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LETTER AND U S NAVY RESPONSE TO COMMENTS TO DRAFT-FINAL SAMPLING AND
ANALYSIS PLAN FOR REMEDIAL INVESTIGATION SITE 2 NCBC GULFPORT FL
4/19/2012
TETRA TECH



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Project Number 112G02094

Commanding Officer, Southeast
Naval Facilities Engineering Command
Attn: Charles Cook (Code OPA6)
Remedial Project Manager
NAS Jacksonville
135 Ajax Street
Jacksonville, Florida 32213-0030

Reference: CLEAN IV Contract Number N62467-04-D-0055
Contract Task Order Number 0150

Subject: Response to Comments, Draft-Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for the Remedial Investigation at Site 2
Naval Construction Battalion Center Gulfport, Mississippi

Dear Mr. Cook:

Tetra Tech is pleased to submit this letter responding to the comments from the Mississippi Department of Environmental Quality (MDEQ) on the Draft-Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for the Remedial Investigation at Site 2 at Naval Construction Battalion Center (NCBC) Gulfport. The questions and/or comments received by Tetra Tech are addressed below.

MDEQ, Mr. Bob Merrill

Comment 1: Contact (telephone) information (page 12) from the state RPM is incorrect; 961-5302 should read 961-5049 (for Bob Merrill).

Response: The Final Sampling and Analysis Plan (SAP) was updated using the correct telephone number.

Comment 2: The acronym list (pages 5 through 10) does not identify the acronyms SSL or R5 ESL.

Response: The SAP was updated and the acronyms were identified.

Comment 3: Clarification is needed in the text discussion concerning previous dioxin groundwater occurrences at Site 2 and northerly adjoining Site 7. The dates of investigations and the identity and location of monitor wells located near or at sites 2 and 7 are not given in text discussion presented on page 32. Dioxin concentrations above groundwater regulatory screening levels were (apparently) reported from samples collected during these investigations. The location of monitoring well GPT-2-3 (for

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which no specific concentration is given) is described (page 32, paragraph 1) as “near of Site 7 and just north of Site 2”. The following paragraph (page 32) describes “an additional investigation” during which “one monitoring well at Site 7 contained 51.6 pg/L dioxin with an estimated 25 pg/L attributed to TCDD”, but the dates of the investigations and identities of the wells with TCDD exceedances are not clearly correlated with Site 2.

Response: Additional information and figures on the location of the monitoring wells and the sampling dates were added to the updated SAP in Sections 10.2.3 and 10.2.4.

Comment 4: Concerning the text statement (page 32, paragraph 2) regarding the amount of 2,3,7,8 TCDD in the referenced groundwater sample (25 ppt); it should be noted that OPC does not exclusively evaluate 2,3,7,8 TCDD because several of the associated (tetra-type) congeners are also of importance in the evaluation of suspected occurrences of and attribution to Herbicide Orange (HO). Dioxin screening values among the various media utilize the total of congener concentrations (TEF values) to establish the TEQ screening value used. The occurrence or lack of TCDD is a good indicator of the presence of HO but the MCL (30.0 ppq) addresses the sum of all congeners in the sample (51.6 ppq) and not just the 25 ppq TCDD congener concentration, so the sample did exceed the MCL and the presence of HO in areas within or adjoining the site is established. This should be clearly stated in an expanded text providing support for the decision to include dioxin analyses among the various media.

Response: The reference to the “non-HO related dioxin” related to groundwater results associated with Site 5 (Harding Lawson Associates, 1999). Site 5 is over 2,000 feet to the southwest of Site 2 and is located on the southeastern side of a groundwater divide that isolates Site 5 from Site 2 (Plate 3 in Appendix B of the SAP). The “51.6 picograms per liter (pg/L) dioxin with an estimated 25 pg/L attributed to TCDD” was in reference to the values associated with the groundwater analytical results from the Site 7 monitoring well GPT-7-1. Site 7 is located adjacent to and north of Site 2, and monitoring well GPT-7-1 is located approximately 100 feet north of Investigation Boundary for Site 2. Figure 6A in the updated SAP displays the location of monitoring well GPT-7-1 in relation to Site 2. The text in the updated SAP no longer mentions Site 5 or the “non-HO related dioxin” as neither Site 5 nor “non-HO related dioxin” is the focus of the sampling activities at Site 2. Additionally, Section 10.4.1 “Sources and Potential Contaminants” of the SAP was updated to provide support for the decision to include dioxin analyses among the various media.

Comment 5: The sampling plan (Table 15) indicates that dioxin analyses will be completed for soil (page 57), sediment (page 66) and groundwater (page 75) but not for surface water. The text should clarify why dioxin analysis is not planned for surface water.

Response: There are two reasons why dioxin analysis is not planned for surface water. One relates to the history of the site and the other relates to the use of the data.

- From the historical perspective: The Site 2 landfill was operated and closed before HO was stored on the base. In addition, the ditches on the eastern side of the site were all excavated as part of the remedy for Site 8. The pond, where the sediment samples are planned to be collected, was dug well after HO storage ended and does not receive any surface water from the base drainage system.
- From the data usage perspective: Sediments sample analysis serves as a better indicator of contamination than do surface water samples. Dioxins have a very high octanol/water partition coefficient and a very low solubility limit. Therefore, dioxins adhere to sediments and do not enter into the water column at readily detectable concentrations. The general transport mechanism for dioxins in streams and ditches is through sediment transport and/or sediment entrainment in the water column. Such entrainment typically occurs during high velocity stream water flow events which often follow heavy rainfall events.

The population of interest for sediments includes any sediment along the western shoreline of the pond that may be impacted by contaminated groundwater that potentially migrates from the site and recharges the pond (see Figure 6 in the SAP). Therefore, given the history of Site 2, the history of the pond, and the chemical/physical properties of dioxin, it was determined that analyzing the sediments for dioxin better met the project data quality objectives than analyzing the surface water for dioxin.

Comment 6: A surface sheen (rainbow colors) and distressed vegetation were observed in surface water drainage ditches located along the south and east sides of Site 2 (Appendix B) in December of 1994. Severely distressed vegetation (dead trees) was observed in areas adjoining the ditches. These observations should be addressed in the sampling program (ex. Soil, sediment and surface water sampling and analyses for TPH, PAHs, VOCs, SVOCs and possibly dioxin) if the surface water sheen and distressed vegetation are still apparent. These observations (included in Appendix B) and associated decisions addressing the possible contamination in these areas should be discussed in the main body of the text.

Response: The one-page December 22, 1994, memorandum with the attached one-page hand drawing from Ms. Penny Baxter (ABB) to Mr. Art Conrad (Southern Division Naval Facilities Engineering Command) references the sheen and the distressed vegetation. Figure 6A depicting the estimated location of the area of former distressed vegetation and ditch with sheen has been added to the updated SAP. The ditch was filled in during golf course construction activities, and a concrete culvert was installed in the location of the former ditch to facilitate drainage. To assess potential impacts to the soil and groundwater in the location of the distressed vegetation and drainage ditch, soil and groundwater samples will be collected in these areas. Figure 6A also depicts the locations of the soil and groundwater samples that have been added to the SAP.

Comment 7: Clarification is needed concerning planned sampling activities in areas along the eastern site boundary and how data gaps and field observations from previous studies (referenced in the sampling plan) will be addressed, as no sampling locations in these previously unsampled areas are shown on Figure 6. Three groundwater samples and one surface water/sediment collocated sample are described in the Verification Study (1988, Table 8) included in Appendix B, however the location of the surface water/sediment sample and the association with Site 2 is not apparent. No sample locations (for the groundwater, surface water or sediment media) are shown for eastern areas of the site as the groundwater sampling locations (two of which are located at Site 2) are in the southern portion of Site 2 and one (GPT 2-3) is located at the northern boundary of northerly adjoining Site 7 (1988, Plate 3).

The text discussion reference Appendix B (page 31, paragraphs 2 through 5) should (at least generally) specify locations of referenced (1988) surface water/sediment samples (discussed on page 31, paragraph 3) and be expanded to demonstrate how the planned sampling strategy addresses data gaps resulting from contaminated areas reported during previous field observations (technical memorandum dated 22 December 1994) and sampling investigations (Verification Study dated 17 July 1988).

Response: Comment 7 addresses more than one topic; therefore, this response is broken down into several sections.

- Regarding clarification of planned sampling activities and how data gaps and previous field observations will be addressed: The SAP presents a flexible and iterative approach to sampling. Fieldwork for the RI consists of four events; i.e.; (1) Geophysical Survey, (2) Passive Soil Gas Survey, Landfill Gas Survey, Ditch and Pond Investigation, (3) Soil and Groundwater Sampling, and (4) Monitoring Well Installation and Additional Sampling as Needed. Each event provides information that will be used in the next event to refine the location, number, and of type of sample collection points. For example, during Event 2, it is anticipated that 49 GORE-SORB[®] Modules will be installed in a grid pattern over Site 2 (see Figure 6 in the SAP). The locations of the soil and

groundwater samples in Event 3 will be based upon the results from the GORE-SORBER® Modules and the Event 1 geophysical survey. Therefore, it is not possible at this time to show all the anticipated soil and groundwater locations. As explained in the Response to Comment 6, additional sample locations for soil and groundwater are included to assess the former area of the distressed vegetation and ditch containing the sheen as reported in the one-page December 22, 1994, memorandum by Ms. Penny Baxter (ABB). The actual number of soil and groundwater samples may increase or decrease based upon the findings from other events in this investigation. Worksheets 14 and 17 of the SAP were updated to clarify the iterative approach to sampling and how the results from one event will aid in determining the sample location points referenced in later events. In addition, Worksheet 14 of the SAP was updated to note that the Project Manager will provide information to the Project Team at the end of Events 1, 2, and 3 that summarized the findings and how those findings will be used to shape the activities planned for the next event.

- Regarding surface water/sediment samples discussed on page 31, paragraph 3: These samples were collected from the drainage ditch near the southeastern side of the intersection of Colby Avenue and 8th Street. More details and locations are provided in Section 10.4 of the updated SAP. The samples were analyzed for selected metals (cadmium, chromium, and lead), oil and grease, total organic carbon, total organic halides, and chemical oxygen demand. Low levels of chromium and lead were detected below regulatory levels in the sediment sample. Other metal concentrations were less than the laboratory detection limits. The text in the SAP was updated, and Plate 6 from the Verification Study was added to in Appendix B in the SAP.
- Expanded text in Worksheet 10 to demonstrate how the planned sampling strategy addresses data gaps: The Conceptual Site Model is presented in pages 30 through 34 of the SAP (Worksheet 10). The rationales for the sampling activities are presented in Worksheet 17, which was updated to demonstrate how the planned sampling strategy addresses data gaps resulting from contaminated areas reported during previous field observations.

Comment 8: Since the site hydrological setting is not fully understood, the groundwater sampling program should be more open ended than to plan limitations on the number (18) and depth (40 feet) of groundwater samples in the event that the area of influence (or the plume size) is larger than anticipated. Groundwater monitor wells should be located upgradient and downgradient of the site in an array that will define the plume.

Text discussions concerning the groundwater sampling strategy need to be expanded to clarify how the vertical and horizontal extent of the groundwater plume will be defined. The predetermined vertical boundary of investigation of approximately 40 feet of depth (page 38, paragraphs 3 and 4) will be invalid in the absence of a naturally occurring aquitard or aquiclude that will prevent downward contamination migration if DNPL contaminants (“sinkers”) such as TCE are present. The lateral extent of contamination should be defined by areas in which observed groundwater contaminants are no longer detected, although the text places limitations on the number of laterally located samples and states that the lateral extent of investigation will terminate at site boundaries if subsurface soil and/or groundwater do not exceed PALs (page 39, paragraph 5). The total planned number of groundwater samples is defined as “not to exceed 18 groundwater samples” (page 47, paragraph 3).

Several permanent (sentry) monitor wells should be established outside of the known areas of contamination (once determined) in the event that the stepped sampling strategy originating within the landfill does not provide an accurate conceptual site model.

Response: One goal of the SAP is to present a flexible and iterative sampling design. The flexibility in the design and the iterative nature of the approach will enable the Project Team to make adaptive management decisions that allow for acquisition of the type of data referenced in Comment 8. For example, matters related to the vertical and horizontal extent of the groundwater plume will be part of the



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focus when monitoring wells are installed. The updated SAP notes that locations and depths of the investigation wells will depend upon the results of the earlier investigation events.

The installation of permanent monitoring wells, also known as post-closure monitoring wells, is one of the elements in the presumptive remedy. The suggested location, number, and depths of these monitoring wells will be presented in the Feasibility Study.

Comment 9: The document does not contain a Health and Safety Plan.

Response: The HASP is a stand-alone document. It was submitted as a final document in June 2009.

Comment 10: Clarification is needed concerning plans for conducting a human health risk assessment at Site 2. The document contains a detailed methodology for an Ecological Risk Assessment (Appendix C) but human health risk is only briefly addressed on page 40 (paragraph 2).

Although the text briefly discusses acceptable human health risk values (cancer $1E-6$ and hazard quotient of 1.0) no plan is presented that will demonstrate actual risk at Site 2. The methodology for conducting a human health risk assessment should be included in the report of clarification of reasons to exclude it should be provided.

Response: The updated SAP now contains a detailed methodology for a Human Health Risk Assessment (see Appendix C).

If you have any questions with regard to this submittal, please contact me via e-mail at Gregory.Roof@TetraTech.com or by phone at (904) 730-4669, extension 215.

REFERENCES

Harding Lawson Associates, 1999. Groundwater Monitoring Report Naval Construction Battalion Center Gulfport, Mississippi Unit Identification No.: N62604 Contract No.: N62467-89-D-0317/150 Prepared by: Harding Lawson Associates December 1999

Sincerely,


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Task Order Manager

GSR/lc

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