



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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May 22, 2000

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: Round 2 - Groundwater Monitoring Report for the Area A Landfill at the Naval Submarine Base New London in Groton, Connecticut

Dear Mr. Evans:

EPA reviewed the *Round 2 Groundwater Monitoring Report for Area A Landfill*, dated April 2000. The report gives an overview of the site and archives groundwater analyses based on sampling performed in January 2000. No interpretation of results is attempted. It was reviewed with particular attention to conformance to the Groundwater Monitoring Plan [1] and completeness of the execution and presentation, as well as for preliminary indications of contaminant trends. Detailed comments are provided in Attachment A.

The field and analytical activities summarized in the Groundwater Monitoring Report (GMR) adhere closely to those outlined in the Groundwater Monitoring Plan [1]. A major exception, is the omission of samples for one monitoring well and ten surface-water locations, all because of freezing. Otherwise, the program appears to be proceeding as planned.

The GMR is complete, providing an archive of water levels (Appendix B), field parameters (Appendix D), and the laboratory data sheets (Appendix F).

As stated in the report (p. 1-1, §1.1), no evaluation of the data is carried out, as it is intended to be a data report only.

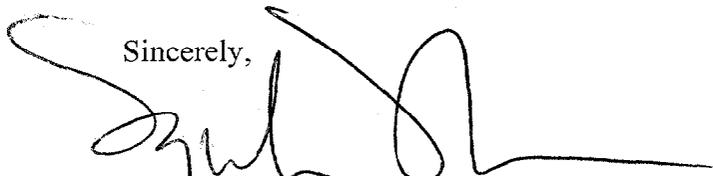
A qualitative review of the data raises no significant concerns with respect to contaminants from the site that may have impacted groundwater. There are no exceedances of the primary or secondary monitoring criteria for organics, and all VOCs, pesticides, and PCB analyses were below the method detection limits. Only inorganics (arsenic and chromium) exceeded monitoring criteria. (See Specific Comment below regarding one possible exceedance for copper.) Zinc exceedances observed in Round 1 (wells 2MW38DS and 2MW12D) were not reproduced in Round 2, nor was an exceedance of copper (well 2MW42DS) repeated.

Arsenic is the most widespread COC, with numerous detections falling between the primary criterion (4 µg/L, the Connecticut SWPC for groundwater) and the secondary criterion (150 µg/L, the federal AWQC for protection of aquatic life). It is noted that the higher concentrations of arsenic are in most cases associated with very low ORP (e.g., wells 2WMW42DS, 2WMW46DS, and 2WMW47DS, all with As concentrations greater than 10 µg/L, and all exhibiting ORP less than -300 mV). Arsenic concentrations are likely controlled by the redox conditions, in which case the As in groundwater will persist as long as the reducing conditions prevail.

It appears that the laboratory, in some cases, is not achieving detection limits sufficiently low to evaluate results against the monitoring criteria. For example, copper for the sample from 2MW38DS is reported as U (undetected) at a detection limit of 6.7 µg/L, while the secondary monitoring criterion is 4.8 µg/L. The same observation holds for the secondary criteria for the pesticides and PCBs, which are below their respective detection limits in the analyses. Either these criteria are not particularly meaningful because it is not practical to analyze to these levels, or the analytical methods adopted require scrutiny.

I look forward to working with you and the Connecticut Department of Environmental Protection to protect the environment of the Naval Submarine Base. Please do not hesitate to contact me at (617) 918-1385 should you have any questions or wish to arrange a meeting.

Sincerely,



Kimberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Mark Lewis, CTDEP, Hartford, CT
Darlene Ward, NSBNL, Groton, CT
Jennifer Stump, Gannett Fleming, Harrisburg, PA
Mark Mengel, Tetra Tech-NUS, Pittsburgh, PA

ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 3-1, §3.0	<i>typo</i> : The third paragraph starts with a reference to “Round 1 analytical results ...” Please change to “Round 2 ...”
Table 3-1	I note that the secondary monitoring criterion for arsenic (based on the federal AWQC) is <i>higher</i> than the primary criterion, in contrast to all other analytes. Thus, a relatively low detection of arsenic results in an exceedance of the primary criterion, but not the secondary. Indeed, this is the case for all exceedances of arsenic noted in Round 2 (highlighted in the table). The statement in the table footnote, “There are no exceedances of primary monitoring criteria,” is then incorrect; all highlighted exceedances for As are above the <i>primary</i> , rather than the secondary, criterion. (The text on p. 3-1, §3.0, is correct; it states, “Detections of arsenic ... exceeded the primary monitoring criterion”)
Table 3-1	Although copper apparently was not detected above the minimum detection limit (MDL) for the sample from 2WMW38DS, it is assigned a concentration of 6.7(U) µg/L. By this convention, it appears that copper at this point exceeds the secondary monitoring criterion of 4.8 µg/L. Either this entry in the table should be highlighted, or it should be noted that the U qualifier excludes an analysis from comparison to the monitoring criteria, and the rationale for treating such circumstances in this fashion should be spelled out.
p. 3-1, §3.0	An exceedance for chromium at 3MW12S is noted in the text. The exceedance is for the unfiltered (“total”) sample, while that for the companion, filtered sample yielded a non-detect at a detection limit of 1 µg/L. Has a clear determination been made as to how the monitoring criteria are to be interpreted with regard to filtered and unfiltered samples? Does <i>any</i> analysis above the criterion represent an exceedance? Or, in a case such as that pointed out here, are <i>dissolved</i> metals the more critical measure? One might argue that the low-flow sampling method is designed to assess mobile constituents, regardless of whether they are sorbed on particulates, and therefore the analysis on the unfiltered sample is relevant for comparison to the monitoring criterion. On the other hand, it is likely that the Cr detected in the unfiltered sample is Cr(III), and that Cr(VI) is undetectable, as reflected in the analysis on the filtered sample. The speciation is critical to the associated risks. These issues should be resolved in discussions with regulators so that the application of the monitoring criteria is correct and unambiguous.

REFERENCE

- [1] Tetra Tech NUS, Inc., “Groundwater Monitoring Plan for Area A Landfill, Naval Submarine Base, New London, Groton, Connecticut,” January 1999.