



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1
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January 16, 2003

Mark Evans, Remedial Project Manager
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Final Year 2 Annual Groundwater Monitoring Report for the Area A Landfill at the
Naval Submarine Base - New London

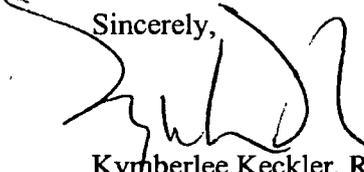
Dear Mr. Evans:

EPA reviewed the *Year 2 Annual Groundwater Monitoring Report for Area A Landfill*, dated December 2002. This version of the report incorporates revisions based on EPA's comments dated April 3, 2002 and a teleconference on June 5, 2002. Detailed comments are provided in Attachment A.

A final resolution of the issues surrounding appropriate primary and secondary monitoring criteria for arsenic has not yet been reached. The report wisely lists this as a discussion to be continued during Year 3 (*see* page 5-4, §5.2, third bullet).

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of the Naval Submarine Base. Please do not hesitate to contact me at (617) 918-1385 should you have any questions.

Sincerely,



Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Mark Lewis, CTDEP, Hartford, CT
Dick Conant, NSBNL, Groton, CT
Jennifer Stump, Gannet Fleming, Harrisburg, PA

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ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 2-16, §2.3.7	<p>The second paragraph summarizes site-specific observations with respect to turbidity, TDS, and total and dissolved metals. The paragraph then makes some generic statements about arsenic use. While it is prudent to recognize potential anthropogenic sources, it is not clear why these statements appear in the middle of a discussion of site-specific data. They do not seem to be offered as an interpretation. The paragraph concludes with the statement, "Dissolved arsenic does not react strongly with aquifer solids and its transport in groundwater is not retarded." It is agreed that arsenic is not retarded in the sense that the term is usually used with regard to organic contaminants partitioning to organic carbon in the aquifer. However, as discussed in Section 2.2.5 (Site Conceptual Model), under oxidizing conditions, and in the presence of iron oxyhydroxides, arsenic can be sorbed and effectively retarded.</p>
p. 4-19, §4.5	<p>The last paragraph on this page reviews total and dissolved arsenic concentrations in the reference well 2WMW21S from the Phase II RI and the landfill monitoring program. It concludes, "These results also indicate that high suspended solids may have caused the high arsenic concentrations." The intended implications of this statement are not clear. For the two wells cited earlier in the paragraph, total arsenic was observed to be significantly higher than dissolved arsenic, and the conclusion is that particulates account for the difference. However, for 2WMW21S, the analytical results for total and dissolved arsenic are essentially indistinguishable, both in the Phase II RI and in recent monitoring. However, it is striking that arsenic at this well was over 100 micrograms per liter in the first round of sampling in the Phase II RI, but under 10 micrograms per liter in the landfill monitoring program, for <i>both</i> unfiltered and filtered samples. The Phase II RI sampling apparently was performed in 1994, before the "low-flow" sampling protocol was widely used. A change in sampling method may play a role in the apparent drop in arsenic at this well, and may be related to suspended solids. However, if so, it would appear to be because of mobilization of sub-0.45-micron particulates in the earlier sampling that is minimized in the low-flow sampling of more recent rounds.</p>