

TECHNICAL MEMORANDUM

TO: Andy Kallus, Washington State Department of Ecology

FROM: Lawrence D. Beard, P.E., L.G., and Kathryn Hartley ^{LB} ^{KH}

DATE: January 18, 2011

RE: **ADDENDUM NO. 1 RI/FS WORK PLAN
FORMER COLLINS BUILDING LOCATION INVESTIGATION
NORTH MARINA AMERON/HULBERT SITE
EVERETT WASHINGTON**

This technical memorandum presents Addendum No. 1 to the Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Work Plan; Landau Associates 2010) for the North Marina Ameron/Hulbert Site (Site). The Port of Everett (Port), Ameron International (Ameron), and the Hulberts [collectively the Potentially Liability Parties (PLPs)] are conducting an RI/FS at the Site under Agreed Order DE 6677 (AO).

At the time of the preparation of the Work Plan, the Collins Building was located in the southeastern portion of the Site. The Collins Building has since been deconstructed by the Port. Per previous correspondence with the Washington State Department of Ecology (Ecology), a reconnaissance was recently completed at the location of the former Collins Building to evaluate whether conditions of environmental concern are present in the former building area. The remainder of this technical memorandum presents the results of the reconnaissance and a proposed scope of work for additional RI activities in response to the observed conditions.

RECONNAISSANCE RESULTS

The reconnaissance included a thorough walkthrough of the former building footprint and field screening to identify potential areas of contamination. Surface soil from representative locations throughout the building footprint was screened for visual and/or olfactory evidence of contamination and for volatile organic compounds (VOCs) using a photoionization detector (PID). The reconnaissance also included a thorough inspection for physical features such as sumps, pits, vaults, and pipes.

Wooden piles (apparently untreated) were observed throughout the former building footprint. Surface soil in the former building footprint consisted of gray, fine to medium sand with shell fragments and is interpreted to be hydraulic fill. The Historical Site Development Analysis report (appendix to the Work Plan) indicated the area beneath the Collins Building was filled with dredged sand in 1947 and was filled to within 3 to 5 feet (ft) of current ground surface by 1953 in conjunction with the remainder of the

North Marina Peninsula. The shell fragments observed in sand indicates this material is likely to be the 1947 to 1953 fill material.

Surface soil at 10 locations was field-screened for VOCs using a PID. The screening locations are shown on Figure 1. Elevated PID readings were not recorded at any of the screening locations. Standing water was observed over much of the eastern one third of the former building area; therefore, surface soil screening was not completed in this area.

An ecology block wall was observed to the south of the former building area, and along the southern portion of the western side of the former building area. Rust-colored gravel was observed on the ground surface along the block wall on the west side of the former building area. Woodchips were observed on the ground surface in several areas. Three concrete pads were observed within the former building footprint and are shown on Figure 1. The pads are believed to be foundations associated with former equipment.

Two vertical pipes were observed in the northeastern portion of the former building area and are shown on Figure 1. The first is located directly north of a concrete pad and is believed to be associated with a former elevator. A petroleum sheen was observed on standing water in this area. A second pipe was observed farther north. The purpose of this pipe is not known, but it was observed to largely be filled with wood debris at the time of the reconnaissance.

Based on the results of the reconnaissance, three potential areas of concern were identified and are described below. In addition, further investigation of the pipes will be conducted, as discussed below.

Oil Staining in West Area

A concrete pad was observed in the center of the west side of the former building footprint. The pad is approximately 8ft by 8ft and approximately 9 in thick. The pad is believed to be a foundation for a former planer. Woodchips were observed over an approximately 80 square foot area to the south of the pad, as shown on Figure 1 (see Affected Soil Near Planer). Areas of cemented sand and woodchips were observed within this area. It appears that material (petroleum) may have leaked from the former wood planer to the ground surface in this area as the material left an oily residue behind on gloves when handled. Field screening using a PID did not identify VOCs. The material exhibited an odor of decomposing organic matter. The cemented material appears to extend to about 1 ft below ground surface (BGS).

Vertical Pipe in East Area

A concrete pad is located near the center of the east side of the former building footprint. A vertical steel pipe (CBR-Vert Pipe) was observed to the north of the pad. The pipe is approximately 10

inches in diameter and is lined with a PVC pipe. The pipe is approximately 19.5 ft deep and was empty except for a small amount of water at the bottom. Based on the water level in newly installed Monitoring Well RI-MW-5, groundwater is about at the ground surface in the vicinity of the standpipe implying that the PVC liner pipe is sealed (i.e., does not have an open bottom); there was not sufficient annular space to measure water levels between the outer steel pipe and the PVC liner pipe. The vertical pipe may have housed the hydraulic piston associated with a former elevator. A diesel aboveground storage tank (AST) was also formerly located to the east of this area.

Standing water in the area of the concrete pad and pipe exhibited a petroleum sheen. The petroleum appears to be emanating from beneath the concrete pad and potentially the ground surface in the area of the pipe, which was covered by approximately 8 inches of ponded water at the time of the reconnaissance. Field screening using a PID did not identify VOCs in this area.

Northeast Standpipe

A second vertical steel pipe (CBR-Vert-Pipe2) is located about 30 ft north of the steel pipe observed in the East Area. The steel pipe is about 8 inches in diameter and contained debris to within about 3 ft of the ground surface. Field screening using a PID did not identify VOCs in the vicinity of the pipe and no olfactory or visual evidence of contamination was observed at this location.

PROPOSED SCOPE OF WORK

The proposed scope of work to address the areas of potential concern associated with the former Collins Building location is presented in the following sections. The field procedures, analytical methods, and quality assurance/quality control (QA/QC) procedures presented in the Work Plan (Landau Associates 2010) will be used for implementation of these supplemental RI activities. The sampling and analysis plan for the proposed investigation is also summarized Table 1.

Oil Staining in West Area (Affected Soil Near Planer)

Investigation of the West Area will consist of:

- Relocate previously planned direct-push location M-GC-105 approximately 30 ft east to the location of the oil-stained material observed in the West Area and modify the proposed sampling strategy and analytical parameters as indicated below.
- Collect samples of oil-stained material (by hand), the hydraulic fill directly below the oil-stained material, and from the capillary fringe or at 4 ft BGS if soil is saturated to the ground surface.
- Collect a groundwater sample.
- Analyze soil and groundwater samples for unknown oil parameters identified in Model Toxics Control Act (MTCA) Table 830-1 including additional parameters [VOCs;

carcinogenic polycyclic aromatic hydrocarbons (cPAHs), semivolatile organic compounds (SVOCs); polychlorinated biphenyls (PCBs); metals (antimony, arsenic, cadmium, chromium, copper, lead, mercury, and zinc), total petroleum hydrocarbon by the hydrocarbon identification methods (TPH-HCID); and follow-up testing by total petroleum hydrocarbon-gasoline range (TPH-G), petroleum hydrocarbon-diesel range (TPH-Dx), and fuel additives as necessary] subject to the following:

- VOCs will only be analyzed for in the soil sample if PID field screening indicates the presence of VOCs. PID headspace analysis will be conducted by placing a representative portion of soil in a sealable plastic bag, allowing the soil in the bag to vaporize inside the sealed bag for five minutes, then inserting the PID tip into the bag to measure the total VOC concentration.
- The samples collected from the hydraulic fill directly below the oil-stained material and from the capillary fringe (or at 4 ft BGS if saturated soil is encountered to ground surface) will be archived for potential analysis depending on the results for the oil-stained material sample.
- The uppermost archived sample will be analyzed only for analytical groups for which there are exceedances of the screening levels in the sample collected from the oil-stained material.
- The sample from the capillary fringe will only be analyzed for the analytical groups for which there are screening level exceedances in the overlying soil sample, if any.
- The groundwater sample will be analyzed for the previously specified analytes regardless of conditions observed during drilling; however, the groundwater sample will only be analyzed for SVOCs and PCBs if these compounds are detected in the soil at concentrations greater than the screening levels.
- In accordance with the RI Work Plan, groundwater samples analyzed for TPH-Dx, cPAHs, or PCBs will be centrifuged prior to analysis.
- Fuel additives including 1,2-dibromoethane and 1,2-dichloroethane will be tested for in samples that are analyzed for VOCs. An additional fuel additive [methyl tert-butyl ether (MTBE)] will be tested for in samples that are analyzed for TPH-G.

Concrete Pad and Vertical Pipe (CBR-Vert Pipe) in East Area

Investigation of the East Area will consist of:

- Advance three direct-push soil borings (M-FA-105, M-FA-106 and M-FA-107) to a depth of 20 ft BGS to the north, south, and west of the concrete pad.
- If evidence of impact is found, collect soil samples from possibly impacted material and below impacted material based on previously described field screening procedures. If evidence of impact is not observed during drilling via field screening, soil samples will be collected from surface soil and from the capillary fringe; the second sample will be collected at about 4 ft BGS if soil is saturated to the ground surface.
- Collect a groundwater sample from the boring to the west of and downgradient of the concrete pad (M-FA-107).
- Analyze soil and groundwater samples for unknown oil parameters identified in MTCA Table 830-1 including additional parameters [VOCs, cPAHs, SVOCs, PCBs, metals, TPH-

HCID, and follow-up testing for TPH-G, TPH-Dx, and fuel additives, as necessary], subject to the following:

- VOCs will only be analyzed for in soil samples if PID field screening indicates the presence of VOCs.
- Soil samples from locations M-FA-106 and M-FA-107 will be analyzed for cPAHs and naphthalenes rather than SVOCs, and will not be analyzed for metals.
- The sample collected from below the possibly impacted material, if present, will be archived for potential analysis depending on the results of the shallower sample.
- If no evidence of contamination is observed, only the soil sample collected from the ground surface will be analyzed, and the capillary fringe soil sample will be archived for potential analysis depending on the results for the shallower sample.
- Archived samples will be analyzed only for analytical groups for which there are exceedances in the overlying sample.
- The groundwater sample will be analyzed for the previously specified analytes regardless of conditions observed during drilling; however, the groundwater sample will only be analyzed for SVOCs and PCBs if these compounds are detected in the soil at concentrations greater than the screening levels.
- In accordance with the RI Work Plan, groundwater samples analyzed for TPH-Dx, SVOCs (including cPAHs), or PCBs will be centrifuged prior to analysis.
- Fuel additives including 1,2-dibromoethane and 1,2-dichloroethane will be tested for in samples that are analyzed for VOCs. An additional fuel additive (MTBE) will be tested for in samples that are analyzed for TPH-G.

Northeast Standpipe

Investigation of the Northeast Standpipe will consist of:

- Advance one direct-push soil boring (M-FA-108) to a depth of 20 ft BGS to the west of the standpipe.
- Collect soil samples from possibly impacted material observed during drilling based on previously described field screening procedures, and from below impacted material. If evidence of impact is not observed during field screening, a soil sample will be collected from surface soil and from the capillary fringe, or at about 4 ft BGS if soil is saturated to the ground surface.
- Collect a groundwater sample.
- Analyze soil and groundwater samples for VOCs, cPAHs, naphthalenes, PCBs, TPH-HCID, and follow-up testing for TPH-G and TPH-Dx, as necessary subject to the following:
 - VOCs will only be analyzed for in the soil sample if PID field screening indicates the presence of VOCs.
 - The sample collected from below the possibly impacted material, if present, will be archived for potential analysis depending on the results of the shallower sample.

- If no evidence of contamination is observed, only the soil sample collected from the ground surface will be analyzed, and the capillary fringe soil sample will be archived for potential analysis depending on the results for the shallower sample.
- Archived samples will be analyzed only for analytical groups for which there are exceedances in the overlying sample.
- The groundwater sample will be analyzed for the previously specified analytes regardless of conditions observed during drilling; however, the groundwater sample will only be analyzed for cPAHs and PCBs if these compounds are detected in the soil at concentrations greater than the screening levels.
- In accordance with the RI Work Plan, groundwater samples analyzed for TPH-Dx, cPAHs, or PCBs will be centrifuged prior to analysis.
- Fuel additives including 1,2-dibromoethane and 1,2-dichloroethane will be tested for in samples that are analyzed for VOCs. An additional fuel additive (MTBE) will be tested for in samples that are analyzed for TPH-G.

Additional “step-out” borings will be advanced outside of the initial borings in any area where observations and field screening identifies the presence of nonaqueous phase liquid (NAPL) or other obvious indications of contamination. Step-out borings will be advanced about 10 ft outside of the preceding boring locations and step-out will continue until field screening does not indicate the presence of potential contamination. Soil samples from step-out borings will be collected and archived from zones of potential contamination identified through field screening. Soil samples will also be collected and archived from the depth interval of apparent contamination in the step-out boring beyond the extent of observed potential contamination. Archived samples may be submitted for analysis, depending on the results of the initial analyses; analysis would be limited to those constituent groups that exhibit one or more exceedances of the preliminary screening levels.

Because the ground surface is lower than surrounding grades within the former Collins Building footprint, and Site groundwater is very shallow at this time of year, approximately 6 inches of standing water is present within portions of the investigation areas, particularly in the vicinity of the East Area. The water level is not expected to drop significantly prior to completion of the proposed investigation. As a result, it may be necessary to construct a gravel pad within portions of the planned investigation area to provide access for drilling equipment. If required, the drilling pad would be constructed using crushed rock or other coarse granular material and a nonwoven geotextile fabric would be placed between the existing ground surface and the fill to prevent intermixing of the new fill and existing soil. The fill would be obtained from a native borrow source and a minimum of two samples of the proposed fill would be tested for metals (antimony, arsenic, cadmium, chromium, copper, lead, mercury, and zinc) in advance of placement to confirm that the material does not contain concentrations of naturally occurring metals above the Site preliminary cleanup levels.

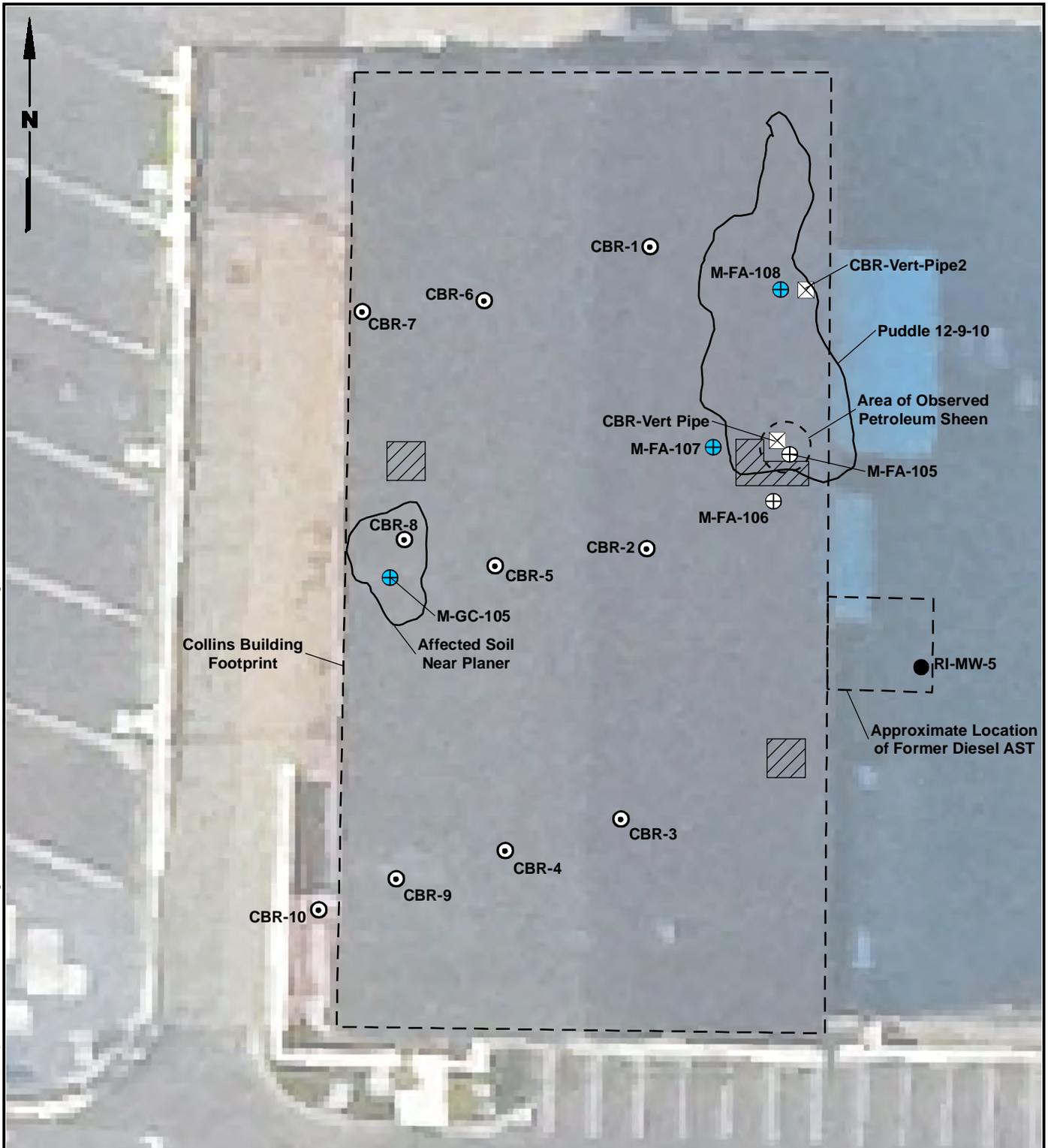
DATA EVALUATION AND REPORTING

Upon receipt of the analytical data, the data will be validated using the procedures described in the Work Plan and evaluated and reported in conjunction with other RI data. However, if conditions that may warrant remedial action are identified, additional reporting may be undertaken to support the Port's plan for redevelopment of this area as part of the planned expansion of the Craftsman District. Such additional reporting will be coordinated with Ecology as soon as a need to do so is identified.

REFERENCES

Landau Associates. 2010. *Final Work Plan, Remedial Investigation/Feasibility Study, North Marina Ameron/Hulbert Site, Everett, Washington*. Prepared for Port of Everett. November 17.

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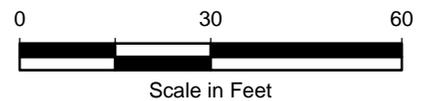


Legend

- ⊙ PID Sample Locations
- ⊗ Vertical Pipe
- ⊕ Proposed Soil Sample
- ⊕ Proposed Soil and Groundwater Sample
- Existing Monitoring Well
- ▨ Approximate Locations of Concrete Pads

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



Data Source: Port of Everett (2009 Image)



North Marina Ameron/Hulbert Site
RI/FS Work Plan Addendum
Port of Everett, Washington

Site Plan

Figure
1

**TABLE 1
SAMPLING AND ANALYSIS PLAN
RI/FS WORK PLAN - ADDENDUM #1
AMERON/HULBERT SITE
PORT OF EVERETT, WASHINGTON**

Location	Exploration Type	Exploration Depth (ft)	SOIL							WATER							Soil Sampling Notes	Analytical Notes
			Metals (EPA 6010B/7471B)	PAHs (EPA 3545/8270)	SVOCs (EPA 8270C)	PCBs (EPA 8082)	TPH-HCID	TPH-G plus MTBE / TPH-Dx	VOCs (8260B)	WATER SAMPLE NEEDED?	Dissolved metals EPA 3010A/6020/7470	SVOCs (EPA 8270C)	PAHs (EPA 8270 SIM)	TPH-HCID	TPH-G plus MTBE / TPH-Dx	VOCs (8260B)		
M-GC-105	DIRECT PUSH	12	X	X	X	X	PA	FS	Y	X	X	PA	X	PA	X	PA	Collect samples from 1) oil-stained surface material (by hand), 2) hydraulic fill directly below oil-stained material, and 3) capillary fringe (or 4ft BGS if soil is saturated to surface). Submit Sample 1 for analysis and archive Samples 2 and 3 pending analysis of Sample 1.	Analyze soil and groundwater sample for VOCs based on field screening (PID). Collect sufficient volume of soil and groundwater to analyze for petroleum hydrocarbon follow-ups pending HCID results. Collect sufficient volume of groundwater to analyze for SVOCs and PCBs pending soil analysis.
M-FA-105	DIRECT PUSH	20	X	X	X	X	PA	FS									Collect samples from affected material and below affected material, if encountered. If evidence of impact is not observed collect samples from surface soil and from the capillary fringe (or 4 ft BGS if soil is saturated to the ground surface). Submit shallowest sample collected (affected or unaffected material) for analysis and archive deeper sample pending analysis of shallow sample.	Analyze soil sample for VOCs based on field screening (PID). Collect sufficient volume of soil to analyze for petroleum hydrocarbon follow-ups pending HCID results.
M-FA-106	DIRECT PUSH	20		X	X	X	PA	FS									Collect samples from affected material and below affected material, if encountered. If evidence of impact is not observed collect samples from surface soil and from the capillary fringe (or 4 ft BGS if soil is saturated to the ground surface). Submit shallowest sample collected (affected or unaffected) for analysis and archive deeper sample pending analysis of shallow sample.	Analyze soil sample for VOCs based on field screening (PID). Collect sufficient volume of soil to analyze for petroleum hydrocarbon follow-ups pending HCID results.
M-FA-107	DIRECT PUSH	20		X	X	X	PA	FS	Y	X	PA	PA	X	PA	X	PA	Collect samples from affected material and below affected material, if encountered. If evidence of impact is not observed collect samples from surface soil and from the capillary fringe (or 4 ft BGS if soil is saturated to the ground surface). Submit shallowest sample collected (affected or unaffected material) for analysis and archive deeper sample pending analysis of shallow sample.	Analyze soil and groundwater sample for VOCs based on field screening (PID). Collect sufficient volume of soil and groundwater to analyze for petroleum hydrocarbon follow-ups pending HCID results. Collect sufficient volume of groundwater to analyze for SVOCs and PCBs pending soil analysis.
M-FA-108	DIRECT PUSH	12		X	X	X	PA	FS	Y			PA	X	PA	X	PA	Collect samples from affected material and below affected material, if encountered. If evidence of impact is not observed, collect samples from surface soil and from the capillary fringe (or 4 ft BGS if soil is saturated to the ground surface). Submit shallowest sample collected (affected or unaffected material) for analysis and archive deeper sample pending analysis of shallow sample.	Analyze soil and groundwater sample for VOCs based on field screening (PID). Collect sufficient volume of soil and groundwater to analyze for petroleum hydrocarbon follow-ups pending HCID results. Collect sufficient volume of groundwater to analyze for cPAHs and PCBs pending soil analysis.

FS = pending field screening results
PA = pending results from HCID analysis and/or other analytics