



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND - REGION I  
1 CONGRESS STREET, SUITE 1100 (HBT)  
BOSTON, MASSACHUSETTS 02114-2023

May 4, 2007

Orlando Monaco (orlando.monaco@navy.mil)  
Dept of the Navy, BRAC PMO Northeast  
Code 5090 BPMO NE/LM  
4911 South Broad St  
Philadelphia, PA 19112-1303

**Re:** *Sites 1, 3, and Eastern Plume, Monitoring Event 27 (September 2005) Report, dated March 2007, Naval Air Station Brunswick, Maine*

Dear Mr. Monaco:

Pursuant to § 6 of the Naval Air Station Brunswick, Maine Federal Facility Agreement dated October 19, 1990, as amended (FFA), the Environmental Protection Agency has reviewed the subject document and comments are below.

**General Comments:**

1. This monitoring event did not include samples from various wells. The wells to be sampled are listed in the LTMP (EA 2000). A LTMP is required by the ROD. Therefore, the Navy is out of compliance with the RODs for these sites. EPA cannot agree with the Navy's conclusion that the objectives of the LTMPs were met without all of the expected data. EPA cannot agree with the Navy's conclusion that the concentration trends at the landfill or the plume are stable without all of the expected data.
2. Please provide the rationale for neglecting to sample existing wells in the agreed to finalized LTMP (EA 2000).
3. The Navy is not treating 1,4-dioxane even though the plume and/or the effluent is above EPA risk levels (6 ppb) and State ARARs (32 ppb). The Navy is not treating the groundwater for arsenic even though the plume is above MCLs (10ppb). The Navy is not treating the groundwater for manganese even though the plume is above EPA risk levels (300 ppb). How is the Navy's groundwater extraction and treatment system restoring the aquifer if the Navy is not treating the extracted groundwater for various contaminants above risk levels or ARARs? The Navy is also out of compliance with the ROD in this respect.

4. The Navy has notified EPA that they are upgrading the equipment in the treatment plant to treat the 1,4-dioxane. Provide a schedule for completion of the upgrades and beginning of treatment for 1,4-dioxane within 30 days of this letter.
5. The Navy has not evaluated the plume for arsenic and manganese; these inorganics are only sampled for in conjunction with the MNA evaluation. Provide an evaluation of the nature and extent of arsenic and manganese contaminants throughout the eastern plume within 30 days of this letter.
6. Results from available data in Event 27 are generally consistent with recent trends (see, e.g., Appendix C), particularly for VOCs. Notable exceptions include:
  - Metals at MW-217B: A large increase in concentrations of metals was observed in ME 27. This appears to be an anomaly associated with turbidity (120 NTU), although it is noted that ORP was recorded at -99 mV, indicating reducing conditions that lead to dissolution of hydrous ferric oxides within the overburden aquifer and release of sorbed trace metals. Iron was detected at 720 mg/L.
  - Metals at SEEP-04: Metals results at the seeps are erratic over the ten rounds of monitoring shown in the bar graphs. Concentrations were relatively high at SEEP-04 in ME 27, again associated with high turbidity (100 NTU).
  - TCE at MW-311: TCE has increased significantly over the past ten rounds at MW-311, in the key area approaching the confluence of Merriconeag Stream and Mere Brook. Results from ME 27 are consistent.
7. Appendix E Field Monitoring and Sampling Forms did not contain any information on when and how the field instruments (e.g., dissolved oxygen, ORP, etc.) were calibrated or if the field instrument data were reviewed. The report uses this information in determining if natural attenuation is occurring. This information needs to be added to the report.
8. Appendix B Laboratory Analytical Data Summary Tables list acetone concentration results for the monitoring wells that used passive diffusion bags (PDBs). PDBs are not designed to collect samples for acetone analysis and therefore, the acetone data needs to be qualified as rejected (R) or not reported.

**Specific Comments:**

9. **p. 1-1, sec. 1.0:** The list of extraction wells provided is inconsistent, in that it describes some inactive wells, but not all active wells. Please add an entry for EW-1, which presumably was operative at the time of ME27. If EW-3 is to be discussed, then perhaps a separate list of inactive wells should be provided, so that the distinction is clear. For added clarity, it is suggested that the preceding

sentence be modified to, "... and *at the present time* consists of the following wells:"

10. **p. 1-4, sec. 1.2, and Figs. 1-4 and 1-5:** The contouring of the shallow and deep piezometric surfaces is incorrect in the vicinity of the slurry wall around Sites 1 and 3. As drawn for the shallow groundwater, for example, the equipotentials indicate flow through the northern portion of the wall. Assuming that the slurry wall is indeed an impermeable barrier, and is keyed into the underlying clay, it is expected that the potential surface is discontinuous across the wall, with a "step" drop from outside on the upgradient side to inside. Equipotentials (both inside and outside) should approach the wall perpendicular to the wall, so that flow lines diverge around the wall on the outside. Please see attached sketches for more realistic interpretations of the water levels that account for the presence of the slurry wall.

11. **Page 1-6, 1.4 Surface Water, Leachate Seep, and Leachate Sediment Sampling and Analysis.** The Section states "samples were collected in accordance with the general methodologies established in the current draft LTMP (EA 2005) with the exception of the collection, preservation, and analysis of sediment samples using EPA Method 5035". The Navy should be using the finalized LTMP (EA 2000). When will the Navy update the LTMP to be reflective of agreements made during the October 2004 technical meeting, and the April 2007 sampling round agreements? According to Appendix G Data Validation Memorandum (March 27, 2007) Monitoring Event 27 Sites 1 and 3 the sediment samples (metals) had less than 30 percent solids (data were qualified) and the Memorandum indicated that past samples had the same problem. There is no discussion of the low solids issue in the main body of the report. Will modifications be made to the existing sample collection procedure to increase the amount of solids in the sample for future sampling events? Note, the Memorandum did not indicate any solids problems with the VOC samples. In addition, EPA has requested a summarization of the Validation Memos concerning the site COCs in the body of the text. The Navy must determine if the data is usable and state that in the text with reference to the appropriate appendix.

12. **p. 2-2, sec. 2.2, and Table 1-3:** Please consider providing the trigger elevations for water levels within the slurry wall for direct comparison to the elevations actually measured. A column could be added to Table 1-3 with this information.

13. **p. 2-3, sec. 2.4.1:** It is agreed that the apparent spike in metals at MW-217B is likely due to the elevated turbidity (120 NTU), which, in turn, is difficult to avoid when the well purges dry. It is also noted, however, that the ORP measured in this round (-99 mV) is optimal to mobilize hydrous ferric oxides and associated trace metals. (Note that total Fe was analyzed at 720 mg/L.) Therefore, elevated metals might be expected, even without the turbidity.

14. **Page 2-3, 2.4.2 Surface Water Table 1-11:** According to Table 1-11, SW-4 has a very low oxygen concentration (0.59 mg/L) compared to the down stream sampling locations (SW-7, SW-8, and SW-9; the oxygen concentrations at these locations were greater than 8 mg/L). Section 2.4.2 offers no explanation for the low oxygen concentration. How does the data compare to the past data? Please explain.
15. **p. 2-4, sec. 2.4.3, and Table 1-11:** The ORP reported for SEEP-03 is +706 mV, which seems improbable. Please check the field records and instrument calibration records to verify this value.
16. **p. 2-5, sec. 2.4.3:** The bar charts for the leachate seep samples show some rather erratic analytical results. A notable example is SEEP-04, which in ME27 shows some very high metals (e.g., Fe at 150 mg/L). This highlights the difficulty of obtaining quality water samples from the seeps; turbidity likely exerts a significant influence on these results. It is later stated (p. 3-2, sec. 3.1) that shallow piezometers were installed at the seeps in April 2005. Please add text to sec. 2.4.3 to explain the sampling method used, and when the change in method was implemented, in order to provide some perspective on the changes in analytical results over the last few sampling rounds.
17. **p. 2-16, sec. 2.6.3:** The text states, "These four wells had the properties (limited methane production ...) ... ." It is suggested that this be expanded to read something like, "These four wells had properties *favorable for natural attenuation* (limited methane production ...) ... ."
18. **p. 2-16, sec. 2.6.3:** Please also include a discussion of the wells with higher than 300 ppb manganese and higher than 10 ppb arsenic. The EPA risk level for manganese is 300 ppb and the MCL for arsenic is 10 ppb.
19. **p. 3-1, sec. 3.1:** The bullet regarding MNA mentions Bio-Trap sampling initiated in April 2005. This is not mentioned elsewhere in the ME27 report. Please explain the status of the Bio-Trap investigation at the time of ME27. Was the work still in progress in September 2005? How will results be reported?
20. **p. 3-2, sec. 3.1:** The first Recommendation on this page states, "... sampling will take place during Monitoring Event 27 (September 2005). ... This work is tentatively scheduled for Spring 2007." Please edit for consistency.
21. **p. 3-3, sec. 3.1:** The last Recommendation discusses replacement of MW-1104 as a background well for the MNA assessment. This seems to be somewhat at odds with the conclusion that MNA is not promising as a means of achieving cleanup goals (p. 2-16, sec. 2.6.3). Having reached this conclusion, and completed a

Summary Report (EA, 2006), is the replacement background well still under consideration?

22. **p. 3-4, sec. 3.2:** Please include a discussion on the RAO of aquifer restoration. The Navy is not treating 1,4-dioxane even though the effluent is above EPA risk levels and State ARARs. The Navy is not treating the groundwater for arsenic even though the plume is above MCLs. The Navy is not treating the groundwater for manganese even though the plume is above EPA risk levels. How is the Navy's groundwater extraction and treatment system meeting the RAO if the Navy is not treating the extracted groundwater for various contaminants above risk levels or ARARs?

If you have any questions with regard to this letter, please contact me at (617) 918-1384.

Sincerely,



Christine A.P. Williams, RPM  
Federal Facilities Superfund Section

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