" dated May, 1995, as well as discussions held at the March 18, 1996 meeting regarding the Navy's proposed scope of work for conducting groundwater modeling.

GENERAL

1. It is recommended that a detailed review of data coverage be performed after the first round of sampling and analysis is completed. At this time, we must make the assumption that the set of wells selected for the first round of sampling is adequate for meeting the objectives of the program. However, all parties should acknowledge that additional locations for sampling may need to be defined, based on analysis of the data collected and on the analysis and modeling that will be performed using the data. This aspect of the Monitoring Plan is highly important, because the overall approach should be to collect some data, improve and update the conceptual model(s) of the site, identify significant data gaps, fill them, and then collect more data -- in a more focused way. This focus can only be gained by analyzing the data. Such modifications will include deletions, additions, and changes in which wells are sampled and what analytical testing is done.

SPECIFIC

1. Page 1-1, section 1.2, 1st. paragraph: The St. sentence says the objective of the Plan is to "provide information [on low-flow sampling]" and to "facilitate implementation ... of the long-term groundwater monitoring plan." However, the 2nd sentence says that the data collected will be used to determine impacts. The overall objectives should be clarified. The 2nd sentence should tell how the data will be used to determine impacts.

2. Page 1-2, section 1.3, part (1): It is good to see the use of "indicator" parameters that are not part of the TCL/TAL list. However, the specific parameters should be listed in the Plan, if possible, and the text should not say "may be tested" if specific parameters can be identified now. If it is not possible to list specific parameters now, then a list of candidate parameters should be presented, and guidance and/or criteria given that will be used for deciding whether or not to include them in the Plan.

3. Page 1-3, section 1.3, part (2): The use of "tailored" analytes, and of lower-cost but adequate analytic procedures in concept is acceptable. However, these analyte series and

testing methods must still meet the requirements for demonstrating potential impacts, and as stated in the text they must be approved by the agencies prior to implementation. In addition, the Navy must ensure comparability of data from round to round, especially as applies to the statistical analysis of trends and significance.

4. Page 1-4, section 1.3, part (4): Two rounds of water levels annually may not be sufficient for characterizing groundwater flow patterns and dynamics. Additional rounds may be useful at selected wells. Such a determination can be made without delaying approval of the Plan. However, the Plan should acknowledge that water level data collection is driven not only by contaminant impact identification, but more so by the requirements of groundwater flow pattern analyses, including modeling.

5. Page 1-4, section 1.3, part (4): The Plan should acknowledge that there may be locations (wells) where additional sample collection may be warranted, based on the results of the first round(s). For example, if LNAPL is still found in one or more of the FW series wells, it may be worthwhile tracking the LNAPL thickness more frequently than twice annually. The Plan should therefore acknowledge that the first round may identify "hot spot" or other "interest" zones where more frequent monitoring is warranted.

6. Page 3-1, section 3.1: The mapping of wells (Map A) shows a lack of monitoring points in the interior section of the islands. From the perspective of groundwater flow analysis and modeling, this may prove to be a serious shortcoming for model development and calibration efforts. Similar to another comment above, this should not be a reason to delay the Plan's implementation. The Plan's emphasis is properly on the collection of contamination data along the perimeter of the islands, as the highest priority, and in the source areas as well. For the water level collection efforts, it may be more appropriate for the Navy to develop an addendum to the Plan, or a separate plan, specifically for the collection of water level data. This would offer the opportunity for the Navy's consultants to tailor the water level sampling to the needs of groundwater flow analysis and modeling, which are in some ways significantly different from the needs of perimeter and source are monitoring.

7. Page 3-7, section 3.4.1: This section contains the specification of how MPSs will be used to help select analytes. This section only acknowledges MPSs without mentioning the use of "indicator" or "tracer" parameters. This section should acknowledge other criteria that may be used for selection of parameters, not just the MPS-related ones.

In addition, it should be noted that groundwater data that is lower than the on-shore MPS will not be valid justification for omitting wells/parameters from the sampling program, since the on-shore MPS are reflective of protection of human health only do not take potential impacts to the off-shore environment into account.

8. Page 3-11, Fuel Storage Area: EPA notes that this "site" must be redefined by the parties. As such, determining the appropriate sampling program for the area cannot be done. Specifically, identifying "cross-gradient" wells is difficult until the site is fully defined.

9. Page 3-11, Section 3.4.3: This section does not appear complete or pertinent.

10. Page 4-1, Sampling and Analysis: In general, the Plan should include analysis-testing for parameters that are needed for design of remediation systems. For example, if groundwater pumping and treatment may be used, even in limited zones, then parameters affecting treatment system performance should be analyzed for, if possible.

11. Section 4 Tables: Those tables listing analytes should include any field parameters that are to be tested for, and any "conventionals" to be tested in the lab. Such parameters include but are not limited to: pH, eH, DO, turbidity, specific conductivity, and temperature. Some of these parameters may be very useful in evaluating and identifying impacted groundwater. Others, like temperature, are needed so that empirical equations for determining hydraulic conductivity are properly corrected for ambient conditions.

12. Page 4-22, section 4.3: The standard operating procedures should ensure that the water level readings to be conducted on or near the same dates as the water quality sampling, are not disturbed by the sampling. Water levels should be collected in advance of the sampling. This is especially important in any low-yield wells.

13. Page 4-32: It must be noted in the Plan that EPA and DEP should be consulted prior to implementing any deviations to an approved work plan.

14. Page 5-1, section 5-1: Similar to EPA's previous comment on the 1995 Plan, data validation using current Region I guidelines is strongly recommended for the planned re-sampling events. If data collected during the re-sampling events are not validated, potential data problems could be missed; the consequences of addressing such problems at a later date could result in significant expense and schedule delays.

15. Page 5-2, 4th paragraph, 2nd sentence: The three reasons for concluding that "statistics (sic) are not expected to be utilized in determining variance" are not valid. (1) Statistical techniques may be used to evaluate situations where contaminant migration has occurred. These techniques are detailed under corrective action monitoring in RCRA guidance referenced later in this section of the Navy's report. (2) Multivariate statistical techniques can often help discern contaminant behavior in complex geologic settings. (3) The distribution of contaminants in impacted groundwater would not be expected to follow a normal distribution but transformations that would allow for parametric statistics to be applied should be considered. Even if transformations are not successful the use of distribution free statistical techniques should not be dismissed outright.

16. Page. 5-2, 4th paragraph, 3rd sentence: Data that follows a log normal distribution is skewed to the left or towards the detection limit.

17. Page. 5-3, 4th paragraph, last sentence: Statistical methods are only useful if properly applied and interpreted. How will the Navy determine if a statistical analyses is useful?

18. Page. 5-3, St. paragraph: The tolerance interval approach for comparison of downgradient data for each constituent to the background data is inappropriate. The USEPA's Addendum to the Statistical Guidance Document for Groundwater Monitoring (1992) indicates that the tolerance interval approach should be used when downgradient data is being compared to an established ACL or MCL for those cases where a release has been determined (even in these cases use of tolerance intervals has been shown to result in unacceptably high false positive rates). Comparison of downgradient data to upgradient data should be performed using confidence intervals . If contamination has not be established prediction intervals or control chart procedures should be used.

19. Page. 5-3, 3rd paragraph: EPA does not believe that the proposed approach is a valid statistical procedure. Corrective action monitoring procedures employing confidence intervals should be used.

20. Page 7-1, Section 7.0: The second to last sentence in this section should be rewritten as follows.

"Frequency of monitoring will be determined based on consultation...; it is expected that monitoring will occur semi-annually until such time that remedial decisions are made pursuant to CERCLA."