

Black & Veatch Special Projects Corp.

TECHNICAL MEMORANDUM Revision 1

US EPA Region 4
Sonford Products Site
WA No. 685-RICO-04J5

BVSPC Project 48685.01.01
May 20, 2008

To: Keriema Newman, EPA RPM

From: Reginald Dawkins, Jr., Black & Veatch Special Projects Corp.

RE: Field Sampling Plan Addendum 5
Additional Data Collection
Subsurface Soil and NAPL Investigation

1.0 Purpose

The purpose of this memorandum is to detail protocol for the collection of additional data at the Sonford Products site (Figure 1). This will involve the collection of subsurface soil samples from six locations and an investigation to define the horizontal extent of existing non-aqueous phase liquid (NAPL) at the site. Table 1 of this addendum lists the location and analyses to be performed for each sample being collected this sampling event.

1.1 Soil Samples

All soil samples collected will be sent to a CLP or SESD laboratory for analysis, and will be analyzed by the following CLP established method or other analytical method as stated in the EPA CLP SOW, Exhibit E for the following services:

1. Multi-Media, Multi-Concentration Organic Analytical Service for Superfund (SOM01.1) (EPA, 2006c) (semivolatile organics [low soil for all soil]; and pesticides [low soil for all soil] found on the target compound list [TCL]);
2. Multi-Media, Multi-Concentration Inorganic Analysis, ILM05.3 (EPA, 2004c) (ICP-AES for soil for metals found on the target analyte list [TAL]).
3. Multi-Media, Multi-Concentration Dioxins and Furans Analysis, DLM02.0 (EPA, 2005b) (dioxins and furans TCL for soil).

1.2 Soil Samples (Dioxins and Furans)

Soil samples collected for dioxins and furans may be sent to a screening laboratory for analysis, and will be analyzed for the toxic equivalent concentration (TEQ) using the following method:

1. EPA Method 4025 (an immunoassay method which reports only the TEQ with a detection limit of 500 parts per trillion (ppt). Individual congeners are not reported using this method.).

In addition to the soil samples collected for the screening laboratory, samples will also be collected for the fixed (CLP) laboratory. All soil samples collected for dioxins and furans that are sent to a CLP or SESD laboratory for analysis, will be analyzed by the following CLP established method or other analytical method as stated in the EPA CLP SOW, Exhibit E for the following services:

1. Multi-Media, Multi-Concentration Dioxins and Furans Analysis, DLM02.0 (EPA, 2005b) (dioxins and furans TCL for soil).

1.3 NAPL and Groundwater Samples

All NAPL and groundwater samples collected will be sent to a CLP or SESD laboratory for analysis, and will be analyzed by the following CLP established method or other analytical method as stated in the EPA CLP SOW, Exhibit E for the following services:

1. Multi-Media, Multi-Concentration Organic Analytical Service for Superfund (SOM01.1) (EPA, 2006c) (volatile organics [groundwater only; trace water]; semivolatile organics [low water for groundwater]; and pesticides [low water for groundwater] found on the TCL);

1.4 Quality Assurance

The objective of the sampling and preservation procedures outlined in this memo is to obtain samples that yield consistently high quality data. The use of proper sampling equipment, strict controls in the field, and appropriate chain-of-custody and analytical procedures will reduce the potential for sample misrepresentation and unreliable analytical data.

Specific sampling and preservation procedures to be used in the field investigation are detailed as follows. The EPA Region IV Field Branches Quality System and Technical Procedures (FBQSTP) will serve as the primary document from which all field procedures will be developed. Container, preservation, and holding time requirements must also meet the requirements of the FBQSTP. The analytical methods selected and/or modified will have detection limits that are less than, or equal to, federal regulatory levels. All personnel conducting sampling will be experienced in implementing the sampling procedures as outlined herein. Modifications and/or changes to the procedures described in the FBQSTP or the standard operating procedures (SOPs) presented in this memo will not be implemented without the prior approval of EPA and will be documented in field logbooks and on the Field Change Request Form presented as Figure 4-1 in the site's Quality Assurance Project Plan (QAPP).

2.0 Soil Sampling

2.1 Subsurface Soil Sampling

Subsurface soil samples will be collected within the source area during the collection of additional data from the clay unit (Yazoo Clay) underlying the site (Figure 2-1).

Subsurface investigations to date have shown that the soils above the Yazoo Clay consist of silty clays (0 - 10 feet below the land surface [bls]) grading to a fine-grained sand (10 - 20 feet bls) then grading to a coarser-grained sand (20 - 24 feet bls). Laboratory data indicates that the fine-grained sand unit has higher concentrations of contaminants. This data also indicates that the lower, coarser-grained sand has not been impacted. The purpose of this subsurface sampling is to confirm that contamination is not migrating into the Yazoo Clay, and therefore is not impacting lower aquifers at the site.

Six subsurface samples will be collected from within the Yazoo Clay. The Yazoo Clay is located approximately 24 feet bls at the site. The samples will be collected from approximately 8 feet below the top of the clay (approximately 32 feet bls). The exact depths of these samples will be determined in the field by the Field Team Leader (FTL).

Subsurface soil samples obtained using Direct Push Technology (DPT) methods will be collected in 4-foot increments in each of the sample locations. Soil cores will be continuously collected until the final sample depth is reached. The sample will be thoroughly mixed in the glass or stainless steel bowl and distributed to the appropriate containers. No collection of soil for Encore sampling prior to mixing is necessary as no

soil will be analyzed for volatiles. Holding time requirements for all portions of each sample are presented in Section 6.0, Table 6-1 of the Field Sampling Plan (FSP). Samples will be placed in iced coolers, as appropriate. Soils collected by the DPT rig will be visually logged for soil classification, color, grain size, moisture texture, consistency, geologic origin, and geologic characteristics using a modified version of the United Soil Classification (USC) system on a boring log as presented on Figure 3-5 in Section 3.6 of the QAPP. Samples will be labeled, packed, and shipped in accordance with procedures specified in Section 4.3 of the QAPP.

Following the completion of sampling at a location, the probe shall be retracted from the ground; the remaining hole shall be pressure grouted from the bottom of the borehole up to the surface. Leftover soil will be containerized in Department of Transportation (DOT)- approved, 55-gallon, UN 1A-1 or 1A-2 drums and disposed of as detailed in Section 7 of the FSD.

Container requirements along with preservation procedures and holding times are presented in Section 6.0 and Table 6-1 of the FSP. Samples for chemical analyses will be placed in iced coolers. The FTL will be responsible for examining the samples and logging all observations. Samples will be labeled, packed, and shipped in accordance with the procedures specified in the Section 4.3 of the QAPP.

3.0 NAPL Investigation

In order to define the horizontal extent of NAPL-contaminated shallow groundwater at the site an investigation will be conducted using tile probes and/or DPT methods. Due to decontamination issues tile probes will be the preferred method. DPT methods will be used only if site conditions require.

The investigation will consist of driving a tile probe into the subsurface to a depth of the top of the water table (approximately 12 feet bls). The tile probe will then be removed and visually inspected for the presence of NAPL.

The location and the number of the probe points will be based upon a 10-foot grid with former piezometer location PZ01 serving as the base point. The grid pattern (Figure 3) will move out from PZ01 in all four compass directions at 10-foot intervals until the horizontal extent of NAPL-contaminated shallow groundwater has been established. All observations will be noted in the field logs.

Once the extent of NAPL-contaminated shallow groundwater has been determined samples of the NAPL and the groundwater beneath the NAPL will be collected using a temporary monitoring wells.

The temporary wells will be installed using direct push technology (DPT) by SESD. Drilling and completion will be conducted in accordance with standards established in the FBQSTP. Permits, if required, will be secured from relevant authorities, where appropriate, by SESD before drilling activities begin. Prior to drilling, SESD will have utilities located by calling Mississippi One Call System, Inc. and with the use of a tile probe.

Although the appropriate utility companies will have cleared borehole locations before drilling activities, the first 4 feet of each borehole shall be advanced by hand, using hand augers and/or post-hole diggers.

SESD and Black & Veatch will ensure that utility clearances are acquired and permits to construct the temporary wells (if required) are secured from the appropriate authorities before drilling activities begin. A well installation log similar to Figure 5-1 of the site's Field Sampling Plan (FSP) will be generated for each temporary well installed.

The temporary wells will be constructed of disposable screen point samplers installed such that the screened portion is at the NAPL for NAPL sampling and below the NAPL for groundwater sampling.

Investigation derived waste from well installations will be containerized in DOT - approved, 55-gallon, UN 1A-1 or 1A-2 drums and disposed of as detailed in Section 7 of the FSD.

A total of three sample locations will be employed for this phase of the investigation. Two locations will be at the upgradient and downgradient extents of the NAPL-contaminated shallow groundwater and one from within center. The exact locations will be determined once the full extent has been defined with the tile probes.

3.1 NAPL and Groundwater Sampling

NAPL samples will be collected from the sample points at the depth determined by the tile probe investigation. Once the NAPL sample has been collected the sampler will be advanced to a depth below the NAPL and a groundwater sample will be collected. Due to the nature and expected high concentration of contaminants not purging of the temporary wells will be conducted prior to sample collection. Sample collection will be performed in accordance with appropriate SESD procedures and the FBQSTP.

Equipment used for sampling will be decontaminated in accordance with procedures specified in Section 5.8 of the FSP, except for the single-use tubing and disposable well screens, which will be discarded after use. All field measurement equipment probes will be rinsed with organic free water.

Container requirements along with preservation procedures and holding times are presented in Section 6.0, Table 6-1 of the site's FSP. Samples for chemical analyses will be placed in iced coolers. The FTL will be responsible for examining the samples and logging all observations. Samples will be labeled, packed, and shipped in accordance with the procedures specified in the Section 4.3 of the site's QAPP.

4.0 Sampling QA/QC

As part of the sampling effort, QC samples will be submitted to the laboratory with field investigation samples in order to evaluate the confirmatory sampling procedures and analytical methodologies. A discussion of the types of samples to be collected is presented in Section 4.5.1 of the QAPP and QAPP Addendum 1. Approximately five percent of the field investigation samples will be collected in order to evaluate sampling handling, shipment, and laboratory procedures.

5.0 Schedule

The additional sampling event is scheduled for the week of May 26, 2008.

TABLES

SONFORD PRODUCTS
FSP ADDENDUM 5
Table 1

[illegible]

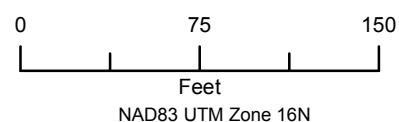
FIGURES



0 250 500 1,000
Feet
UTM Zone 16 NAD83 Meters

Site Location Map
Sonford Products Site
Remedial Investigation / Feasibility Study
Flowood, Rankin County, Mississippi

Figure
1



Proposed Sample Locations (Yazoo Clay)
Sonford Products Site
Remedial Investigation / Feasibility Study
Flowood, Rankin County, Mississippi

Figure
2-1