transferred to Federal Facility Agreement Appendix C.4, Deactivation and Decommissioning Facilities (or Remnants) That May Warrant Response Action, for further evaluation. During their review of the Facility Decommissioning Evaluation and the Decommissioning Project Final Report, t~~T~~he United States Environmental Protection Agency and South Carolina Department of Health and Environmental Control were concerned about the potential for subsurface leaks and requested sampling of the soil beneath the remnant concrete slab at the 103 Lubrication Pit and drain lines and/or sewer lines within the Automotive Repair Shop (716-A) Operable Unit to determine whether there has been a release to the environment. In a Remedial Investigation Work Plan Scoping Meeting held on October 2, 2023, the Core Team agreed with the request to sample the soil beneath the remnant concrete slab at the 103 Lubrication Pit and drain lines and/or sewer lines within the Automotive Repair Shop (716-A) Operable Unit. The additional sampling of soils beneath the remnant concrete slab is the subject of this Remedial Investigation Work Plan.

Based on the conceptual site model and data quality objectives, the primary objective of the Remedial Investigation Work Plan for the Automotive Repair Shop (716-A) Operable Unit is to complete characterization by sampling soils beneath the remnant concrete slab at the 103 Lubrication Pit and drain lines and/or sewer lines to support the principal threat source material evaluation and a contaminant migration analysis.

To accomplish this objective, a sampling and analysis plan for the additional data needs at the Automotive Repair Shop (716-A) Operable Unit is presented in this Remedial Investigation Work Plan. The proposed strategy for completing characterizing of the operable unit is summarized below.

- Sampling is proposed at ~~five~~ six soil boring locations to determine if there has been a release to the environment beneath the concrete slab (Figure ES-2). Samples will be collected from continuous soil cores from each boring, and lithologic descriptions will be recorded. The ~~four~~ five locations (ARS-001-SB, ARS-002-SB, ARS-003-SB, ~~and~~ ARS-004-SB, and ARS-006-SB) beneath the drain lines and/or sewer lines will be continuously cored to a total depth of 15 meters (50 feet) below ground surface, and samples will be collected every 2 meters (5 feet) through 15 meters (50 feet). Additionally, the 103 Lubrication Pit location (ARS-005-SB) will

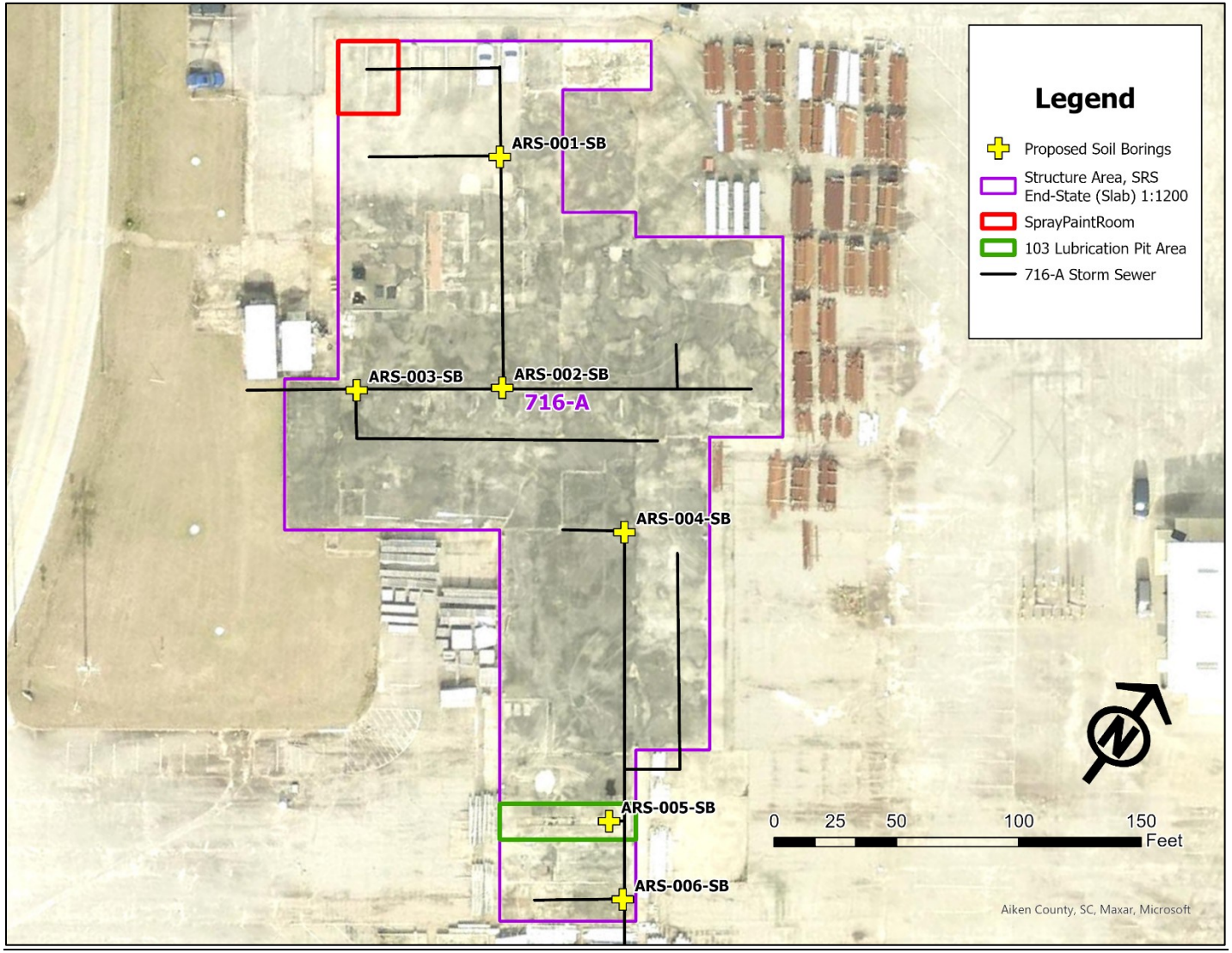

Figure ES-2. Proposed Soil Sampling Locations at Building 716-A

1.0 INTRODUCTION

This Remedial Investigation (RI) Work Plan has been prepared for the Automotive Repair Shop (716-A) Operable Unit (OU). The Automotive Repair Shop (716-A) OU is located in A Area at the Savannah River Site (SRS).

Characterization of the Building 716-A remnant concrete slab was accomplished using a combination of process knowledge/historical release information, verification walk downs, and a Final Verification Survey. The Decommissioning Project Final Report (DPFR) concluded that the remaining structure (i.e., remnant concrete slab) was free of hazards, both physical and chemical, and therefore, warranted no further action. No long-term stewardship activities were identified for the structure because it posed no threat to human health or the environment. Building 716-A was transferred to Federal Facility Agreement (FFA) Appendix C.4, Deactivation and Decommissioning (D&D) Facilities (or Remnants) That May Warrant Response Action, for further evaluation (FFA 1993). During their review of the Facility Decommissioning Evaluation (FDE) and the DPFR, t~~T~~he United States Environmental Protection Agency (USEPA) and South Carolina Department of Health and Environmental Control (SCDHEC) were concerned about the potential for subsurface leaks and requested sampling of the soil beneath the remnant concrete slab at the 103 Lubrication Pit and drain lines and/or sewer lines within the Automotive Repair Shop (716-A) Operable Unit to determine whether there has been a release to the environment. In a RI Work Plan Scoping Meeting held on October 2, 2023, the Core Team agreed with the request to sample the soil beneath the remnant concrete slab at the 103 Lubrication Pit and drain lines and/or sewer lines within the Automotive Repair Shop (716-A) OU. The additional sampling of soils beneath the remnant concrete slab is the subject of this RI Work Plan. Within this RI Work Plan, a sampling and analysis plan (SAP) is included to present the scope and objectives of characterization efforts for the Automotive Repair Shop (716-A) OU.

1.1 RI Work Plan Organization

Section 1.0 discusses the purpose and organization of the report, regulatory background, unit description, process history, geology, and hydrogeology for the Automotive Repair Shop (716-A) OU. Section 2.0 presents analytical data and comparisons to screening levels from previous investigations. Section 3.0 establishes the conceptual site model (CSM). Section 4.0 formulates data quality

- 90% of planned samples are collected and their data are useable for completeness data quality indicator.

The objective for the representativeness data quality indicator is qualitative and will be met by properly documenting field and analytical protocols. In the event these procedures and methods are not able to be implemented, the appropriate corrective action documentation should encompass the impact on the representativeness of the information. When review of the data and documentation determines the data to be nonrepresentative, the information is qualified for use or is not used by the project.

4.1.7 Optimize Design for Obtaining Data

In general, soil samples will be collected using Rotosonic coring methods, or equivalent drilling method. Soil samples will be analyzed for the TAL/TCL constituents (excluding herbicides and pesticides) (Table 3). SAP content is provided in Sections 5.0 through 7.0.

4.2 Summary of DQO Evaluation

Characterization of the soils beneath the Building 716-A remnant concrete slab is needed for RI/Baseline Risk Assessment (BRA) (i.e., PTSM evaluation and CM analysis) and determination of problems warranting action. Decision rules have been formulated for determining nature and extent of contamination.

5.0 SAMPLE DESIGN AND RATIONALE

The following section describes how the plan is implemented to collect the physical data to meet the criteria developed during the DQO process.

5.1 Rationale for Operable Unit/Media

Characterization through soil sampling is warranted in this RI work plan. Soil sampling is proposed beneath the Building 716-A remnant concrete slab at the 103 Lubrication Pit and beneath the drain lines and/or sewer lines. A total of ~~five~~ six locations have been identified for sampling. Samples will be collected from continuous soil cores from each boring, and lithologic descriptions will be recorded. The ~~four~~ five locations (ARS-001-SB, ARS-002-SB, ARS-003-SB, ~~and~~ ARS-004-SB, and ARS-006-

SB) beneath the drain lines and/or sewer lines will be continuously cored to a total depth of 15 m (50 ft) bgs, and samples will be collected every 2 m (5 ft) through 15 m (50 ft). Additionally, the 103 Lubrication Pit location (ARS-005-SB) will be continuously cored to a total depth of 49 m (160 ft) bgs, and samples will be collected every 2 m (5 ft) through 15 m (50 ft) and every 3 m (10 ft) thereafter to total depth. The proposed sampling is summarized in Table 2.

Rotosonic sample collection, or equivalent drilling method, will be used for all locations. ~~Five~~ Six locations have been identified to aid in contamination determination. All samples will be analyzed for all TAL/TCL constituents (excluding herbicides and pesticides) (Table 3).

6.0 ANALYTICAL PLAN

This section describes the data quality levels for each type of data being collected. All data collected under this RI Work Plan will follow the *Area Completion Projects (ACP) Quality Assurance Project Plan for Environmental Data Collection and Management* (SRNS 2012a). The data quality level is determined by the intended use of the data.

The list of TAL/TCL constituents (excluding herbicides and pesticides), analytical methods, and detection limits for soil samples are listed in Table 3. Table 4 presents the minimum field quality control/quality assurance sampling requirements. Table 5 lists hold times, preservatives, and sample containers for all analyses. A summary of the samples to be collected is presented in the sample matrix in Table 6.

6.1 Data Quality Levels for Operable Unit/Media

The characterization data will have an SRS validation level of screening data (SD), which is data that is electronically Verified and Validated (VV) data, with 10% of the data receiving additional manual validation to the SRS Definitive (D) level (SRNS 2012b; SRNS 2012c). SD data is VV data which meet the following selected aspects of USEPA Functional Guideline criteria: Quantitation Limits, Surrogate or Tracer Recoveries, Blanks (Method/Lab/Prep, Trip, Field, Equipment/Rinsate), Laboratory Control Spike Recoveries, MS Recoveries/Duplicates, Lab Replicates, Field Replicates,

- Number of sample containers/bottles;
- Sampler's signature for each sample the sampler indicates;
- Date of sample collection;
- Time of sample collection;
- Whether a sample is ~~persevered~~ preserved or unpreserved;
- Whether a sample is filtered or unfiltered; and
- Analyses to be performed.

A Chain-of-Custody record is used as physical and legal evidence of sample custody to trace the sample from collection through delivery to the analyzing laboratory and where the samples were stored. The Chain-of-Custody record must originate with the responsible organization or the person collecting the sample. Every sample is assigned a unique identification number that is entered on the Chain-of-Custody document. The Chain-of-Custody records each transfer of custody of the samples by a relinquishing party to a receiving organization whose name and identifying contact information is located on the form.

7.1.4 Sample Management and Shipping

Soil samples will be collected in accordance with SRNS Manual 3Q1, Section 9000, Hydrogeologic Data Collection Procedures and Specifications (SRNS 2010). Sample management for analytical laboratories and intra-SRS facilities is primarily controlled by SRNS Quality Assurance Manual 1Q, Procedure 13-1, Packaging, Handling, Shipping, Storage and Receiving. The purpose of this procedure is to define the requirements and specify the responsible parties and their roles for the packaging, handling, shipping, storage, and receiving of items to ensure that they are properly controlled to prevent damage or loss and to minimize their deterioration. Sample shipment is also regulated by SRNS Manual 19Q, Procedure 1.02, General Transportation Requirements for Radioactive and Non-Radioactive Hazardous Materials. These manuals provide specific requirements to sampler personnel for the safe offsite shipment or onsite transfer of radioactive and non-radioactive hazardous materials and hazardous substances, mixed waste (radiological/nonradiological hazardous materials) and empty packaging that have previously contained mixed waste. It specifies the required packaging, labeling, record-keeping, selection of appropriate transportation carrier, and appropriate transport container based on the analytically pre-tested nature of a sample. Radiological samples must meet United States Department of Transportation (DOT) shipping regulations as well. Samples

associated with this work plan are expected to be non-hazardous and non-radiological as they represent environmental media rather that waste materials.

Samples will be stored in coolers with blue ice, if applicable, in the custody of the sampler, or designee, until delivered to the ACP Sample Packaging personnel in B Area. If samples need to be stored over-night prior to delivery to the B Area sample-packaging group, then they will be stored in a locked facility with the Chain-of-Custody, and in a refrigerator (4°C ± 2°C) if required for sample preservation. ACP Sample Packaging personnel in B Area will manage, package, and ship samples to the laboratories in accordance with Manual C3, Volume IX, Procedure ER-SOP-803B, Packaging of Non-DOT Samples for On-Site Transfers/Off-Site Shipments. Table 5~~8~~ lists proper preservatives, holding times, and sample containers for samples collected in the field, stored, and transported to the analytical laboratories.

7.1.5 Data Validation and Data Management

Requirements for data validation/verification and data management procedures are found in SRNS Procedures and Standard Operating Procedures, the USEPA Functional Guidelines, and two USDOE National Policies and Procedures:

- SRNS Manual C1, ER-AP-305 – Use of Field-Generated Blanks;
- SRNS Manual C1, ER-AP-306 – Laboratory Data Records Review;
- SRNS Manual C3, Volume X, ER-SOP-033 – Analytical Data Qualification;
- SRNS Manual C3, Volume X, ER-SOP-043 – Obtaining and Managing Environmental Data for Environmental Compliance & Area Completion Projects;
- Data Management Plan, CEDMS;
- USDOE Consolidated Audit Program, Policies and Practices, Procedure AD-1, Revision 2, November 10, 2009; and
- Quality Systems for Analytical Services, Revision 2.5, USDOE, November 9, 2009.

In addition, SRS procedures incorporate the criteria found in the USEPA National Functional Guidelines to verify, validate, and qualify analytical data to assess its usability for risk and remedial management decisions. Adherence to this complex list of procedures and guidelines establishes: (a)

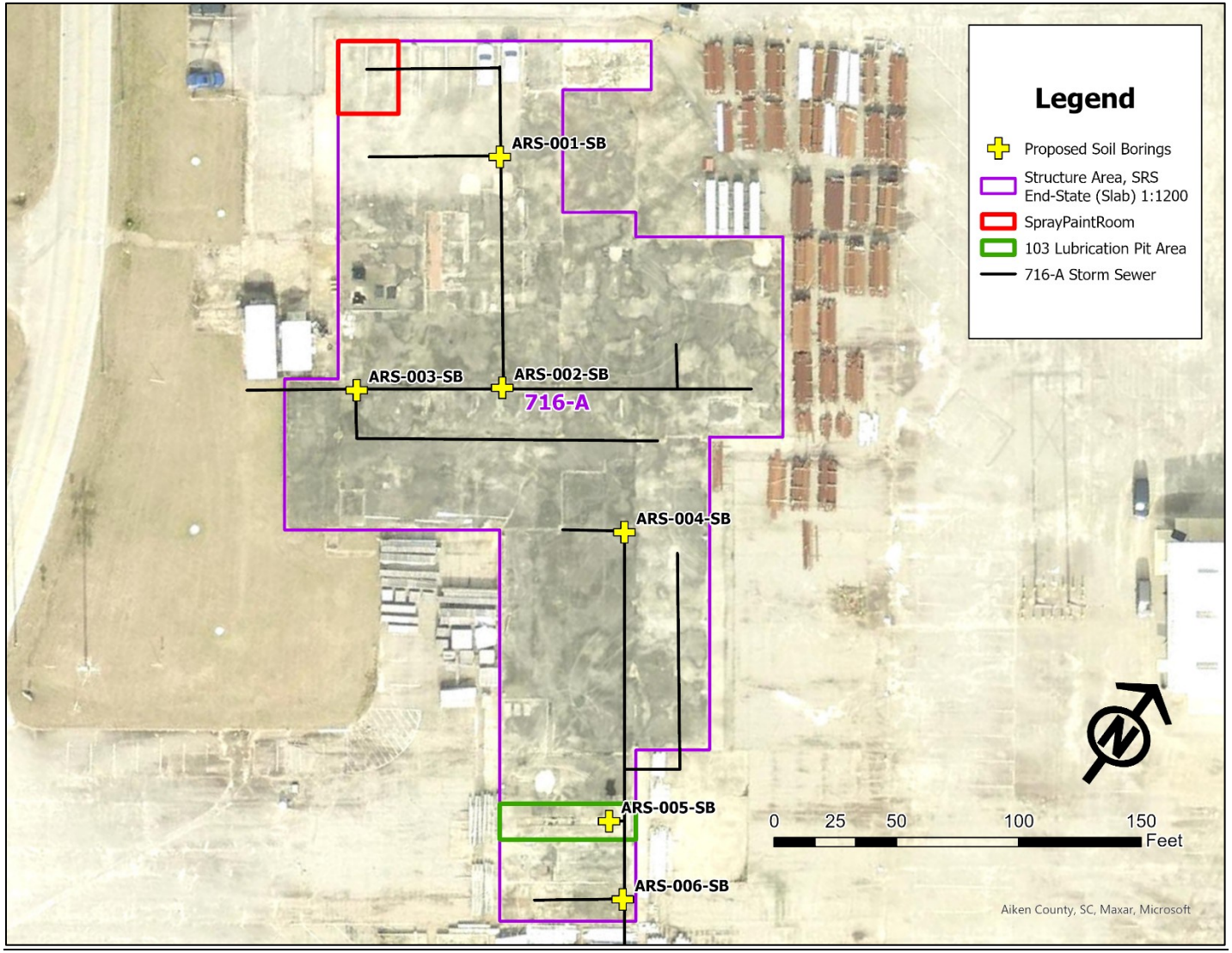

Figure 10. Proposed Soil Sampling Locations at Building 716-A

Table 2. Data Quality Objectives for Soil Samples Beneath Building 716-A Concrete Slab

Pathway (Media)	Probable Conditions	Exposure Pathway and/or Release Mechanisms	Data Needs and DQOs Including Engineering / Physical Processes	Field Activities Including Removal and Characterization	Parameters	Potential Remedial Action Alternatives
Soil beneath concrete slab	Potential contaminants (metals and/or solvents) in soil beneath the concrete slab at the 103 Lubrication Pit Area and storm sewer lines may leach to groundwater at levels that exceed groundwater protection standards.	Ingestion, inhalation, absorption, and/or direct exposure with soils for toxicity evaluation under an excavation scenario. Leaching to groundwater.	Determine whether there was a release to the environment. Characterization of soil beneath concrete slab	Collection of soils beneath concrete slab, from 0-160 ft; 0-50 ft; 0-50 ft; 0-50 ft; 0-50 ft; 0-50 ft ~~5~~ 6 Locations: 1 beneath the 103 Lubrication Pit; ~~4~~ 5 beneath the underground drain lines and/or storm sewer lines throughout the slab	Data validated to SRS electronic VV level, with 10% of the sampling batches validated to the SRS definitive level. Full TCL and TAL suite of analytes (excluding pesticides and herbicides)	No Action Cap/Land Use Controls Excavation of contaminated soils Soil Vapor Extraction

Note: 0 ft = soil immediately beneath concrete slab, not ground surface

Table 6. Automotive Repair Shop (716-A) OU Sample Matrix (*Continued/~~End~~*)

Sample Type[1]	Station	Top Depth (ft beneath concrete slab)	Bottom Depth (ft beneath concrete slab)	Media	Sample Method	Analyses
REG	ARS-005-SB	35	40	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	40	45	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	45	50	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	50	60	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	60	70	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	70	80	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	80	90	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	90	100	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	100	110	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	110	120	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	120	130	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	130	140	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	140	150	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-005-SB	150	160	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	0	5	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	5	10	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	10	15	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	15	20	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	20	25	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	25	30	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	30	35	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	35	40	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)
REG	ARS-006-SB	40	45	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)

Table 6. Automotive Repair Shop (716-A) OU Sample Matrix (*Continued/End*)

Sample Type[1]	Station	Top Depth (ft beneath concrete slab)	Bottom Depth (ft beneath concrete slab)	Media	Sample Method	Analyses
REG	ARS-006-SB	45	50	Soil	Rotosonic (or equivalent)	TAL/TCL (excluding pesticides and herbicides)

1. Field Duplicates (FD), Equipment/Rinsate Blanks (RB), and Split samples (SPL) are not shown but will be produced during work planning stage. Trip Blanks (TB) are not shown but will be sent with each shipment of VOCs. Table 4 summarizes the number of Quality Control/Quality Assurance (QC/QA) samples needed.