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August 11, 2003

U.S. Environmental Protection Agency
Region II
290 Broadway – 22nd Floor
New York, New York 10007-1866

Attn: Mr. Adolph Everett, P.E.
Chief, RCRA Programs Branch

Re: Contract N62470-95-D-6007
Navy CLEAN, District III
Contract Task Order (CTO) 0268
U.S. Naval Station Roosevelt Roads (NSRR), Puerto Rico
RCRA/HSWA Permit No. PR2170027203
Response to EPA Comments dated June 1, 2003

Dear Mr. Everett:

Baker Environmental, Inc. (Baker), on behalf of the Navy, is providing you with responses to EPA comments dated June 10, 2003 on the Draft TCE Plume Source Delineation Work Plan for the Tow Way Fuel Farm dated May 8, 2003. These response to comments reflect the revisions provided in the Revised Draft Work Plan, which was e-mailed to EPA and BAH, for review on July 21, 2003 and EPA concurrence on July 24, 2003 of said revisions. These revisions reflected the points discussed during the July 1, 2003 conference call with EPA and BAH and are incorporated into the Final TCE Plume Delineation & Source Investigation Work Plan dated July 25, 2003.

If you have questions regarding this submittal, please contact Mr. Kevin Cloe, P.E. at 757-322-4736. Additional distribution has been made as indicated below.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Mark E. Kimes, P.E.
Activity Manager

pcl
Attachments

cc: Mr. Kevin R. Cloe, LANTDIV - Code EV23KC
Ms. Madeline Rivera, NSRR
Mr. Tim Gordon, US EPA Region II
Ms. Kathy Rogovin, Booz Allen & Hamilton
Mr. Carl Soderberg, US EPA Caribbean Office
Mr. Carmelo Vazquez, PR EQB
Mr. John Tomik, CH2M Hill Virginia Beach

NAVY RESPONSE TO EPA COMMENTS DATED 6 JUNE 2003
DRAFT TCE PLUME SOURCE DELINEATION
WORK PLAN FOR TOW WAY FUEL FARM
DATED 8 MAY 2003

EPA General Comment:

As discussed in the enclosed Technical Review prepared by Booz Allen, several items in the May 8, 2003 TCE work plan need clarified and/or revised. Within 25 days of your receipt of this letter, please submit revisions to the TCE work plan to address comments given in the enclosed Technical Review.

Navy Response to EPA General Comment:

The work plan has been modified as discussed in the following response to comments and as discussed during the conference between EPA Region II, BAH, LANTDIV, NSRR, and Baker.

BAH General Comment No. 1:

- 1. The May 2003 Trichloroethene (TCE) Plume Source Delineation Work Plan (Work Plan) repeatedly refers to the installation of a compliance well. However, the context for the term 'compliance' is not explained. No final remedy has been selected for which a point of compliance has been established. It appears that the term is being used to identify the downgradient well location at the leading edge of the plume where the concentrations of contaminants meet the Federal maximum contaminant levels (MCLs). The identification of a specific well as the compliance well should be fully explained. It may prove more appropriate to use different language to identify this well.*

Navy Response to BAH General Comment No. 1:

It was assumed that the compliance location would be the Ensenada Honda for this TCE area. Given that an official compliance location has yet to be determined, the term "compliance well" will be changed to "sentinel well," and the term "compliance area" will be changed to "sentinel location."

BAH General Comment No. 2:

- 2. Chemical analysis of soil and groundwater samples have been limited to a modified target compound list (TCL) of volatile organic compounds (VOCs) consisting of TCE and its potential daughter products, cis-1,2-dichloroethene (DCE), trans- 1,2-DCE, 1,1-DCE, and vinyl chloride. Proper justification for limiting the analyte list in this manner has not been provided in the Work Plan. While TCE may be the predominant contaminant, TCE is frequently found with other chlorinated solvents due to impurities or the mixing of several solvents common in commercial solvent solutions. Those additional chlorinated solvents most frequently found in TCE solutions include tetrachloroethene (PCE) and trichloroethane (TCA) and its associated daughter products.*

Examination of the data previously reported in the 2000 Final TCE Investigation Report for SWMU 7/8 appears to support a conclusion that only TCE and its potential daughter products are present. However, these data have not been cited and discussed in the Work Plan in support of the decision to limit the analyte list. Moreover, as evidenced by the large increase in TCE contamination that has recently been observed, the characteristics of the previously observed release appear to have changed.

It has not been clearly demonstrated that other chlorinated solvent constituents are not currently present.

The Work Plan should be revised to clearly justify the selection of constituents for which analyses will be performed. It also appears that, to ensure that TCE and its daughter products remain the primary contaminants of concern, a minimum of one round of sampling and analysis using a more complete chlorinated solvent analyte list should be undertaken using the expanded monitoring network that will be available after completion of this work plan.

Navy Response to BAH General Comment No. 2:

Text has been added to the Work Plan reflecting a comprehensive review of analytical data from previous investigations. In addition, an Appendix to the work plan has been provided with the summary of analytical results from previous investigations. Because of this review, other volatile organics were added to the TCL. The final TCL volatile list will be:

- TCE
- Cis 1,2 DCE
- Trans 1,2 DCE
- 1,1 DCE
- vinyl chloride
- PCE
- 1,1,2 TCA
- 1,1,1 TCA
- 1,2 DCA
- 1,1 DCA
- chloroform
- methylene chloride
- pentachloroethane
- chloromethane

Although PCE, 1,1,1 TCA, 1,1 DCA, and 1,2 DCA were not detected at this site, they are being added as a precautionary measure to ensure complete characterization of the chlorinated solvent plume.

BAH General Comment No. 3:

3. *The Work Plan (pp 3-4) indicates that temporary monitoring wells will be installed at the bottom of the water-bearing zone. When discussing the installation of the permanent wells, the Work Plan (pp 3-6) also indicates that, "the purpose of these new wells will be to obtain representative groundwater samples from a dissolved TCE plume, and as such, the screens will be located to obtain representative TCE plume concentrations (i.e., well screens will be set at the bottom of the boring on the competent bedrock)." Although the text of the Work Plan does not clearly indicate if the permanent monitoring wells will be installed at the same locations (i.e., in the same borings) as the temporary wells, Figure 31 appears to indicate that the permanent monitoring wells will not be collocated with the temporary wells.*

The depth at which groundwater samples are taken from either temporary or permanent monitoring wells can be very important to adequately characterize the contaminant plume, including peak concentrations in that plume. The data obtained during the previous TCE delineation efforts from multi-well locations have clearly indicated that the precise depth of sampling can significantly

influence the measured concentrations. For example, at TW-C, the measured concentrations of TCE were 25 ug/l and 1500 ug/l in the shallow and deep wells, respectively (see Figure 2-5). This is in spite of the fact that five-foot screens were used in both wells and the shallow screen was installed immediately above the deep screen. Thus, the significant difference in concentrations observed at this location occurred over a ten foot sampling interval. Moreover, the depiction of the screen depths for TW-C in Figure 2-2 appears to indicate that the deep well is screened below the water bearing zone as shown on this figure. In addition, both wells appeared to be installed below the top of the hard bedrock, which could easily be viewed as installed below competent bedrock. In addition, if the screen depths depicted in Figures 2-2 and 2-3 are further examined, it appears that this situation is common. Many of the previously installed temporary and/or permanent wells were either screened below the water bearing zone or below the level of competent bedrock, or both.

Thus, it would appear that the criteria established in the Work Plan for establishing screen depths is not consistent with the criteria previously used and may not allow the collection of groundwater quality data suitable for characterizing the nature and extent of contamination. A more detailed and carefully planned approach to determining groundwater sampling depths appears necessary. It may be necessary to sample at multiple depths at each location during the initial phases of the investigation until the pattern of contaminant migration is clearly examined.

Navy Response to BAH General Comment No. 3:

Figures 2-2 and 2-3 were redrawn reflecting a more accurate geological interpretation of the zones found during the initial TCE investigation. During the current investigation, the temporary monitoring wells will be installed at locations close to those in the initial TCE investigation where the higher TCE concentrations were found, that is, slightly below the top of the weathered, or unweathered, lithofied, bedrock. Visual observation will be used to determine this zone. If visual observation is not available due to lack of recovery, other clues such as drilling pressure and geological information from previous investigations in that area will be used to place the well screens with depth. In this way consistency between the previous TCE investigation and this investigation will be maintained.

It is critical that the integrity of the unweathered, lithofied bedrock is not breached in this investigation, thereby allowing any mobile DNAPL, if present, to migrate to previously unimpacted zones. This provides further rationale for placing well screens at the top of, or slightly below the top of, the interface between the decomposed bedrock and the lithofied bedrock. However, should a temporary well be located within 50 feet of a soil boring, and should that soil boring have indicated the presence of either residual or mobile DNAPL, an additional temporary well will be placed at the same depth, or in the same zone, of the DNAPL detection in the associated soil boring. Both temporary wells, located next to each other, with one screened in the DNAPL zone indicated by the nearby soil boring, and the other screened below it in the top of the lithofied bedrock, will assist in ascertaining the vertical distribution of the dissolved TCE plume. Text indicating such will be incorporated into this work plan.