



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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December 8, 2004

Mr. Orlando Monaco
Department of Navy
Engineering Field Activity-Northeast
Code 1823/OM
10 Industrial Highway, Mailstop 82
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Re: Sites 1, 3 & Eastern Plume, Monitoring Event 21 Report-October 2002
Responses to Comments-Follow Up
Naval Air Station, Brunswick

Dear Mr. Monaco:

The Maine Department of Environmental Protection (MEDEP) has reviewed the Navy's response to comments dated November 18, 2004, for Monitoring Event 21 Report -October 2002 for Sites 1, 3 and the Eastern Plume, prepared by EA Engineering, Science and Technology. Based on that review MEDEP has the following outstanding comments and issues.

The follow-up responses retain the numbering given in Navy's Responses.

6. Section 2.2, Water Level Gauging Program Trends, p. 12, 1st paragraph:

"The depth of groundwater during October 2002 at monitoring well EW-06 was 34.33 ft mean sea level, which indicates, at this time, that the groundwater potentiometric surface is rising above the bottom of the waste mass at this location."

MEDEP initial comment. a. The problem with this statement (also made in the Monitoring Event 20 report) was only partially addressed in MEDEP Specific Comment 17 for ME-20. MW-234R is about 100 feet north of EW-06. EW-06 is located approximately along the western boundary of a major landfilled trench, whereas MW-234R is more in the center of the same trench. The groundwater elevation at MW-234R is reported in Table 3 as 31.28 ft above mean sea level. From the above information and Figure 6 (shallow groundwater potentiometric surface contour map), the elevation of water in EW-06 appears anomalous. However, the text does not discuss this, but instead is giving a warning that the fill waste is becoming saturated again. Furthermore, a footnote in the ME-19 report (but not in the ME-20 report) states that the old pumping vault was flooded with water at the time, and that the vault appeared to be sinking, however, the vault bottom could not be checked. It appears that something anomalous is occurring at EW-06, and should be investigated by the Navy. In the meantime, any interpretation of waste saturation due to a higher groundwater elevation in EW-06 than in surrounding monitoring wells must be qualified. This conflict between data must be resolved as quickly as possible. (RR)

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Navy's Response—The problem at EW-6 was identified and determined to be related to surface water flowing above the landfill liner, and then entering the vault. This problem has been corrected and the data obtained from this well are suitable for contouring. A review of past groundwater elevations at EW-6 show that since pumping at the well ceased, the water elevation has varied from a minimum of 34.33 ft to a maximum of 36.67 ft. This variation is consistent with normal fluctuations at this sampling point. Water elevations noted at this well have been relatively constant since August 1998. Based on this review, the water elevation data collected at this well appear to be accurate. The Draft Monitoring Event 21 Report was issued in November 2003 prior to receiving final review comments from the MEDEP on the Monitoring Event 20 Report.

The note on the deep water table map has been edited to remove the statement that "...previously reported that the vault appeared to be sinking." The statement has been revised as follows:

The depth of groundwater during October 2002 at monitoring well MW-06 was 34.33 ft mean sea level.

MEDEP Follow Up Response: Please provide the date when the leaking landfill liner problem was fixed. Only water-level data after that date would be suitable for contouring. Also, in the above revised statement, "MW-06" needs to read "EW-06".

10. Section 2.3.3, Eastern Plume, Volatiles, Monitoring Well MW-205, p. 15:

MEDEP Initial Comment: A description of the MW-205 data is not provided, and analytical data are not provided in Table B-3 and Figure 24 in Appendix C.4. However, conflicting evidence is observed on Figure 10, where a total VOC concentration of 131 $\mu\text{g/L}$ appears next to the well location. Furthermore, field parameters were reported in Table 8 for aqueous diffusion sampling results. If the well was not sampled or VOCs not analyzed, the reason must be given in this report. The Navy should recognize that MW-205 is a key well in the Eastern Plume LTMP, and it has to be sampled each event. (RR)

Navys's Response—Well MW-205 was sampled for VOCs during this monitoring event. The discussion paragraph describing the data reported at MW-205 was inadvertently omitted from Section 2.3.3. The following paragraph has been included in this Section:

Monitoring Well MW-205—A deep diffusion sample was collected from this monitoring well location. The total VOC concentrations, including 1,1,1-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene (total), tetrachloroethene, and trichloroethene, have decreased since the last monitoring event at this location. Subsequently, the total VOC concentrations reported for Monitoring Event 21 (131 $\mu\text{g/L}$) show a decrease in concentrations from the concentrations calculated in the previous sampling event (i.e., 303 $\mu\text{g/L}$). However, in Monitoring Event 21, tetrachloroethene and trichloroethene concentrations exceeded the Federal MCLs and State MEGs at this diffusion sample depth.

MEDEP Follow Up Response: It is unclear from the response whether Table B-3 with MW-205 concentration values will be revised.

15. Section 2.3.3, Eastern Plume, Volatiles, Monitoring Well, P-106, p. 17, last sentence:

"...and the concentrations for trichloroethene and 1,1-dichloroethene have ranged from nearly not detected to approximately 1,000 $\mu\text{g/L}$."

MEDEP Initial Comment: The graph in Figure 133 of Appendix C.4 shows that the lowest concentrations of these two contaminants occurred in October 2002. Table B-3 in this report give the following results: 170 $\mu\text{g/l}$ of trichloroethene and 130 $\mu\text{g/L}$ of 1,1-dichloroethene. These values are far above their respective MCL and MEG, and certainly do not qualify as "nearly not detected". It seems that the Navy lost sight of the Y-axis scale of $\frac{1}{4}$ inch equals 1000 $\mu\text{g/L}$. Please replace the entire sentence upon review of the actual graph data and the MCLs/MEGs. (ED)

Navy's Response—The referenced sentence on Page 17 under the discussion on Piezometer P-106: "Volatile concentrations for 1,1-dichloroethane, total 1,2-dichloroethene and tetrachloroethene have remained at or near not detected levels since 1995, and the concentrations for trichloroethene and 1,1-dichloroethene have ranged from nearly not detected to approximately 1,000 $\mu\text{g/L}$ " has been revised as follows:

Total VOC concentrations reported in Piezometer P-106 have remained elevated since 1995; however, the reported concentrations show a steady decline from those reported in 1996 (at approximately 6,500 $\mu\text{g/L}$).

MEDEP Follow Up Response: Our interpretation of the P-106 contaminant graph (Figure 133 in Appendix C.4) is not a steady decline since 1996. The following wording is recommended in place of "a steady decline from those reported in 1996 ...": "*minor fluctuation between 1997 and 2000, followed by a sharp general decline from approximately 4000 $\mu\text{g/L}$ to 800 $\mu\text{g/L}$.*"

25. Section 2.4.2.3, Eastern Plume – Volatiles, p. 21, SEEP 11:

"Since the last monitoring event, the concentration of total VOC has increased to 32 $\mu\text{g/L}$."

MEDEP Initial Comment. Both this statement and Figure 144 (Appendix C.4) give no indication as to the compounds that comprise the concentration of 32 $\mu\text{g/L}$. This is particularly important because all prior monitoring events have been non-detect for all target compounds. Please add the missing information, and revise the graph as appropriate. (ED)

Navy's Response—The second sentence in Section 2.4.2.3 under the discussion on Leachate Seep SEEP-11 has been reworded as follows:

Since the last monitoring event, the concentration of total VOCs has increased to approximately 32 $\mu\text{g/L}$. The compounds comprising the total VOC concentrations at this seep location include: 1,1,1-trichloroethane, 1,1-dichloroethene, 1,2-dichloroethene (total), cis-1,2- dichloroethene, tetrachloroethene, and trichloroethene.

MEDEP Follow Up Response: The above rewording is fine. Now the first sentence should be changed from "Total VOC concentrations have remained at not detected levels from 2000 through 2001" to "*Total VOC concentrations for the first five monitoring events starting in 2000 were all non-detection.*"

34. Figure 7, Interpreted Deep Groundwater Potentiometric Surface Contour Map:

MEDEP Initial Comment. Notes 4 and 5 in the legend give reasons why the potentiometric head elevations for EW-06 and MW-207AR are not available. The flooding of the EW-06 vault has been a long recognized problem that should have been resolved by now, as the water in the vault appears to substantially affect the water level in the well. MW-207AR is an important gauging site and a level survey should have been completed prior to Event 21. The Navy must take action to assure that these data are usable for contouring. (RR & MTG)

Navy's Response—The problem at EW-6 was identified and determined to be related to surface water flowing above the landfill liner, and then entering the vault. This problem has been corrected and the data obtained from this well are suitable for contouring. A review of past groundwater elevations at EW-6 show that since pumping at the well ceased, the water elevation has varied from a minimum of 34.33 ft to a maximum of 36.67 ft. This variation is consistent with normal fluctuations at this sampling point. Based on this review, the water elevation data collected at this well appear to be accurate.

MEDEP Follow Up Response: The Navy satisfactorily addresses the EW-6 concern, but did not mention MW-207AR. It is noted that a new well elevation is given in the ME-23 report, but was not done prior to the monitoring event well visit for ME-22. In the future the Navy must not delay a year in correcting a field monitoring problem such as not measuring the head at a key well.

37. Table 11, Summary of Water Quality Indicator Parameters Measured in Surface Water Samples Collected on 22 October 2002 at the Eastern Plume:

MEDEP Initial Comment. It is noted that the temperature of water at SW-10 and SW-12 are 6.05 and 5.62 °C, respectively. The water temperatures at the other three stations fall between 9.5 and 10 °C. The temperature differential is large for stations located on the same water course. Please provide an explanation for these results relative to the shallow hydrologic system and field measurement accuracy. (ED)

Navy's Response—A review of climatic data for the Portland area shows ambient temperature in October varies (on average) from 14.8 to 3.5 °C. The values measured at the surface water sampling locations are within this range and, therefore, appear reasonable. Some variation must be expected; during measurement, using field equipment and equipment variation is one possible explanation. Another likely explanation is that these areas were more shaded than the other locations along Mere Brook and, therefore, had lower temperatures during the October sampling event.

MEDEP Follow UP Response: A more likely explanation is suspected upwelling of cooler groundwater into the stream environment at SW-10 and SW-12, relative to SW-11 and SW-14 near the confluence of Mere Brook and Merriconeag Stream. Apparently, the volume of groundwater discharge into surface water at SW-11 and SW-14 is much less significant compared to surface water flow volume.

If you have any questions or comments please call me at (207) 287-7713 or email me at claudia.b.sait@maine.gov.

Respectfully,

A handwritten signature in cursive script that reads "Claudia Sait". The signature is written in black ink and is positioned above the typed name and title.

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