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Engineers
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Scientists

October 13, 1994

MAE70342.A0.SP

Mr. Jeff Kidwell
Atlantic Division NAVFACENGCOM
Code 1823
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Dear Jeff:

Subject: Final Work Plan and Sampling Plan for ABL Site 1

Enclosed please find 5 copies of the Final Work Plan and Sampling and Analysis Plan for Site 1. A memorandum specifically addressing each review comment is also included. In addition, I have included a copy of the laboratory's general Quality Assurance Plan for CLP work. All laboratory work performed at ABL will be done in accordance with this plan. I have also forwarded one copy of this plan to EPA.

Please call with questions.

Sincerely,

CH2M HILL

J. Greg Mott
Project Manager

cc: Stephen Hoffman/NAVSEA
Lou Williams/NAVSEA
Steve Mullins/Hercules
Bruce Beach/EPA Region III
Peter Costello/WVDEP
Peter Knight/NOAA

Baltimore Office 400 East Pratt Street, Eighth Floor Baltimore, MD 21202-3128 410 576-9151 Fax No. 410 727-5250

MEMORANDUM

CH2M HILL

TO: Jeff Kidwell
Steve Mullins
Dave McBride

COPIES: Bruce Beach
Thomas Bass

FROM: J. Greg Mott JGM

DATE: October 13, 1994

SUBJECT: Response to Comments on Work Plan and Sampling Plan for the Focused RI/FS for Site 1

PROJECT: Allegany Ballistics Laboratory

CH2M HILL's response to review comments are listed in the order they were presented in each reviewer's letter. The responses also reflect discussions and agreements made with the EPA and WV DEP during meetings held at ABL on May 19, 1994 and September 15, 1994.

EPA Comments (June 20, 1994)

General Comments

1) The work plan assumes the reader has reviewed all reports documenting previous investigations at ABL. This information is crucial to gaining a comprehensive understanding of the rationale and scope of the work plan. However, rationale will be added to the work plan referencing reports of previous investigations.

2) Figures will be altered or added as necessary to indicate the proposed locations and/or areas to be investigated.

3) As discussed in our meetings on May 19, 1994 and September 15, 1994, the scope of work for the groundwater investigation at Site 1 should provide adequate data to perform an FS and make a responsible decision selecting an appropriate remedial action. However, additional investigative work may be required as part of a predesign effort. Your suggestions will be reevaluated at this time.

4) A conceptual site model for ABL is discussed at length in Section 8 of the Draft RI Report (October 15, 1992). In addition, text will be added to Section 4 of the work plan discussing a conceptual site model for Site 1.

5) Contaminants of concern and preliminary remediation goals are discussed in Section 4.

6) CH2M HILL will provide the EPA with a copy of all raw data and data validation reports generated during the RI conducted in 1992.

7) Greater detail will be added to the work plan describing the seismic survey and ecological risk assessment. Physical parameters measured for characterizing surface water are dissolved oxygen, pH, conductivity, and temperature. Sediments will be described using soil classifications and noting organic content.

8) The primary contaminants at Site 1 are VOCs. Inherently, VOCs are not readily transported via surface runoff. Instead VOCs typically migrate in subsurface soils and groundwater. Consequently, a comprehensive understanding of the hydrogeology is essential. More stable compounds and metals are readily transported by surface runoff. The results of SVOC and metals analyses of surface soil, sediment, and surface water samples will be evaluated to characterize the impact of this pathway on site contaminant migration.

9) The documents will reference the supplementary risk assessment guidance documents as sources.

10) Additional soil and sediment sampling will occur at these locations. Surface soil samples (approximately 2-3 feet below grade) will be collected about sample locations HCS-BG-98,-113,-102, and -110 to better define the areal extent of contamination. Four surface soil samples (0.5 to 1 feet below grade) will be collected at the four sample locations mentioned. Sample SD-3 was moved to the location adjacent to soil samples HCS-BG-102 and -110.

SPECIFIC COMMENTS

Fracture Trace Analysis

All fractures identified in the photos will be verified in the field. CH2M HILL will provide EPA with the results of the analysis when they are documented.

Seismic Survey

Text and a figure shall be added providing the requested detail. Additional survey lines agreed to in the May 16, 1992 meeting shall be performed.

Soil Gas Sampling

A figure indicating soil gas sample locations will be added to the work plan.

Focused Soil Investigation

Additional samples are planned for the cited former sampling locations.

Well Installation and Well Testing

The geophysical testing (caliper testing, natural gamma and electrical resistivity, fluid resistivity, and temperature testing) along with down-hole camera survey and core sample results will provide a full complement of data to determine appropriate packer intervals. Therefore, brine tracing and flow meter logging will not be performed.

DNAPLs are not anticipated in either of the onsite bedrock well locations.

The drilling techniques employed at ABL will be Odex, air rotary, and wire-line coring. These techniques will be discussed in the work plans.

DNAPL Investigation

Wells 1GW3, 1GW9, and 1GW13 are the wells most likely to contain DNAPLs. Consequently, these wells will be sampled using a stainless steel bailer and a water insoluble dye will be mixed with the sample to detect the presence of DNAPLs. An interface probe is best suited for situations where a well defined interface between layers of liquids exist. The dye is effective in detecting DNAPLs even if only a small discontinuous pocket exists. Therefore, the water soluble dye will be used instead of an interface probe.

Groundwater Sampling

All wells including 1GW1, 1GW2, 1GW3, 1GW4, 1GW10, 1GW11, and 1GW13 will be analyzed for total and dissolved metals plus cyanide.

If free product is detected it will be sampled and subjected to comprehensive analyses.

Water level data has been collected in past investigations from many of the existing wells. One round of water level measurements will be collected as part of this effort. However, additional rounds of water level measurements will be considered as the work progresses.

Packer testing and slug tests have and will be performed at Site 1 and Plant 1. This will provide adequate information to evaluate remedial alternatives in the feasibility study. However, further aquifer testing will be considered and possibly conducted as part af a predesign effort.

Investigation Derived Waste

All IDW generated from installation, testing, or sampling of wells at the site will be disposed of on the ground adjacent to the well of origin except for wells 1GW3, 1GW9, and 1GW13. IDW will only be contained if air monitoring indicates high concentrations of contamination.

No cuttings will be placed into a well as a means of construction. Soils collected during the drilling of soil borings as part of the DNAPL investigation may be placed back in the borehole unless free product is detected.

Baseline Ecological Risk Assessment

A detailed discussion of the scope and approach of the baseline ecological risk assessment will be added to the work plan. Comments, concerns, and recommendations will be reviewed and considered in developing this scope.

Central Regional Laboratory SAP Review

The SAP is not intended to follow the format and structure that EPA requires

of their contractors. Instead, it is intended to provide samplers and reviewers with a detailed reference to the scope, method, and procedures for performing the fieldwork associated with the field sampling effort. Consequently, all items outlined in CRLs checklist will not be added to the SAP (e.g., title page format, resumes, etc.). However, a laboratory QA/QC Plan will be provided and technical comments will be addressed.

WV DEP Comments (June 9,1994)

General Comments

A DNAPL investigation is included as part of the work plan. If DNAPLs are detected efforts will be made to characterize their nature, quantity, and occurence.

The stratigraphy of the alluvium probably has influenced the migration of DNAPLs in the alluvium at Site 1. The RI (Section 5) and the work plan (pg. 2-5) describe the alluvial geology at Site 1 and Plant 1. The alluvium consists of a silty clay layer and a poorly sorted sand and gravel layer containing pebbles and cobbles with variable but significant amounts of clay and silt. This was determined by drilling soil borings and review of literature describing the regional and local geology. This is also supported by slug test data showing a wide range in hydraulic conductivities (1 x 10 -5 to 5 x 10 -3 cm/sec) in the alluvium. A large number of borings would be necessary to further define the alluvium at Site 1 and would risk the disturbance and further migration of DNAPLs that may exist in the alluvium.

A conceptual site model will be developed for Site 1 describing the areal and vertical extent of contamination.

Specific Comments

A Table of contents will be added to the work plan.

P. 1-1. The site was listed on the NPL on May 31, 1994.

P. 2-4. The text and reference are correct and the anticline plunges to the southwest. The arrow on the figure does not indicate the direction of plunge, but estimates the direction of the axis.

P. 2-7. Further information determining the depth to bedrock at Site 1 will be collected during the seismic survey.

P. 3-5. This will be noted.

P. 3-6. This is possible. However, because of the high concentrations of TCE existing in these wells, higher detection limits must be used to accurately determine their concentration.

T. 3-6. This Table will be referenced on page 3-1.

P. 5-2. Drilling methods will be added.

P. 5-4. A figure will be added indicating soil sampling locations. The work plan assumes that all reports documenting previous investigations have been reviewed. This is essential in gaining a comprehensive understanding of the scope detailed in the work plan. References will be made to these reports as necessary and rationale will be provided.

Additional soil sampling will be performed in these areas.

P. 5-4. Soil gas locations will be shown on a figure. Ten soil gas samples should indicate whether VOCs occur in soil gas in this area.

WV DEP Comments (June 21, 1994)

1) Soil samples collected for VOC analysis will not be agitated or mixed for composite sampling.

2) Preservatives such as methanol have proven useful in minimizing volatile loss occurring between sample collection and analysis. However, the preservative needs to be completely mixed in order to be effective. This is impossible to do without mixing or agitating the soil sample. Consequently, preservatives are typically used for water samples only.

3) This is a standard CH2M HILL practice. This will be added to the SAP.

4) This letter was reviewed and considered in developing the IDW Plan. See response to EPA comment regarding IDW.

Navy Comments (May 17, 1994)

1) This will be added to the work plan (not the SAP) as agreed in the meeting on September 15, 1994 and as mentioned in responses to previous comments.

2) Detailed information regarding the installation and testing of wells is documented in the Subcontract Documents for Drilling Services. A copy will be made available to the Navy upon request. The specific make/model of equipment used to perform testing will not be determined until the subcontractors are procured. This information will be documented in the RI Report.

3) Detailed information regarding drilling methods, well construction procedures and materials, and well development methods are given in the Subcontract Documents for Drilling Services.

4) Additional rounds of water level measurements can be collected as desired by the Navy. The current scope only includes one round.

Continuous data logging of water levels in wells 1GW3, 1GW9, 1GW13, and surface water level elevations in the river were performed over a two week period as part of the previous field investigation. The results are presented and discussed in the Draft RI Report (Section 6, pg. 6-6). A hydraulic connection between the river and the groundwater in these wells was observed.

5) This will be added.

6) The hydraulic probe will provide the volume of sample necessary for each analysis indicated. This method was preferred primarily for the associated lower costs.

7) This information will be added.

Navy Comments (May 18, 1994)

P. 4-3. CH2M HILL's intent is to generate analytical data of the highest quality. A completeness goal of 90 percent has been added to the SAP.

P. 5-1. The selection criteria for analytical testing parameters is discussed in the work plan and requires a thorough understanding of previous investigations, since the scope of sampling and analyses performed is based on results of previous investigations. In addition, these decisions will not be made in the field. Consequently, this bullet will not be added.

Equipment blank preparation has been added.

P. 7-1. Specific conductance will be measured for groundwater and surface sampling. It is included in the calibration section as well as SOP 3 of the Field Sampling Plan.

P. 9-1. The USEPA Guidlines can be used if the Navy desires. However, the scope directs CH2M HILL to follow NEESA Guidelines.

P. 13-1. This is the approach that will be taken.

P. 1-1. These geotechnical tests can be performed if the Navy desires. However, they are not necessary to perform an RI/FS.

P. 1-3. No. One sample will be collected from the bottom of each pit.

P. 1-6. The sampling and analyses to be performed are based on the results of previous investigations. A comprehensive understanding of these investigations is crucial for understanding and evaluating the scope of work detailed in the SAP. However, this will be explained in the work plan referencing previous investigations.

The sediment samples are primarily collected at locations where surface water samples were collected in previous investigations. However, this is not always the case. The sampling scheme was developed in concert by CH2M HILL, the Navy, the EPA, and the WV DEP. CH2M HILL will collect surface water and sediment samples at all sampling locations in the river if the Navy desires, although this is not required by the regulators.

Surface water samples will be analyzed for total metals only.

P. 2-1. Groundwater sampling will conform with both USEPA and U.S. Navy

guidelines.

P. 2-3. The correction will be noted.

P. 3-2. The correction will be made.