

APPENDIX D. PROPOSED FIELD CHANGES MEMORANDUM



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MEMORANDUM

To: Ravi Sanga, EPA Region 10
From: Joanna Florer and Lisa Saban
Subject: T-117 Quality Assurance Project Plan Addendum – Additional Upland
Subsurface Soils and Monitoring Wells (May 20, 2005)
Proposed Field Change: Section 3.1.2.2 Direct-Push Probe – Eastern Shoreline
Date: June 20, 2005

Background

This memo describes a proposed modification to the field activities set forth in the T-117 QAPP Addendum dated May 20, 2005. This change is necessitated by field conditions encountered during the implementation of the plan.

Sampling using the truck-mounted push-probe was initiated on June 7, 2005 in keeping with the overall field program schedule. Push-probe locations along the upland eastern shoreline area of T-117 are shown in Figure 1 of the referenced QAPP. Upon initiation of the work, the field geologist noted problems in applying the push-probe technology. These problems generally consisted of:

- ◆ Refusal – probe encountering obstacles that did not allow penetration to the desired sampling depths and/or disturbed the surrounding soil matrix.
- ◆ Possible drag-down: the probe encountered shallow compact fill underlain by softer native sand/silt. This resulted in the driving of the harder materials into the deeper relatively softer zone.

Specifically, three attempts were made at PS-12, two met with refusal shallower than 3 ft. All three locations encountered a concrete slab just beneath the asphalt. One attempt was successful to 8 ft, however sample recovery was very poor – approx 18 inches in a 48 inch push. Generally denser fill soils were encountered atop softer material at depth.

PS-11 was located adjacent to the area previously backfilled with quarry spalls (1999 soil removal action). The probe had to penetrate nearly 6 inches of asphalt at the surface. It then met with refusal at 3 ft, driving on spalls and again pushing the obstacles ahead, creating a void, with little or no recovery. The possibility of moving the

station outboard was discussed, however, it was determined that this would move onto the immediate vicinity of the previously sampled soil boring number 4 (SB-4).

A third attempt was made at PS-7 with the expectation of fewer obstacles. The operator was able to probe to 8 ft and obtain decent recovery from 0-4 ft, but less than 12 inches of recovery from 4-8 ft. During this attempt the rig suffered a minor hydraulic leak had to go back to the shop for repairs.

In summary, with the denser surface fill atop softer soils at depth, there is concern that the sampling method was carrying down denser fill soils and displacing softer soils at depth, thereby running the risk of non-representative samples at depth and/or false positive analytical results.

The presence of rock fill is likely problematic at proposed probe locations PS-9, 10 and 11 based on GPR results. Moving stations 9 and 11 outward (toward the river) will fail to adequately address the study objectives, as we already have boring samples in that location from previous studies.

Proposed Changes

Generally, conventional hollow-stem auger methods are proposed to be used instead of the push-probe equipment to obtain subsurface soil samples (note: no change is presently proposed for the push-probe sampling in the south ditch area – see Figure 2 in the referenced QAPP). The following is a station-by-station discussion of proposed changes:

PS-1: Soil boring SB-15 to be completed as MW-7 should be moved inboard slightly to the proposed PS-1 location. PS-1 will be moved to the original SB-15 location and sampled to a maximum depth 5 ft using the same portable push probe to be used in the south ditch area. This change is necessary due to the difficulty in accessing the SB-15 location on the elevated and steep soil mound. The slight relocation of MW-7 should not impact the groundwater monitoring objectives.

PS-2: Same modification as for PS-1. The SB-16 location should be moved onto the PS-2 location due to drill rig access issues and the risk of boring into the shoreline soil pile. PS-2 will be moved to the original SB-16 location and sampled using the portable push probe equipment.

PS-3 through PS-6: Change the sampling method from push-probe to hollow-stem auger.

PS-7: Submit the samples obtained from the push-probe sampling for PCB screening. If PCBs are found to be elevated, sample at a location inboard from PS-7 using the hollow-stem auger.

PS-8: Change the sampling method from push-probe to hollow-stem auger.

PS-9: Abandon this station. Previous sampling at SB-3 is representative of the soil outboard of this location.

PS-10: Change the sampling method from push-probe to hollow-stem auger, and move the station outside of the 1999 excavation area.

PS-11: Abandon this station. Previous sampling at SB-4 is representative of the soil outboard of this location.

PS-12: Submit the samples obtained from the push-probe sampling for PCB screening. If PCBs are found to be elevated, sample at a location inboard or to the north using the hollow-stem auger.

Drilling with a hollow-stem auger will alleviate the pushing ahead of denser soils and the shorter sample interval (18" split-spoon) will mitigate the potentially large sample discontinuity. An auger rig would also have a better chance of threading its way through debris or large rock backfill. Use of the hollow-stem auger will result in cuttings not otherwise generated using the push-probe method and these materials will need to be stored on site and disposed.

Summary

The above-described modifications to the field activities described in the referenced QAPP significantly improve the potential for obtaining representative subsurface soil samples that meet the original study objectives. Field activities are anticipated to resume on June 21, 2005.