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

December 2, 2004

Lonnie Monaco (monacolj@efane.northdiv.navy.mil)
Engineering Field Activity Northeast, Naval Facilities Engineering Command
Code 1821/LM, 10 Industrial Highway, Mailstop 82
Lester, PA 19113-2090

**Re: Various Responses to Comment Documents for Sites 1 and 3 and the
Eastern Plume, Naval Air Station (BNAS), 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 Responses to Comments for Monitoring Events 21, 22, and 23 for BNAS Sites 1,3 and the Eastern Plume dated October 12, 2004 and comments are enclosed.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Christine Williams".

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

cc. Claudia Sait/ME DEP (claudia.b.sait@state.me.us)
Ed Benedik/Brunswick Conservation Commission e-mail only (rbenedik@gwi.net)
Tom Fusco/BACSE e-mail only (tfusco@gwi.net)
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Lis Joy /NASB (lisa.joy@navy.mil)

Technical Review Comments on
Response to Comments from the
U. S. Environmental Protection Agency
on the Draft Monitoring Event 21 — October 2002
for Sites 1 and 3 and Eastern Plume
Naval Air Station, Brunswick, Maine

dated 12 October 2004

The following follow-up comments retain the numbering given in Navy's Response. Follow-up comments are given only for those items that are not satisfactorily resolved, or that might benefit from further clarification.

General Comments

3. The original comment noted that analytical results for inorganics for seep samples are erratic, probably due to variable particulate content. The Response expressed a desire to discuss this issue at the October technical meeting. This reviewer does not recall a final resolution of this issue. There seems to be a consensus with respect to Site 2 seep sampling; shallow drive points have been proposed to replace collection of water at the surface. The same approach may be appropriate for Sites 1 and 3 and the Eastern Plume. If water samples from the shallow drive points still exhibit high turbidity, it may be necessary to filter the samples in the field in order to provide a consistent basis for comparison of analytical results from location to location and from round to round at the same location.
4. The original comment noted that the redox indicators (ORP, DO) collected with the diffusion samples are not consistently reproducible in low-flow sampling in cases where a comparison can be made. The Response indicates a willingness to discuss this issue at the October technical meeting. The topic was discussed briefly at the meeting, and Navy/EA stated that studies had been done that demonstrate that reliable redox parameters can be collected in conjunction with diffusion sampling. Navy/EA indicated that they would research this, and follow up with a proposal for the best sampling protocol. It is noted that the importance of collecting meaningful redox parameters might be assessed on a case-by-case basis, both in view of the intended data use and in view of the proposed sampling protocol(s). For example, where VOC monitoring is being performed solely to determine VOC plume evolution (e.g., sentry wells that are placed to verify continued absence of VOC contamination; "hot spot" wells that are used to gauge contaminant mass decline; etc.), it is possible that all parties may agree that redox conditions are not of central interest, a degree of uncertainty on redox parameters is acceptable, and diffusion sampling for VOCs meets the primary monitoring goals. If a

full-fledged MNA investigation and/or monitoring program is launched, for which redox conditions are a critical element, low-flow sampling may be necessary in any case in order to collect samples for the additional required analyses (e.g., sulfate, nitrate, dissolved iron and manganese, etc.). In this event, the field parameters would be collected during the purge. Similarly, if there are open issues with regard to inorganics (e.g., elevated metals concentrations), low-flow sampling would be necessary in any case. The reliability of the redox parameters collected in conjunction with diffusion sampling is a significant issue only if the data are being called upon in an assessment of geochemical conditions — e.g., to evaluate the potential for natural attenuation by reductive dechlorination.

Technical Review Comments on
**Response to Comments from the
U. S. Environmental Protection Agency
on the Draft Monitoring Event 22 — April/May 2003
for Sites 1 and 3 and Eastern Plume
Naval Air Station, Brunswick, Maine**

dated 6 October 2004

The following follow-up comments retain the numbering given in Navy's Response. Follow-up comments are given only for those items that are not satisfactorily resolved, or that might benefit from further clarification.

Specific Comments

4. The original comment noted a typographical error in the units given for inorganics concentrations in sediment. The Response appears to have another typographical error; sediment concentrations for inorganics are typically reported in mg/kg.
6. The original comment noted a number of inconsistencies in the reporting of units for analyses performed on sediment. The Response states that the abbreviation for micrograms per kilogram will be corrected in the tables. The original comment noted several other inconsistencies, as well. Please verify that all references to units in both text and tables are internally consistent, and consistent with the laboratory data sheets.

Technical Review Comments on
Response to Comments from the
U. S. Environmental Protection Agency
on the Draft Monitoring Event 23 — October 2003
for Sites 1 and 3 and Eastern Plume
Naval Air Station, Brunswick, Maine

dated 12 October 2004

The following follow-up comments retain the numbering given in Navy's Response. Follow-up comments are given only for those items that are not satisfactorily resolved, or that might benefit from further clarification.

Specific Comments

4. The original comment noted that the redox indicators (ORP, DO) collected with the diffusion samples are not consistently reproducible in low-flow sampling in cases where a comparison can be made, with specific reference to the ME 23 data. The Response indicates a willingness to discuss this issue at the October technical meeting. The topic was discussed briefly at the meeting, and Navy/EA stated that studies had been done that demonstrate that reliable redox parameters can be collected in conjunction with diffusion sampling. Navy/EA indicated that they would research this, and follow up with a proposal for the best sampling protocol. It is noted that the importance of collecting meaningful redox parameters might be assessed on a case-by-case basis, both in view of the intended data use and in view of the proposed sampling protocol(s). For example, where VOC monitoring is being performed solely to determine VOC plume evolution (e.g., sentry wells that are placed to verify continued absence of VOC contamination; "hot spot" wells that are used to gauge contaminant mass decline; etc.), it is possible that all parties may agree that redox conditions are not of central interest, a degree of uncertainty on redox parameters is acceptable, and diffusion sampling for VOCs meets the primary monitoring goals. If a full-fledged MNA investigation and/or monitoring program is launched, for which redox conditions are a critical element, low-flow sampling may be necessary in any case in order to collect samples for the additional required analyses (e.g., sulfate, nitrate, dissolved iron and manganese, etc.). In this event, the field parameters would be collected during the purge. Similarly, if there are open issues with regard to inorganics (e.g., elevated metals concentrations), low-flow sampling would be necessary in any case. The reliability of the redox parameters collected in conjunction with diffusion sampling is a significant issue only if the data are being called upon in an assessment of geochemical conditions — e.g., to evaluate the potential for natural attenuation by reductive dechlorination.

9. The original comment requested revision of text for clarity. The proposed change is an improvement. It is suggested that the sentence be revised to read something like, "The rate of VOC mass removal continued to decrease because influent concentrations decreased over the reporting period." Cumulative mass removed, by definition, necessarily increased.
12. The original comment addressed difficulties with obtaining good samples from seeps. The Response expressed a desire to discuss this issue at the October technical meeting. This reviewer does not recall a final resolution of this issue. There seems to be a consensus with respect to Site 2 seep sampling; shallow drive points have been proposed to replace collection of water at the surface. The same approach may be appropriate for Sites 1 and 3 and the Eastern Plume. If water samples from the shallow drive points still exhibit high turbidity, it may be necessary to filter the samples in the field in order to provide a consistent basis for comparison of analytical results from location to location and from round to round at the same location.
15. The original comment noted inconsistencies between field measurements of ferrous iron using Hach kits and laboratory analyses for total iron, which are often assumed to represent principally reduced iron. The Response indicates general agreement with the observation that the field measurements appear to be unreliable. In recent discussion at another Region 1 CERCLA site, EPA's chemist indicated that the field analyses can yield good results if great care is taken with preparation and preservation of the standards, as well as with doing sample dilutions when necessary. However, these steps are quite demanding, and must be weighed against the ultimate utility of the data. Further discussion is needed to determine the best course of action.
23. The original comment attempted to assess the presence of, and mechanism for, elevated arsenic in Eastern Plume groundwater. Navy/EA's Response states that the arsenic is most likely of natural origin. It is agreed that there is no indication of an anthropogenic release of arsenic, and, in fact, the assessment given in the original comment explored the association of arsenic with ambient iron. However, it is emphasized that the reason for concern over arsenic in this setting is that it can be mobilized as an *indirect* consequence of anthropogenic activity. That is, when fuels were released to groundwater at the fire-fighter training area or other loci, degradation in the subsurface likely resulted in reducing conditions; reductive dissolution of naturally occurring iron oxyhydroxides on aquifer solids; and mobilization of sorbed, naturally occurring arsenic. The presence of the arsenic is natural, but the elevated dissolved arsenic concentrations in groundwater are not. Nonetheless, as noted in the comment, the problem appears to be local (i.e., As is found above MCL in only a few locations) and of moderate magnitude (i.e., maximum concentrations less than 3 times the MCL). Arsenic certainly bears continued scrutiny, as it is possible that elevated arsenic may persist in the aquifer even after the VOCs have been reduced to acceptable levels.