

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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December 10, 2004

Mr. Orlando Monaco
Department of Navy
Engineering Field Activity-Northeast
Code 1823/OM
10 Industrial Highway, Mailstop 82
Lester, PA 19113-2090

Re: Sites 1, 3 & Eastern Plume-Monitoring Event 22-April/May 2003.
Naval Air Station, Brunswick, Maine

Dear Mr. Monaco:

The Maine Department of Environmental Protection (MEDEP) has reviewed the Navy's Response to Comments dated November 17, 2004 for Sites 1 and 3 and Eastern Plume, Monitoring Event 22-April/May 2003 Report, prepared by EA Engineering, Science and Technology. Based on that review MEDEP has the following comments and issues.

The follow up responses follow the original number system.

8. Graph of Monthly GWETS VOC Removal Rate, p. 12 and paragraphs 1-3

MEDEP Initial Comment. a. The trend line of monthly VOC removed dives to a near-zero reading in January 2003. The Navy apparently cannot explain this ("may possibly be due to sampling or laboratory issues"). MEDEP notes that a similar result occurred for July 2001, without explanation. The monthly GWETS reports for these two dates indicates no appreciable change from prior and subsequent plant influent concentrations. Therefore, MEDEP concludes without further research that the graph on page 12 contains erroneous data for these dates. Please confirm and correct the graph trend lines, and the text as appropriate. (RR & ED)

Navy's Response—The graph is correct based on laboratory results for the raw influent sample concentrations. As noted in the comment, the plant influent concentrations have been very low on two occasions, even though the sampling is completed using identical procedures during each sampling event. Note that large changes in influent concentrations have been seen in the past and, due to the decrease influent concentrations noted since 2000, these decreases may result in non-detects for total VOCs in the influent. The data collected for the system are adequate for tracking general time changes for VOCs being removed.

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MEDEP Follow Up Response: According to the monthly GWETS analytical reports for plant influence from the extraction system, the graph in question cannot be correct. Our copies of the GWETS reports were used to add the reported laboratory concentrations for the compounds listed under VOCs, which resulted in the following values: July 2002 = 351 ug/L, October 2002 = 327 ug/L, January 2003 = 274 ug/L, April 2003 = 207 ug/L, and July 2003 = 211 ug/L. The graph shows a monthly mass removal rate of zero kg for February 2003, but the extraction system was operating normally. MEDEP does not have the data for the months in-between the samplings that corresponds to the quarterly GWETS reports. In order for MEDEP to accept zero values (or any value lower than 1 kg), these data must be provided. The "zero" reading for November 2001 is likely due to the 911 system shutdown. But why is not the October 2001 value also zero, as the system was shut down? Please provide further explanation and make the appropriate corrections.

14. Section 2.3.3, Eastern Plume – Volatiles, p. 17; 2nd bullet, MW-205:

"Historical trends of the other volatiles show similar low concentrations."

Initial MEDEP Comment. The similarity of the other volatiles to TCE and 1,1,1-TCA while comparable in concentrations, can not be called "low" when in the range of 100 µg/L. TCE at 100 µg/L is 20 times the MCL/MEG. Because MW-205 has not been sampled the last two events, all reference to recent decreasing trends must be removed to avoid implications that the current trend is known. Please remove all extrapolations of concentration trends. (ED)

Navy Response—This sentence has been re-written as noted below:

... of the total VOC concentration and a ~~show similar generally decreasing trend pattern has been noted between 2000 and October 2004. with a significant decline of concentrations from 2001 to 2002.~~ Historical trends of the other volatiles show similar low concentrations

MEDEP Follow Up Response: The proposed change is unacceptable, because the subject report deals with the period of record up to Monitoring Event 22 (May 2003). ME-23 data cannot be used in the ME-22 analysis, and therefore a true trend summary would require the above statement to be changed as follows: "... of the total VOC concentration and the 2000-2001 decreasing pattern has become a pattern of fluctuation within the historic mid-range of concentrations for MW-205."

16. Section 2.3.3, Eastern Plume – Volatiles, p. 18, 4th bullet, MW-319:

"Total VOC concentrations, including the previously detected compounds trichloroethene and tetrachloroethene, have declined to non-detect, which is a historic low for this monitoring location."

Initial MEDEP Comment. The graph of trends at the well (Figures 104 plus 107, Appendix C.4) would suggest that the complete sudden disappearance of all target VOCs at the same time is an extreme occurrence. Only the bottom of the well screen was monitored with a single diffusion sample, as approved by the stakeholders. The deep zone VOC concentration contour map (Figure 10) has changed significantly from previous event maps due to this apparent development. It is difficult to conceive that all contaminants dropped to non-detect in May 2003, while MW-225A (about 300 feet distant and farther away from the plume axis) only experienced relatively small declines in concentrations. If the MW-319 data are truly representative of this location, groundwater movement and pumping effects are not well understood and the Navy needs to provide an explanation for this abrupt change in plume configuration. (RR)

Navy's Response—The non-detection for VOCs at this well has been confirmed by data from Monitoring Event 23. This location is on the edge of the Eastern Plume and has been showing decreasing trends since 2000. Groundwater is moving away from this well, likely bringing clean groundwater into the area as the Eastern Plume decreases in concentration and the upgradient edge is reduced.

MEDEP Follow Up Response: Neither the sampling result nor the explanation make much sense, unless the lowest ever pumping rate at EW-02A and the highest ever pumping rate at EW-04 during January – May 2003 “pulled” the plume entirely away from MW-319, or away from its screened elevation. By chance, could the field samplers have mistaken the adjacent P-112 for MW-319? If not, it is difficult to believe that total VOCs dropped from 50 ug/L to less than 1 ug/L in 6 months. Prior to the next sampling event MEDEP suggests that ECC field samplers confirm the location of MW-319 to ensure that the correct well is being sampled.

20. Section 3.2, Long-Term Monitoring Goals, p. 27 – 28:

MEDEP Initial Comment. b. Second Bullet – This goal is very important, and captures the essence of the long-term monitoring program, but until the evaluation process is undertaken in detail it is really not known if the data currently being collected are adequate to evaluate the effectiveness of the extraction system. (RR)

Navy's Response—A review of the long-term monitoring network was completed during the October 2004 Technical Meeting, in which the need for additional extraction wells was discussed. It is anticipated that following the addition of new extraction wells, this issue can be further addressed. It is important to note that the Navy has completed a preliminary evaluation of the effectiveness of the extraction system (presented in the January 2004 Technical Meeting). Data from the Long-Term Monitoring Program note a 620 percent decrease in the average total VOCs in the Eastern Plume, and a 1,300 percent decrease in maximum VOC concentrations between 1997 and 2003. Site data clearly show that the extraction system has been effective and mass remaining in the Eastern Plume has been dramatically decreased.

MEDEP Follow Up Response: Our analysis of long-term groundwater concentration trends using geometric means for two subsets of monitoring wells (north and south basins) provides somewhat different decrease percentages than the 620 and 1300 quoted above. For 1,1,1-TCA the average concentration for Monitoring Events 1 to 23 is 214 ug/L for the northern basin. The highest event geometric mean is 693 ug/L (Event 6) and the lowest is 92 ug/L (Event 23). For TCE in the northern basin, the computed values are 61 ug/L (average), 120 ug/L (maximum Event 6), and 24 ug/L (minimum Event 22).

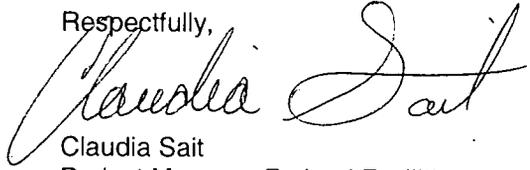
The geometric mean results for 1,1,1-TCA for the southern basin are: 52 ug/L average for Events 1 to 23, maximum 120 ug/L (Event 13), minimum 22 ug/L (Events 17 and 22). For TCE in the southern basin, the computed values are 46 ug/L (average), 80 ug/L (maximum Event 6), and 21 ug/L (minimum Event 21).

The percent difference between the maximums and minimums range roughly between 400 to 600. MEDEP believes this reduction range is more representative. Interestingly, three out of four of the above evaluations indicate a 40 to 100 percent increase in their geometric concentrations between Events 22 and 23 (i.e., a significant rebound?).

Page 4 of 4

Thank you for the opportunity to review this report. 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 black ink that reads "Claudia Sait". The signature is written in a cursive style with a large, sweeping initial "C".

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