

**RESPONSE TO COMMENTS FROM THE
U.S. ENVIRONMENTAL PROTECTION AGENCY
ON THE 1999 ANNUAL REPORT, MONITORING EVENTS 14 AND 15
SITE 9: NEPTUNE DRIVE DISPOSAL SITE
NAVAL AIR STATION, BRUNSWICK, MAINE**

COMMENTOR: Michael Barry

DATED: 10 April 2000

Thank you for the opportunity to review the above report. Upon our review, we generally concur with the findings and conclusions. Natural attenuation by dechlorination and diffusion appears to be occurring at site 9 and with Institutional Controls, the remedy is protective. However, the EPA has several concerns, most notably that source control has been an ongoing problem that has been difficult to resolve at Site 9. We remain committed to keeping monitoring results in the context of the expected 20-year duration of the remedy.

Please see more specific general and specific comments in the attachment. To aid in response, comments are coded as below. General and specific comments have also been combined.

(RR)	Response requested.
(NR)	Means no response required, usually an observation or note.
(ED)	Means editorial comment or suspected typographical/format error.
(MTG)	Means comment should be discussed prior to response.

SPECIFIC COMMENTS

1. (RR/MTG). Regarding rising VOC concentrations. It is true that vinyl chloride concentrations will rise due to higher parent 1,2-dichloroethylene (DCE) concentration as dechlorination occurs. However, incoming vinyl chloride concentrations rose in wells MW-69 and MW-80 and seem to roughly track with DCE concentrations. Perhaps the air sparging remedy at the upgradient Navy Exchange Service Station (NEX) site has some influence upon this. If VOCs continue to rise, at some point enough potential risk would be presented to require some type of source control action (barrier wall, phytoremediation, or actual source location to name a few). Section 3.1.2, second bullet, second dash refers.

Response—The dissolved oxygen was found to have similar concentrations in NEX wells MW-NASB-008, MW-NASB-009, and MW-NASB-010 and Site 9 monitoring wells MW-NASB-081 and MW-NASB-080. These dissolved oxygen data from Monitoring Event 15 suggest a possible influence, but a small influence since the area immediately downgradient of the landfill area has quite different dissolved oxygen levels than the dissolved oxygen measured in the wells north of the landfill. However, only one round of dissolved oxygen measurements have been collected to date (Monitoring Event 15) from both the NEX and Site 9 wells. Additional data will be collected during Monitoring Events 16 and 17 in 2000 and further evaluated and assessed to determine if the operation of the remedial system at

the NEX is affecting the water quality within Site 9. If the VOC concentrations continue to rise to the point where there is potential risk, a remedial action would be evaluated to reduce the risk.

It should be noted that previous increases (April and November 1998 and September 1999) in DCE and vinyl chloride have been noted in the past, and concentrations have then decreased (July 1998 and February 1999). While the increases at MW-NASB-069 have been larger than previously noted, natural changes in hydrogeologic conditions may reduce VOC concentrations without need for remedial actions.

2. (RR/MTG). Regarding VOCs detected in surface water and sediment at SW/SD-010. We concur with further monitoring as current levels are below risk screening levels. However, because of expected dilution by volatilization, their presence is a concern. Consideration should be given to using water diffusion samplers to characterizing local ground-water discharge.

Response—This issue was discussed at the 11 April 2000 Technical Meeting. Additional surface water sampling would be considered if VOC concentrations in ground water continue to rise, based on discussions with the RAB. As noted during the Technical Meeting, the ambient water quality criteria for VOCs are several orders of magnitude above detected concentrations in ground water. Therefore, the ROD specified remedy of natural attenuation is considered to be effective at this time. This response also relates to EPA's observations in Specific Comment No. 5 below.

3. (NR/MTG). Natural attenuation of DCE to vinyl chloride is clearly occurring due to the high portion of vinyl chloride in many wells of about 50 percent and the rising ratio of vinyl chloride to DCE. As successful as the dechlorination of VOCs is though, a constant inflow of new VOCs into the area will slow the removal of VOCs.

Response—No response is required, these items were discussed at the 11 April 2000 Technical Meeting (documented by the April meeting minutes) at NAS Brunswick, Maine.

4. (RR/MTG). The NEX site petroleum remediation system and the degradation of BTEX compounds may be causing low dissolved oxygen and Eh readings at Site 9 (except for downgradient of the landfill). This actually presents ideal conditions for dechlorination of the VOCs at Site 9. Because of the remedial system in operation and that BTEX compounds degrade so readily, it is not surprising that they are not detected at Site 9. But is it possible that the BTEX compounds at the NEX are "masking" the low level VOCs migrating to Site 9 by the current testing methods? It's also an interesting coincidence that rising VOCs in MW-69 and MW-80 were detected about the same time the remedial system and the NEX began operation. Section 3.1.2, third bullet refers.

Response—NEX ground-water samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by U.S. EPA Method 8260. These samples have a detection limit of 1 µg/L for each BTEX compound. Therefore no "masking" of low levels of VOCs at NEX wells is believed to be occurring.

5. (NR/MTG). Several mitigating factors at Site 9 imply that inflow of VOCs is more an issue of how much time will be required to clean up the ground water versus effectiveness of the remedy.
 - a. The ground water and surface water in the outflow area is also well characterized in nature and extent and has not been impacted by a level of VOCs that could cause risk to human health or the environment to date. In fact, a moderate amount of VOC discharge will probably be not measurable in the ponds or surface water.
 - b. Because of volatilization of VOCs, a significant discharge would probably be needed to present a risk (such as at the McKin site) by exceeding the ambient water quality criteria or presenting a vapor hazard to human health.
 - c. Though EPA prefers destruction of VOCs through dechlorination, dispersion and diffusion are valid natural attenuation mechanisms and are currently utilized at several Superfund sites. Further, dispersion by volatilization are maximized since the downgradient wells have higher percentages of vinyl chloride.

Response—We agree with these observations. No response is required, as these items were discussed at the 11 April 2000 Technical Meeting at NAS Brunswick, Maine.

6. (NR/MTG). The VOC contamination detected in MW-227 appears to be of different character because of the presence of TCE and PCE. Since an aircraft maintenance area is upgradient of this well, it is possible for there to be either a historical or current undetected source. Evaluating this source should be in context of other issues at Site 9 and the current contamination levels at MW-227 (below the MCL). True, they will decay to vinyl chloride above the MEG, but this area is hydraulically contained within Site 9. Section 3.1.2, fourth bullet refers.

Response—This issue was discussed at the 11 April 2000 Technical Meeting at NAS Brunswick, Maine. It should be noted that the VOC concentrations detected at NW-NASB-227 are not unique, and are very similar to concentrations detected at MW-NASB-74 during 1999 (refer to Table 5 in Monitoring Event 14 and 15 Reports). Therefore, it is possible that the presence of these compounds may be related to site-wide low level VOC impacts, rather than a specific source located upgradient of MW-NASB-227.

7. (ED). Section 1.2, Paragraph 2. Delete “proposed” as the remedy is now final since the ROD has been signed.

Response—The text will be edited as recommended.

“long-term effectiveness of the ~~proposed~~ remedial action....”

8. (ED/MTG). We didn’t receive the updated cross-section (Figure 2.1 to the 1998 final report) referred to in the response to comments for Monitoring Events 14 and 15. This figure

should be included in the annual reports as it greatly aids in understanding the 3-dimensional hydrogeology of Site 9. We concur with omitting the rest of the detailed geological information out of the annual reports.

Response—The following text and figure have been added to the end of the last paragraph of Section 1.2:

A complete description of site geologic conditions is not presented in this Annual Report, but can be found in previous Annual Reports for Site 9. A geologic cross-section of the site is shown in Figure 1-3 to illustrate general site geology.

As noted during the 11 April 2000 Technical Meeting, the description of other site geological information will not be included in the Annual Report, unless additional data are collected that would warrant reassessment of geological conditions.

9. (ED). LT-901 graphs don't have any 1999 data. Also what was the VOC source in December 1998; was it a laboratory artifact?

Response—There were no detections of VOCs at LT-901 (seep leachate sample) during 1999 (refer to Table 9 in the Monitoring Event 14 Report, and Table 10 in the Monitoring Event 15 Report). We believe the commentator is referring to the November 1998 data; no data were collected during December 1998. The VOCs detected in November 1998 included several compounds detected at concentrations less than 2 µg/L (refer to Table 8 in Monitoring Event Report 13).

10. (ED). Good note on the graphs with the caveats acetone and methylene chloride artifacts not included in total VOCs.

Response—Comment noted, no response is required.

11. (ED). Merge the two MW-227 graphs on Pages 4 and 34 of 49 into one graph.

Response—The two MW-227 graphs have been merged into one graph for the Final 1999 Annual Report.

EPA's Comment Summary Table

Number	RR	ED	NR	MTG	Refers to
1	X			X	Rising VOCs
2	X			X	VOCs in SW/SD
3			X	X	Natural Attenuation
4	X			X	NEX Site Affects
5			X	X	Mitigating Factors
6			X	X	MW-227 VOCs
7		X			Text Edit
8		X		X	Geological Cross-Section
9		X			LT-901 Graphs
10		X			----
11		X			Merge MW-227 Graphs