UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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September 16, 2002

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: Work Plan for the Basewide Groundwater Operable Unit Data Gap Investigation

Dear Mr. Evans:

EPA reviewed the *Work Plan for Basewide Groundwater Operable Unit Data Gap Investigation*, dated August 2002 in light of the adequacy of the proposed investigations to address the data gaps identified, and for consistency with previous agreements. The document provides a brief overview of Sites 3 (Area A Downstream Watercourse / OBDA), 15 (SASDA), 20 (Area A Weapons Center); identifies data gaps revealed in past investigations of these sites; and proposes activities to address those gaps. Detailed comments are provided in Attachment A.

The proposed investigations are generally consistent with past discussion of data gaps in the characterization of Sites 3, 15, and 20. In particular:

- Relatively low-level chlorinated VOCs were detected in groundwater at numerous locations throughout Site 3, and the source(s) is (are) not known definitively. The most significant CVOC detections were at 2DMW29S (TCE at 5.47 µg/L; VC at 31.3 µg/L) and at 2DMW28D (TCE at 8.76 µg/L).

- TCE was detected in three wells at Site 15 (SASDA), with a maximum of 16 µg/L at 15MW3S, downgradient of the site. A number of inorganics (e.g., Cr, Pb) were detected in groundwater at elevated levels.

- Low-level detections of TCE were found at Site 20 (maximum 5.02 µg/L at 2WCMW2S), as well as elevated levels of inorganics, most notably silver at 114 J µg/L at 2WCMW2S and at 326 J µg/L at 2WCMW1S.

The Navy identifies several specific data gaps with respect to the above observations:

- A potential source area for organic contamination to groundwater at Site 3 was identified in the form of a historic disposal area northeast of Stream 5 and southeast of the Small Arms Range. This source area requires further characterization. Furthermore, Navy states, "Groundwater contamination nature and extent ... needs to be investigated ...."

- The Navy states that the completeness of the TCRA at Site 15 has not been determined, and that the nature and extent of the TCE contamination also requires further investigation.

- The nature and extent of groundwater contamination at Site 20 requires further investigation.

I agree that the items targeted for investigation in the current Work Plan are significant data gaps, and warrant further characterization. Particular attention should be paid to the identification of potential sources and the development of defensible conceptual models for the transport of the contaminants of concern. These issues are of particular significance because Navy alludes to a possible appeal to natural attenuation of the organics. From a regulatory point of view, such an appeal will require definitive identification of sources, appropriate measures to establish source control, and thorough characterization of the geochemical environment and controls on transport of the principal contaminants.

I look forward to working with you and the Connecticut Department of Environmental Protection to protect the groundwater resources 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, Gannett Fleming, Harrisburg, PA

ATTACHMENT A

Page	Comment
p. 1-3, §1.1.2	The text refers the reader to Fig. 1-3 for historical sampling locations. These appear to be shown on Fig. 1-6.
p. 1-6, §1.2.1.2	The text states, "...It is likely that monitored natural attenuation would be viable for the source area impacting 2DMW29S...." This presupposes that the source area is known or is identified definitively in the present data-gap investigation, and that the appropriate source-control measures are implemented.
p. 1-14, §1.3	A data gap identified for Site 15 is assessment of the "completeness" of the 1995 TCRA that removed a spent-acid storage tank and lead-contaminated soil from the site. Does this imply that no confirmation sampling was performed at the time, and that the current proposed effort will serve that purpose (as well as the broader objective of better characterizing the nature and extent of contamination at the site)?
p. 2-2, §2.1.2.1	I agree that the most significant data gap with respect to potential sources for CVOCs in Site 3 groundwater is the disposal area along Stream 5. It is appropriate to focus the effort on this area. The Work Plan also proposes to re-sample wells 2DMW23D and 2DMW28D, both of which were found previously to have detectable TCE. The Work Plan states that 2DMW28D is downgradient of the new source area. While re-sampling of these wells is endorsed for the purpose of assessing the possible evolution of the TCE concentrations, it is not clear that this will support the stated objective of elucidating potential *source* areas. These seemingly isolated hits of TCE, if confirmed by another round of sampling, will remain isolated hits of TCE in the absence of any further exploration spatially. It is not obvious that 2DMW28D is downgradient of the new source area, as stated (*e.g.*, Fig. 2-1). The proposed water-level round on all available Site 3 wells may help to define the flow directions across the site, and establish the relationship between 2DMW28D and the new source area.
p. 2-3, §2.1.2.2	The text states that the "... disposal area will be the focus for determining the source of the groundwater contamination along the northwestern side of Site 3." Should this refer to the northeastern side?
p. 2-3, §2.1.2.2	The proposed locations for the three temporary wells (Fig. 2-2) are well motivated. These locations may reveal any VOC contamination that seems to emanate from the disposal area. Because a primary objective

appears to be to establish continuity with the previous CVOC detections in 2DMW29S, consideration should be given to adding an additional well roughly midway between 3TW27 and 2DMW29S. This would help to establish a connection. In addition, it is noted that this connection (*i.e.*, from the potential source in the disposal area to the location of historic detections of CVOCs at 2DMW29S) should be supported by a defensible, local determination of the groundwater flow direction. The present plan includes a linear array of the three new temporary wells and the two existing monitoring wells. These five wells will not define a gradient. Some control is needed off this linear array. It is suggested that at least one temporary well (or, at least a piezometer) be located in the area, but off this line. For example, a location north or northeast of the disposal area and/or a location southwest of the proposed line of temporary wells would provide added control.

p. 2-4, §2.2.2.1 — The Work Plan alludes to the role of pH in the mobility of metals at Site 15. Previous work has shown low pH (minimum 4.4; see page 1-9) in site groundwater. The Plan alludes to an interest in possible buffering of pH for the FS. The proposed investigation should strive to develop a conceptual model for the low pH at the site. In particular, is it likely that direct impacts from historic releases of acid would be lingering in site groundwater for several decades? Why is the minimum pH found *upgradient* of the site? Has a natural origin for this low-pH groundwater been considered?

p. 2-4, §2.2.2.1 — The second bullet in this section indicates that the three temporary wells will be sampled for groundwater analysis. The legend on Fig. 2-3 indicates that these wells are for water-level measurement only.

p. 2-4, §2.2.2.1 — A stated objective of the investigation at Site 15 is to determine the nature and extent of contaminants in groundwater. The Work Plan proposes three new temporary wells to constrain better the distribution of TCE. While the proposed locations will certainly provide better control on the area between Building 410 and the former spent-acid tank, they are all upgradient of the area of the removal action, upgradient of the stormwater and sanitary sewer systems, and cross-gradient to the location of the highest historical hit of TCE at 15MW3S. At least one additional temporary well should be installed upgradient of 15MW3S in order to provide further constraints on the potential source of the TCE found there.

p. 2-6, §2.3.2.1 — The text offers an explanation for previous detections of elevated arsenic in 2WCMW1S, and this appears to be a likely scenario, based on extensive investigation associated with the Area A Landfill and adjacent

wetlands. For this reason, Navy proposes to limit analysis of groundwater samples from Site 20 to silver only (Table 2-1). EPA recommends that the analyte list be expanded to the full TAL in order to support the development of a defensible conceptual model for silver. For example, is the mobility of silver affected by other metals (*e.g.*, iron and manganese)? Also, if arsenic (as well as zinc) has been an issue for site groundwater (*i.e.*, in exceedance of CTDEP criteria for protection of surface water), additional data to support the explanation offered in the text for the presence of elevated concentrations can only strengthen Navy's argument.