STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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June 09, 1998

Mr. Emil Klawitter
Code 1823 EK
Department of the Navy, Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, PA 19112-2090

Re: Final Reports - Quarterly Monitoring Event 10 - November 1997
Sites 1 and 3 and Eastern Plume
Naval Air Station, Brunswick, Maine (April 1998)

Dear Emil;

The Department of Environmental Protection (DEP or Department) has received the report entitled Final Reports, Quarterly Monitoring Event 10, Sites 1 and 3 and Eastern Plume (November 1997) prepared by EA Engineering, Science, and Technology. Based on that review the Department has the following comments and issues.

Specific Comments

1. Section 1.1, Introduction, page 1, para 3:

"Extraction wells within the landfill limits (EW-6 and EW-7) were deactivated on 19 November 1997 due to continually decreasing yields and stabilized water levels within the confines of the slurry wall."

a. As part of the Department agreeing to the deactivating these wells was that the Navy would establish threshold criteria for resumption of pumping. (See DEP letter dated November 07, 1997.) Also in this letter was the recommendation that water level monitoring be increased to monthly for at least six months to provide adequate data to establish a control chart. At the April 1998 Restoration Advisory Board (RAB) it was indicated this was being done and that the threshold criteria would be part of the Long Term Monitoring Plan. This is acceptable to the Department only if the LTMP is completed within six months or less from the date of this letter, otherwise some other documentation, such as letter, outlining the threshold criteria is necessary.

b. Also at the April 1998 RAB the Navy stated that the pumps and plumbing would be removed from these wells for use elsewhere. What lines of evidence does the Navy offer that water levels within the slurry walls will not steadily recover to former elevations? DEP believes that water levels will likely rebound (perhaps quite slowly) with an absence of pumping in the general area of the landfill, resulting in the undesirable resaturation of wastes. Although the slurry walls may be structurally sound and non-leaky, slow water movement should be expected through the bottom clays. At a minimum, DEP would like "deactivated" replaced by "experimentally shut down".

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2. Section 1.1, Introduction, page 1, para 4:

"A discussion of temporal trends and other observations based on data collected during the tri-annual monitoring will be presented in the Annual Report for 1997."

This report needs to be received without undue delays to facilitate timely review by the Department and EPA and action by the Navy.

3. Section 1.3, Ground-Water Monitoring, Sampling, and Analysis, page 2, para 2:

"Well MW-216B has been abandoned, and is not included in the sampling program."

What does the word "abandoned" mean regarding well MW-216B? DEP assumes that the well is yet physically intact, and that sampling was suspended. Any permanent abandonment needs MEDEP approval. This well may be needed for future water level measurements, and perhaps sampling.

4. Section 1.3, Ground-Water Monitoring, Sampling, and Analysis, page 2, para 1:

"Three wells/piezometers located in the Eastern Plume were sampled using a peristaltic pump, including MW-105A, P-105, and P-106."

Please explain why MW-105A does not have a dedicated submersible pumping system like other regular monitoring wells?

5. Section 1.3.1, Water Quality Indicator Parameter Measurements, page 3, para 3:

"Two wells, MW-206B and MW-207B, were purged dry...".

Prior DEP comments (e.g., Monitoring Event 9: Site 9) stated that "purging wells dry must be avoided by the samplers". This comment still stands. An effort must be made not to purge the wells dry. If the above-named two wells were not pumped down to the top of the pump (or the top of the screen if their static water levels were above the screens), a different choice of wording is recommended.

6. Section 1.5, Landfill Gas Monitoring and Cap Inspection, page 5, para 1:

"Two gas vents (GV-01 and GV-14) were observed to have plastic impact barriers, although these vents are located in areas away from potential vehicular traffic."

For the reader's benefit, please briefly identify the physical nature (e.g. size) of a "plastic impact barrier".

7. Section 1.7, Analytical Data Quality Review, page 5, para 1:

"Note that these values are presented rather than practical quantitation limits used in previous monitoring event reports."

"Method detection limits" have been given in Appendix B rather than the formerly used "practical quantitation limits". The rationale for this change in reporting should be stated. Also, the Navy needs to explain what, if any, consequences the change has when comparing Event 10 data to older event data.

8. Section 2.1. Water Level Gauging, page 6, para 1:

"Ground-water potetiometric elevations were measured on 3 September 1997 (bi-monthly data) and 3 November 1997 (Monitoring Event 10 data) at Sites 1 and 3 and the Eastern Plume. Extraction wells were gauged on 19 November 1997."

The text in first paragraph about date of November water level measurements (Nov 19) does not agree with Table 4 column heading date (Nov 3). The table format should be modified, or the these measurements flagged with a footnote.

9. Section 2.1. Water Level Gauging, page 7, para 2:

"Note that interim pumping at MW-311 resulted in significant drawdown at this location during the September and November 1997 gauging events."

There is no mention of the rate of pumping or the resulting extraction schedule achieved (days operated). This information should be added.

10. Section 2.1. Water Level Gauging, page 7, para 3:

"...indicates an average potentiometric head difference of 10.15 ft."

a.) Please check the math. DEP gets an average difference of 10.01 ft for both the September and November events.

b.) Figure 5 (Shallow ground-water potentiometric surface contour map) indicates that a 6-foot head difference might be expected between these wells if the slurry wall did not exist, by projecting several hundred feet cross gradient from their locations. Given the relatively steep water table gradient in the landfill area and the lack of water table observation points immediately east of the slurry wall, any determination of head difference between inside and outside the slurry wall using existing well data and the contour map is suspect. That is, the placement of contours heading towards the landfill from the east is very subjective and, in reality, may be significantly different than portrayed in Figure 5. As presented without qualifications, a potentiometric head difference of 10 feet may be misleading, and in reality significantly smaller for the general area within the slurry wall. DEP suggests either discussing the uncertainty in contouring, or deleting the entire topic of head difference.

11. Section 2.1. Water Level Gauging, page 7, para 3:

"However, a decreasing potentiometric head with depth (downward vertical flow component) is generally observed in upland areas, such as near the Weapons Compound (Building No. 539) and south of Mere Brook."

Locations south of Mere Brook are not upland areas and have upward vertical head gradients. (e.g., MWs-210A &B, MWs-105 A&B, MWs-231A&B.) Please correct.

12. Section 2.1. Water Level Gauging, page 7, para 4:

"The hydraulic gradient ranges from 0.016 ft/ft in the central portion of the study area..."

The range of gradient is incomplete. Please correct.

13. Section 2.1. Water Level Gauging, page 8, para 1:

"Artesian wells generally exhibit ground-water head slightly above the riser pipe (i.e., less than 3 in.)."

How is this known if equipment to measure artesian well heads has not yet been installed? Please add an explanation. DEP strongly urges that the well heads are outfitted so that accurate head readings can be taken during Event 11.

14. Section 2.2.1, Sites 1 and 3 and Eastern Plume, page 8, First bullet:

"With the exception of 1 well (MW217B, 323 NTU), turbidity did not exceed 30 NTU in other wells at Sites 1 and 3. "

The BNAS standard for turbidity exceedence comparison is 10 NTUs, not 30 NTUs. Please rewrite as such.

15. Section 2.2.1, Sites 1 and 3 and Eastern Plume, page 9, Second bullet:

"Elevated dissolved oxygen concentrations approaching saturation (>9.0 mg/L) were noted in 10 wells at the Eastern Plume."

The value for reporting exceedences of dissolved oxygen for the Eastern Plume is given as (>9.0 mg/L), whereas the stated value for Sites 1 & 3 is (<7.0 mg/L). Why not use a common value to enhance comparisons?

16. Section 2.2.1, Sites 1 and 3 and Eastern Plume, page 9, para 1:

"It should be noted that Mere Brook has had beaver activity, which has caused the water level to rise resulting in elevated turbidity...occurring at 2 of 3 leachate seep samples."

It is not readily apparent how a water level rise in the brook has resulted in increasing turbidity in leachate seeps. More explanation is needed.

17. Sections 2.3.1, Sites 1 and 3, page 10. Bullet 4:

"Arsenic was reported at a concentration of 154 µg/L in MW-218, which exceeds the Federal MCL of 50 Section 2.2.1, µg/L."

DEP notes that this is an increase of 55 µg/L from the Event 9 result at this well.

18. Section 2.3.2.2, Perimeter Monitoring Wells, page 12, para 1:

"Perimeter monitoring wells at Sites 1 and 3 and the Eastern Plume include:..."

The listing should also include MW-230A.

19. Section 2.6.1, Seep, page 14, para 2:

"A total of 10 VOC were reported at low concentrations in leachate station seep samples...."

Please state if MEGs/MCLs were (or were not) exceeded, and if exceeded, name the specific contaminants and the concentration measured.

20. Figure 2,

In keeping with the Record of Decision for 4, 11, and 13 and the Eastern Plume, this figure should note that the Limits of the Eastern Plume is approximate based on 1990 data.

21. Table 4, extraction well data.

See DEP comment No. 9.

22. Tables 6 - 9, Groundwater temperatures:

As discussed in prior sampling event reports, some reported groundwater sample temperatures have assuredly been raised by the sampling pump. When such instances are believed to have occurred (relatively long purges at very low rates), the temperature values should be flagged with the appropriate footnote at the bottom of the table. Any temperatures over approximately 13 degrees centigrade are suspect of not representing insitu conditions, unless water was drawn from within or adjacent to a decomposing landfill.

23. Table 7, Dissolved oxygen:

The dissolved oxygen (DO) value reported for well MW-223 is 1 mg/L higher than the theoretical saturation level for the reported temperature of 11.5 degrees C. The DO level seems unrealistic for the reported temperature. The DEP suggests screening field DO values against DO levels at give temperatures.

24. Table 7, Turbidity reporting:

As commented in our Event 9 review, negative turbidity values should not be reported.

25. Table 9, Dissolved oxygen values

The DO value for the Eastern Plume raw influent is higher than the DOs of each of the extraction wells. Intuitively, one would think that the influent value should be somewhere between the minimum and maximum of the individual contributors. Does the water become oxygenated during its travel to the treatment plant, or at the plant prior to the sampling point?

26. Table 11, TCE values for MW-229B:

The values of 47D and 48D fit well with the historically measured values at MW-229A, but not MW-229B where TCE has not been detected. This same situation is noted for the Monitoring Event 9 Report. Based on historical trends, DEP assumes that values were inadvertently interchanged for TCE for the past two reports. Please confirm and send out an errata sheet notice to all recipients.

Please feel free to call me at (207) 287-7713 if you have any questions or comments regarding this matter.

Respectfully,

Claudia Sait

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