REMEDIAL INVESTIGATION REPORT
FINAL

GENERAL SERVICES ADMINISTRATION
GOODFELLOW FEDERAL COMPLEX
ST. LOUIS, MISSOURI

Contract Number GS10F0076K, Order Number GS-06P-10-GX-A-0030/GS-P-06-11-GX-5201

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September 2016

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1.0 INTRODUCTION

Under order number GS-06P-10-GX-A-0030/GS-P-06-11-GX-5201, the General Services Administration (GSA) tasked Tetra Tech, Inc., (Tetra Tech) to prepare this report regarding site investigation activities associated with the Remedial Investigation (RI) at the Goodfellow Federal Complex (GFC) at 4300 Goodfellow Boulevard in St. Louis, Missouri (see Appendix A, Figure 1).

1.1 DISTRIBUTION LIST

General Services Administration
Kevin Phillips, Project Manager

Tetra Tech, Inc.
Adam Watkins, Project Manager
Ted Faile, PG, CHMM, Program Manager

1.2 SCOPE OF WORK

GSA requested that Tetra Tech characterize occupational risks at the GFC that may be attributed to on-site legacy contamination associated with former ordnance plant operations (see Appendix A, Figure 2, and Appendix B, Table 1). Tetra Tech reviewed 100 environmental reports associated with the GFC, and evaluated potential occupational exposures to GSA associates, construction contractors, custodial contractors, operation and maintenance contractors, tenants, and visitors at the GFC. This review/evaluation was based on the nature, magnitude, and extent of contamination historically detected or suspected present as a result of historical activities. Tetra Tech identified data gaps, determined whether follow-up investigation had been conducted, and recommended additional investigation where needed.

Tetra Tech proposed two follow-on projects to address these data gaps. The first project was an Occupational Exposure Evaluation (OEE). The OEE was designed to further investigate occupational risks that may be attributed to on-site legacy contamination associated with former ordnance plant operations. The OEE focused primarily on determining whether contamination could be present within buildings and on exterior surfaces. Tetra Tech prepared a work plan and quality assurance project plan (QAPP) for the OEE (Tetra Tech EM Inc. 2012). The second project was an RI. A separate work plan and QAPP, dated March 2016, was developed for the RI, which was designed to evaluate cleanup needs attributable to on-site legacy contamination associated with former ordnance plant operations (Tetra Tech 2016). The primary focus of the RI was on possibly present soil and groundwater contamination at the exterior grounds.
1.3 REPORT ORGANIZATION

The format of this report complies with information requirements in Tetra Tech’s approved RI Work Plan and QAPP dated March 2016. Section 1.0 presents introductory information regarding the scope of work and the organization of this report. Section 2.0 discusses characteristics of the site, including the facility background, location and demographics, regulatory history, and physical setting. Section 3.0 recounts previous site assessments at the GFC. Sections 4.0, 5.0, and 6.0, respectively, address sampling investigation field activities, laboratory data, and results. Section 7.0 summarizes the sampling investigation. Section 8.0 lists references.
2.0 SITE CHARACTERISTICS

This section describes characteristics of the site.

2.1 SITE LOCATION AND LAYOUT

The GFC is at 4300 Goodfellow Boulevard in St. Louis, Missouri (see Appendix A, Figures 1 and 2). It occupies a portion of the former St. Louis Ordnance Plant (SLOP) near the western boundary of the City of St. Louis, Missouri. The GFC encompasses approximately 64 acres, and is bordered northeast by the former SLOP, southeast by Planned Industrial Drive, southwest by Edelle Avenue and the SLOP, and northwest by Goodfellow Boulevard. GFC Building 208 B is beyond the security perimeter of the central GFC, within a fenced area on Planned Industrial Drive, approximately 170 yards northeast of GFC Building 105 A/B/C/D. The GFC is developed with buildings, utility tunnels, and a combined stormwater and sanitary sewer collection system.

2.2 SITE PHYSICAL SETTING

The GFC is on the northern flank of the Ozark Plateau in the Dissected Till Plains Physiographic Province, which is characterized by gently rolling hills (Miller et al. 1974). The U.S. Geological Survey (USGS) 7.5-minute series Clayton, Missouri topographic quadrangle depicts the site on a relatively flat terrace with elevations ranging from approximately 550 to 580 feet above mean sea level, 1927 North American Datum (NAD27) (USGS 1954, photorevised 1974). From Goodfellow Boulevard, the site generally slopes eastward toward the Mississippi River; the northernmost portion of the site slopes more northeasterly, and the southernmost portion of the site slopes more southeasterly.

The Mississippi River is approximately 2.5 miles east of the site. Although drainage from the site generally follows the topographic gradient toward the Mississippi River, any surface water that leaves the site is directed through the combined storm/sanitary sewers and a wastewater treatment facility before discharging into the Mississippi River (SCS Engineers [SCS] 2008). Similarly, in the absence of site-specific hydrogeological data, site groundwater can be assumed to follow a hydraulic gradient that is a subdued replica of the topographic gradient. Based on the general topographic gradient, groundwater beneath the site likely flows easterly toward the Mississippi River.

Ground surface at the Site is covered by fill dirt, streets, parking lots, buildings, and other structures. Site surface soils are identified as Urban Land-Upland with 0- to 5-percent slopes (U.S. Department of Agriculture [USDA] 1979). The Urban Land designation applies to areas where structures, asphalt, concrete, and other impervious materials cover over 85 percent of the site. These objects obscure and
their construction has altered the soils such that identification of the series is not feasible. Subsurface investigations at the site have identified soils below the fill as predominantly silty clay or silty clay loam (Geotechnology, Inc. 2006; SCS 2008). According to the Geologic Map of St. Louis City and County, the site is underlain by stratified sequences of Pennsylvanian sedimentary rock (Brill et al. 1991).

The climate in St. Louis County is characterized by cold winters, hot summers, and heavy rains in the spring and early summer (USDA 1979). Prevailing wind is from the south. Average annual temperature in St. Louis, Missouri, is 56°F, with monthly average temperatures ranging from 30°F in January to 79°F in July (Weatherbase 2012). Average annual precipitation is 37.1 inches, with monthly averages ranging from 2 inches in January to 3.9 inches in May (Weatherbase 2012). Average annual snowfall is approximately 19.8 inches (Weatherbase 2012).

2.3 CURRENT AND HISTORICAL SITE USE

Known historical uses of the GFC property include a residence and farmstead (dairy farm) between 1912 and 1925, a community garden between 1936 and 1940, Hickey Park from 1940 to 1941, and Plant 1 of the SLOP from 1941 through the close of World War II. The SLOP reportedly was the largest small-arms ammunition installation in the world, producing small arms ammunition (0.30 and 0.50 caliber) and components for 105 millimeter (mm) artillery shells. In the 1960s and 1970s, the U.S. Department of Defense (DoD) converted Plant 1 to a federal office complex under management of GSA (SCS 2008).

Table 1 in Appendix B identifies known historical and current buildings on site, as well as available information regarding construction, use, and renovation of each.
3.0 PREVIOUS SITE ASSESSMENTS

Two assessments of the GFC were completed prior to the RI. A Preliminary Assessment/Site Inspection (PA/SI) was completed in 2007 (SCS 2008), and the OEE was completed in 2012 (Tetra Tech 2013). The assessments revealed data gaps and outstanding recommendations for exterior investigation associated with former ordnance plant operations. This section discusses these two previous site assessments with regard to soil and groundwater.

3.1 2007 PRELIMINARY ASSESSMENT/SITE INSPECTION

GSA requested that SCS conduct a PA/SI at the GFC. PA/SI objectives included characterizing/evaluating significant site sources/pathways and evaluating releases and targets exposed to contamination. For the PA/SI, SCS collected wipe samples, paint chip samples, shallow soil and sediment samples, subsurface soil samples, groundwater samples, sump and tunnel water samples, and air samples (SCS 2008). Exterior PA/SI soil and groundwater sample locations are shown on Figure 3 in Appendix A. Sample results presented in this section have been compared to applicable Missouri Department of Natural Resources (MDNR) Risk-based Corrective Action (MRBCA) levels, as presented in the PA/SI report. Information conveyed below regarding the PA/SI was taken from the SCS 2008 PA/SI Report.

3.1.1 Shallow Soil and Subsurface Soil Sampling

Shallow soil samples were collected via stainless steel sampling equipment at the basement level or within crawl space inside the buildings for laboratory analysis. Shallow soil sample locations were selected at random within each defined area. Defined areas were established based on proximity to potential hazard exposure, changes in surface color or texture, proximity to process areas, and/or spatial considerations. Depths ranged from near surface to approximately 48 inches below ground surface (bgs).

Subsurface soil samples were collected by use of direct-push soil probing technology. Direct-push borings were advanced around buildings and at former building locations across the GFC (see Appendix A, Figure 3). Probe locations included areas surrounding existing structures, such as main production buildings and electrical substations. Probe locations also included former powder canning and storage buildings, and areas with former underground storage tanks (UST).
Soil sample results were as follows:

**Polychlorinated Biphenyls**

One subsurface soil sample (SB1265-1) collected adjacent to Building 108 A contained the polychlorinated biphenyl (PCB) Aroclor 1260 at concentration of 26,000 micrograms per kilogram (μg/kg), exceeding MRBCA levels under the construction worker and non-residential land use scenarios for Type 3 (clayey) soils.

**Metals**

Arsenic was detected in shallow soil at concentrations exceeding the MRBCA level under the non-residential land use scenario for Type 3 soil. Samples were collected at Buildings 102, 102 D, 103 F, 105, and 105 E. None of the detected concentrations exceeded the MRBCA level for the construction worker land use scenario.

Analyte concentrations detected in a surface soil sample (104ECSSS1) collected within the crawl space below the child care center in Building 104 E were evaluated under MRBCA land use scenarios for Type 3 soils. Arsenic and beryllium were detected at concentrations above their MRBCA levels under the residential land use scenario. However, the detected concentrations were below MRBCA levels for both the non-residential and construction worker land use scenarios.

Lead was detected in shallow soil samples collected at Buildings 102, 103 F, and 105, at concentrations above the MRBCA level under the non-residential land use scenario for Type 3 soils.

Mercury was detected at a concentration above the MRBCA level under the construction worker scenario in one subsurface soil sample (SB22) collected within the area where former Building 104 L had been located.

**Semivolatile Organic Compounds**

Semivolatile organic compounds (SVOC) detected were limited to the following polynuclear aromatic hydrocarbons (PAH):

Benzo(a)anthracene was detected in one shallow soil sample (102CSSS104) collected at Building 102 at concentrations above the MRBCA level under the non-residential land use scenario for Type 3 soils.
Benzo(b)fluoranthene was detected in one shallow soil sample (102CSSS104) collected at Building 102, at reported concentrations above the MRBCA level under the non-residential land use scenario for Type 3 soils.

Benzo(a)pyrene was detected at reported concentrations above the MRBCA level under the non-residential scenario in four shallow soil samples (102CSSS104, 102CSSS105, 102CSSS108, and 112CSSS1) and one subsurface soil sample (105-3) collected at Buildings 102, 103 F, and 105.

Dibenzo(a,h)anthracene was detected at reported concentrations above the MRBCA level under the non-residential scenario in one shallow soil sample (102CSSS104) collected at Building 102.

3.1.2 Groundwater Sampling

Groundwater samples were collected from temporary monitoring points installed following completion of subsurface soil borings (see Appendix A, Figure 3). Fifteen groundwater samples were analyzed for PCBs, total petroleum hydrocarbon (TPH)-diesel range organics (DRO), and TPH-gasoline range organics (GRO). The groundwater samples were collected adjacent to the main transformer buildings (Buildings 108 A and 108 B) and within an area where former underground storage tanks (UST) and a fueling pump island had been located (Building 115).

Groundwater sample results were as follows:

PCBs

Aroclor 1260 was detected at concentrations exceeding the MRBCA Lowest Default Target Level (LDTL) under the residential land use scenario in one groundwater sample collected adjacent to Building 108 A, and in one groundwater sample collected adjacent to 108 B.

TPH

THP-DRO and TPH-GRO were not detected at concentrations above MRBCA LDTLs under the residential land use scenario in any groundwater sample collected in the area of Buildings 115 and 108 A.

3.1.3 Summary

On the basis of PA/SI sampling results and pathway assessments, the primary contaminants and areas of concern are PCBs in subsurface soil and groundwater near Buildings 108 A and 108 B, and SVOCs and metals, particularly lead and arsenic, in nearby soil at Buildings 102, 103 F, and 105.
3.2 2012 OCCUPATIONAL EXPOSURE EVALUATION

The OEE was designed to fill data gaps and update existing environmental investigation information, and focused primarily on potential for contamination within GFC buildings and on exterior surfaces. During the OEE, Tetra Tech collected interior concrete core samples, interior surface dust samples, interior crawlspace and basement surface soil samples, exterior soil samples, and exterior groundwater samples. Sample results presented in this section have been compared to applicable U.S. Environmental Protection Agency (EPA) industrial Regional Screening Levels (RSL) or non-residential or construction worker MRBCA Risk-based Target Levels (RBTL) and MRBCA levels, as presented in the OEE report. OEE exterior soil and groundwater sample locations are shown on Figure 4 in Appendix A. Information presented regarding the OEE was taken from the 2013 OEE Report (Tetra Tech 2013).

3.2.1 Interior Crawlspace and Basement Surface Soil Sampling

Within dirt-floor crawlspace and basement areas where no sampling had been conducted historically or where past sampling had revealed existing contamination, Tetra Tech collected surface soil samples (0 to 0.5 foot bgs) to support direct assessments of human health risks via ingestion, particulate inhalation, and dermal contact pathways. Targeted contaminants of concern for sample analysis—specified building by building>were based on former ordnance plant operations within each building, and included lead, mercury, and SVOCs. Samples also were analyzed for asbestos, given the frequent occurrences of asbestos-containing utility wrap and waste burial beneath buildings of this age.

Surface soil samples were collected via hand shovel within crawlspaces and basements beneath or leading to the following buildings (see Appendix A, Figure 4):

- 102 E
- 103 A/B/C
- 103 D
- 103 E
- 103 F (former 112)
- 104 A/B/C/D
- 104 E
- 104 F
- 105 A/B/C/D
- 105 E
- 105 F
- 107

Interior crawlspace and basement surface soil sample results were as follows:

**SVOCs**

Interior soil samples were collected for SVOC analysis in basements within Building 103 A/B/C and Building 104 E. Samples from both basements contained detectable concentrations of SVOCs. Exceedances of residential screening levels were noted in samples from six locations within the two buildings. Of these, samples from five locations in the two buildings also exceeded EPA industrial RSLs or non-residential or construction worker MRBCA RBTLs.
Lead

One or more interior surface soil samples collected in each of the 12 buildings contained lead at detectable concentrations. Exceedances of residential screening levels for lead were noted in samples from nine locations in seven of the buildings. Of these, one or more samples contained lead at concentrations exceeded the industrial RSL or non-residential or construction worker RBTLs in the following buildings:

- 103 A/B/C
- 103 E
- 104 E
- 104 F

Mercury

Interior soil samples were collected for mercury analysis in the basement of Building 103 A/B/C and within the crawlspace beneath Building 103 F (formerly 112). Samples from both buildings contained mercury at detectable concentrations. No exceedances of EPA RSLs or MRBCA RBTLs were noted.

Asbestos

Interior soil samples were collected for asbestos analysis in all buildings but Building 107. One or more interior (dirt-basement) surface soil samples collected in each of these buildings contained detectable concentrations of asbestos.

3.2.2 Exterior Soil Sampling

Exterior soil samples were collected within areas where historical building use, tank presence, demolition practices, or analytical data indicated potential for either: (1) direct exposure for construction workers, other workers, or visitors to contaminants of concern in soil; or (2) inhalation by indoor workers or visitors of contaminants of concern volatilized from exterior soil to occupied interior spaces.

Contaminants of concern for analysis—specified building by building—were based on former ordnance plant operations, and included volatile organic compounds (VOC), SVOCs, TPH, PCBs, pesticides, herbicides, metals, and asbestos.
Figure 4 in Appendix A shows all exterior soil boring sample locations associated with the OEE. Soil samples were collected within the footprints or around the perimeters of the following buildings:

- 102 F/G/H
- 102 J
- 102 K
- 103 F/G/H
- 103 J
- 103 K
- 104 A/B/C/D
- 104 G/H/J
- 104 K
- 104 L
- 104 M
- 105 N
- 108 A
- 108 B
- 110
- 115 and USTs
- 122 B
- 136 A
- 136 B
- 136 E
- 136 F
- 137 A
- 208 B

Exterior soil sample results were as follows:

**VOCs**

Soil samples from 35 locations were analyzed for VOCs; of these, soil samples from 23 locations contained detectable concentrations of VOCs, primarily acetone—a common laboratory contaminant. No exceedances of any regulatory screening levels were noted in exterior soil samples analyzed for VOCs.

**SVOCs**

Soil samples from 35 locations were analyzed for SVOCs; of these, soil samples from 33 locations contained detectable concentrations of SVOCs. Exceedances of residential screening levels were noted in exterior soils samples from nine locations. Of these, the following five soil samples contained SVOCs at concentrations exceeding industrial RSLs or non-residential or construction worker RBTLs:

- DPTS-2
- DPTS-3
- DPTS-9
- DPTS-32
- DPTS-39

**TPH**

Soil samples from 35 locations were analyzed for TPH; of these, soil samples from 30 locations contained detectable concentrations of TPH, primarily GRO and oil-range organics (ORO). No exceedances of any regulatory screening levels were noted in exterior soil samples analyzed for TPH.

**PCBs**

Soil samples from seven locations were analyzed for PCBs; of these, soil samples from six locations contained detectable concentrations of PCBs. No exceedances of any regulatory screening levels were detected in exterior soil samples analyzed for PCBs.
Pesticides and Herbicides

Soil samples from four locations were analyzed for pesticides and herbicides. No pesticides or herbicides were detected.

Metals

Soil samples from four locations were analyzed for metals; all contained detectable concentrations of metals. Exceedances of residential screening levels were detected in all four exterior soils samples. Of these, the following three soil samples also contained arsenic concentrations exceeding the industrial RSL or non-residential or construction worker RBTL:

- DPTS-20
- DPTS-21
- DPTS-34

Asbestos

Soil samples from 21 locations were analyzed for asbestos; only DPTS-21 contained a detectable concentration of asbestos.

3.2.3 Exterior Groundwater Sampling

Exterior groundwater samples were co-located with exterior soil sampling locations where historical building use, tank presence, demolition practices, or analytical data indicated potential for contaminants of concern to volatilize from groundwater to occupied interior spaces, posing an inhalation exposure risk to workers and visitors. Contaminants of concern for analysis—specified building by building—were based on former ordnance plant operations, and included VOCs, SVOCs, TPH, PCBs, pesticides, and herbicides.

Figure 4 in Appendix A shows all exterior groundwater sample locations associated with the OEE. Groundwater samples were collected within footprints or around perimeters of the following buildings:

- 104 A/B/C/D
- 108 A and 111
- 108 B
- 115 and USTs
- 122 B
- 136 E
- 136 B
- 136 F
Exterior groundwater sample results were as follows:

**VOCs**

Groundwater samples from nine locations were analyzed for VOCs; of these, groundwater sample DPTGW-1 contained detectable concentrations of VOCs. Some of the VOC concentrations exceeded RSLs, but not MRBCA RBTLs under the non-residential or construction worker scenario.

VOC detections in groundwater were compared to EPA’s list of chemicals of potential concern for vapor intrusion. Trichloroethene (TCE), a chemical of potential concern for vapor intrusion, was detected. Sample DPTGW-1 had the highest concentration of TCE, and was therefore assessed by use of EPA’s Office of Solid Waste and Emergency Response (OSWER) Groundwater Concentration to Indoor Air Concentration Calculator (Version 3.0, November 2012 RSLs). Assuming a commercial exposure scenario, the calculated indoor air concentration for TCE did not exceed the target risk for carcinogens (1.00E-06) or the target hazard quotient for non-carcinogens (1.0).

**SVOCs**

Groundwater samples from eight locations were analyzed for SVOCs; groundwater samples from five of these locations contained detectable concentrations of SVOCs. In each groundwater sample containing detectable SVOC concentrations, an exceedance of an EPA RSL occurred, but no SVOC concentration exceeded an MRBCA RBTL under the non-residential or construction worker scenario. No detected SVOCs are listed as chemicals of potential concern for vapor intrusion.

**TPH**

Groundwater samples from eight locations were analyzed for TPH; groundwater samples from two of these locations contained detectable concentrations of TPH. No exceedances of MRBCA RBTLs under the non-residential or construction worker scenario were detected. TPH is not listed as a chemical of potential concern for vapor intrusion.

**PCBs**

Groundwater samples from two locations were analyzed for PCBs; both contained detectable concentrations of PCBs. Groundwater sample DPTGW-9 contained PCBs at concentrations exceeding residential screening levels and MRBCA RBTLs under the non-residential scenario.

PCB detections in groundwater were compared to EPA’s list of chemicals of potential concern for vapor intrusion; PCB blends Aroclor 1221 and Aroclor 1232 are listed as chemicals of potential concern for
vapor intrusion. The maximum PCB concentration (detected in sample DPTGW-9) was assessed by use of EPA’s OSWER Groundwater Concentration to Indoor Air Concentration Calculator (Version 3.0, November 2012 RSLs). Assuming a commercial exposure scenario, the calculated indoor air concentration did not exceed the target risk for carcinogens (1.00E-06).

**Pesticides and Herbicides**

A groundwater sample from one location was analyzed for pesticides and herbicides. No pesticide or herbicide was detected.

### 3.2.4 Summary

On the basis of the OEE sampling results, the primary contaminants and areas of concern are PCBs in subsurface soil and groundwater near Buildings 108A, TCE in groundwater sample DPTGW-1, and SVOCs and/or metals in nearby soil in Buildings 102 A/B/C, 103 A/B/C, 103 E, 104 A/B/C/D, 104 E, and 104 F.

### 3.3 CONCLUSIONS

The PA/SI and OEE confirmed presence of primarily metals, PCBs, SVOCs, and VOCs in soil and groundwater at the GFC. The OEE was designed to further investigate occupational risks, and focused primarily on determining whether contamination could be present within buildings and on exterior surfaces. The RI was designed to continue to (1) fill existing environmental data gaps, and (2) evaluate cleanup needs attributable to on-site legacy contamination present in soil and groundwater at the exterior grounds, and associated with former ordnance plant operations.
4.0 DATA ACQUISITION ACTIVITIES

The following sections discuss data acquisition activities in support of this GFC RI. These sections discuss sampling rationale, as well as procedures stipulated in the approved RI Work Plan (Tetra Tech 2016) applied for field measurement, sample collection, sample handling and custody, quality control (QC), equipment decontamination, and management of investigation-derived waste (IDW). Samples were collected in a manner consistent with EPA methods and standard operating procedures (SOP). Field documentation of data acquisition activities is in Appendices C, (boring logs), D (field logbooks), E (photographic documentation), and F (field sample collection sheets and chain-of-custody records).

4.1 PREPARATORY ACTIVITIES

Prior to initiating field data acquisition and as necessary to maintain data accuracy and reproducibility, members of the field team tested, inspected, and maintained sampling equipment and instrumentation in accordance with manufacturers’ recommendations. Maintenance and calibration activities are documented in the field log book (see Appendix D).

Tetra Tech also located underground utilities in the vicinity of sampling locations by reference to utility maps provided by GSA and Baker-Peterson, a private utility-locating service. Based on discussions with GSA, Tetra Tech contracted with Baker-Peterson because Missouri One-Call is not responsible for locating private underground utilities, and the GSA utility maps are not sufficiently reliable.

4.2 SAMPLING PROCESS

The sampling scheme employed for this project was judgmental (based on the best professional judgment of the sampling team), in accordance with the Guidance for Performing Site Inspections Under CERCLA, OSWER Directive #9345.1-05, September 1992. The following describes soil and groundwater sampling processes during the GFC RI. Direct-push technology (DPT) services were provided by Tetra Tech subcontractor Plains Environmental Services of Salina, Kansas. DPT boring locations, at which all RI soil and groundwater samples were collected, are shown on Figure 5 in Appendix A, and individual sample locations are shown on Figures 5 through 12 in Appendix A. Table 2 in Appendix B lists additional details regarding samples collected, including sample types, identifiers, and analyses. After sample collection, samples were labeled, recorded on a field sample collection sheet / chain of custody, and stored in coolers maintained at or below 4 degrees Celsius (°C) pending submittal to ALS Environmental of Houston, Texas, for laboratory analysis.
4.2.1 Direct-Push Technology Surface Soil Sampling

DPT surface soil samples (0 to 1 foot bgs) were collected at six buildings of the GFC, where prior sampling had indicated potential for exterior contamination in soil. Contaminants of concern for analysis—specified building by building / area by area—included VOCs, SVOCs, and PCBs. At least one surface soil sample was collected within the footprint, around the perimeter, and upgradient/downgradient of each of the following buildings:

- Building 107
- Building 136 F
- Buildings 102 E, J, & K
- Building 102 A/B/C
- Building 104 A/B/C/D
- Buildings 108 A & 111.

Samples were collected for laboratory analyses listed in Table 2 in Appendix B.

Tetra Tech collected surface soil samples where DPT soil sampling occurred. Tetra Tech collected surface soil samples by use of a Geoprobe Macro-Core sampler fitted with disposable polyvinyl chloride (PVC) or acetate liners. Soil samples were collected in general accordance with EPA Environmental Response Team (ERT) SOP 2012, *Soil Sampling* (EPA 2000) and EPA SOP 4230.07, *Geoprobe Operation* (EPA 1995a).

At each boring location, a soil core was collected within 0 to 4 feet bgs. Surface soil samples were composite samples (for non-VOC analyses) consisting of multiple aliquots from the 0- to 1-foot bgs interval of DPT soil borings described in Section 4.2.1. Surface soil samples for VOC analysis were grab samples from selected DPT borings within the 0- to 1-foot bgs interval within each area.

Soil to be analyzed for VOCs was sampled by use of a TerraCore sampling kit (refer to EPA Method 5035 – *Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples* [EPA 1996]). Soils for composite samples to be analyzed for SVOCs and PCBs were removed from the PVC or acetate liner and placed in a disposable Ziploc® bag for homogenization, and then transferred to laboratory-supplied containers.

4.2.2 Direct-Push Technology Sub-Surface Soil Sampling

DPT sub-surface soil samples were collected at six buildings/areas of the GFC where prior sampling had indicated potential for exterior contamination in soil. Contaminants of concern for analysis—specified...
building by building / area by area—included VOCs, SVOCs, and PCBs. DPT soil samples were collected within the footprint, around the perimeter, and upgradient/downgradient of each of the following buildings/areas:

- Building 107
- Building 136 F
- Buildings 102 E, J, & K
- Building 102 A/B/C
- Building 104 A/B/C/D
- Buildings 108 A & 111.

Samples were collected for laboratory analyses listed in Table 2 in Appendix B.

Tetra Tech collected DPT soil samples by use of a Geoprobe Macro-Core sampler fitted with disposable PVC or acetate liners. Soil samples were collected in general accordance with EPA Environmental Response Team (ERT) SOP 2012, *Soil Sampling* (EPA 2000) and EPA SOP 4230.07, *Geoprobe Operation* (EPA 1995a).

At each boring location, a continuous soil core was collected in 4-foot segments. Each 4-foot core interval was screened for contamination by use of a hand-held photoionization detector (PID) and via visual and olfactory detections. Tetra Tech generated a detailed boring log of lithologic variation, moisture content, and evidence of potential contamination. These logs were prepared by a qualified geologist. Copies of all boring logs generated for the RI are in Appendix C.

At each boring location, two samples were collected within the zones indicating highest apparent contamination based on historical operations, PID readings, or visual or olfactory evidence. In the absence of a zone of contamination, subsurface soil samples were collected within approximately 4 to 8 feet bgs and directly above the water table or refusal, whichever was encountered first.

Soil to be analyzed for VOCs was sampled by use of a TerraCore sampling kit (refer to EPA Method 5035 – *Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples* [EPA 1996]). The remaining soil was removed from the PVC or acetate liner and placed in a disposable Ziploc® bag for homogenization, and then transferred to laboratory-supplied containers.

### 4.2.3 Direct-Push Technology Groundwater Sampling

DPT groundwater sampling was co-located with DPT soil sampling locations where historical operations, analytical data, or DPT logs indicated potential for legacy groundwater contamination associated with
former ordnance plant operations at the GFC. Contaminants of concern for analysis—specified building by building / area by area—including VOCs, SVOCs, PCBs, and Resource Conservation and Recovery Act (RCRA) metals. DPT groundwater sampling was attempted within the footprint, around the perimeter, and upgradient/downgradient of each of the following buildings/areas:

- Building 107
- Building 136 F
- Buildings 102 E, J, & K
- Building 102 A/B/C
- Building 104 A/B/C/D
- Buildings 108 A & 111
- Background Areas.

Samples were collected for laboratory analyses listed in Table 9 in Appendix B.

Tetra Tech collected the exterior groundwater samples in general accordance with EPA ERT SOP 2007, *Groundwater Well Sampling* (EPA 1995b), and EPA SOP 4230.07, *Geoprobe Operation* (EPA 1995a). Where ample groundwater was present, groundwater samples were collected from temporary monitoring wells by use of a Geoprobe Screen Point 15 sampling apparatus with a disposable 4-foot-long PVC screen. The screen was placed at or directly below the water table, and samples were collected through disposable polyethylene tubing by use of a check valve placed at the bottom of the tubing. Where ample groundwater was available, approximately three tubing volumes of groundwater were purged prior to sampling. Groundwater samples were collected in laboratory-supplied containers, and samples to be analyzed for parameters with greatest potential for volatilization were collected first.

### 4.2.4 Quality Control Sampling

Field QC samples collected to help evaluate validity of original field sample data included field duplicates, trip blanks, and equipment blanks. Additionally, extra sample volume was collected at select locations for laboratory matrix spike/matrix spike duplicate (MS/MSD) analysis.

#### Field Duplicate Samples

Collection and analysis of field duplicates allows evaluation of consistency of the overall sampling and analytical system. Field duplicates are two environmental samples collected at the same time and at the same location for separate submittals to the laboratory for analysis. Collections of field duplicate groundwater samples at all locations failed because of absence of groundwater or insufficient groundwater volumes in DPT borings. Field duplicate soil samples were collected but were not
considered critical or representative of data quality, given the difficulty of collecting truly homogeneous, co-located samples within that medium.

**Equipment Blanks**

Equipment blank samples permit evaluation of equipment decontamination procedures. Blanks are collected as samples of clean, analyte-free water passed through and over the sampling equipment. For the RI, an equipment blank was collected by pouring deionized water over/through decontaminated DPT sampling equipment and collecting it in the appropriate sample containers. The blanks were analyzed for the same parameters as those for their corresponding environmental samples.

**Trip Blanks**

Trip blanks allow estimation of incidental or accidental contamination of environmental samples during sampling, storage, and transportation to the laboratory. Trip blanks prepared and provided by the analyzing laboratory were stored and shipped with each cooler containing soil or groundwater samples to be analyzed for VOCs. The trip blanks were analyzed for VOCs.

**MS/MSD Samples**

MS/MSD samples allow evaluation of precision and accuracy of an analytical method applied for a particular environmental sample matrix. Samples for MS/MSD analysis were duplicate and triplicate volumes of environmental samples submitted to the laboratory for analysis. MS/MSD additional volumes were collected at a laboratory-determined frequency at field-determined locations where sufficient sample volume was available.

### 4.3 EQUIPMENT DECONTAMINATION

Pre-cleaned, disposable (one-time use) sampling equipment was used where possible to minimize equipment decontamination requirements. Reusable monitoring and sampling equipment such as water level indicators and Geoprobe rods and samplers were decontaminated prior to fieldwork and after sampling at each location according to the following steps:

1. Wash with low-phosphate detergent (e.g., Alconox).
2. Rinse with distilled and deionized water.
3. Allow to air dry.
4.4 INVESTIGATION-DERIVED WASTE MANAGEMENT

Field methods were designed to minimize unnecessary generation of IDW. IDW consisted of expendable sampling supplies, personal protective equipment (PPE), soil cuttings, and decontamination fluids. Disposal of expendable sampling materials and PPE occurred off site as municipal solid waste. Decontamination fluids were discharged to the ground surface on facility property at a location downgradient of soil and groundwater sampling locations. Soil cuttings were returned to the boreholes from which they had originated.
5.0 DATA VERIFICATION, VALIDATION, AND QUALITY ASSESSMENT

The quality assurance (QA) objective for this project was to provide valid data of known and documented quality. As such, laboratory data packages from the May 2016 RI sampling event were verified and validated by a qualified Tetra Tech chemist to identify readily apparent problems and QC deficiencies. Copies of laboratory data packages are in Appendix G, and complete data verification and validation reports are in Appendix H. This section presents significant findings of Tetra Tech’s data verification and validation, and discusses overall data quality and usability with respect to data quality objectives (DQO) established in the Work Plan/QAPP developed by Tetra Tech in 2016 for the RI. Specific DQOs are discussed in terms of accuracy, precision, completeness, representativeness, and comparability.

Tetra Tech applied the following guidelines, as applicable, in qualifying the data and evaluating suitability of the data to support project decisions and answer underlying questions:

- Review of Data Packages from Subcontracted Laboratories (Tetra Tech, February 2002)
- Other criteria specified in the applicable methods.

5.1 ACCURACY AND PRECISION

Accuracy for this project is defined as the ratio, expressed as a percentage, of a measured value to a true or reference value. The analytical component of accuracy is expressed as percent recovery, based on analysis of laboratory-prepared spike samples. Accuracy is estimated by calculating percent recoveries of laboratory MS/MSD samples and laboratory control samples (LCS).

Precision for this project is defined as a measure of agreement among individual measurements of laboratory-prepared duplicate samples and field duplicates. Precision is estimated by analyzing duplicate MS samples or LCSs, comparing results with those from the corresponding original samples, and calculating the relative percent difference (RPD) between results from each duplicate pair.

Additional details and formulas are provided in the Work Plan/QAPP (Tetra Tech 2016).

5.1.1 Volatile Organic Compounds

The following findings of Tetra Tech’s data verification and validation resulted in data qualification beyond that applied by the analytical laboratory:
In all soil samples analyzed for VOCs, including MS/MSD analyses, recoveries of one of the four surrogates, dibromofluoromethane, were below the laboratory’s established limits of 71 to 128 percent. Most recoveries were in the range 20 to 40 percent. These results indicate significant matrix interference with determinations of concentrations of some, if not all, VOCs in the sample. Due to this uncertainty, all soil VOC results, detected and non-detected, were qualified as estimated and flagged “J” or “UJ,” as appropriate.

Most other VOC accuracy and precision indicators were well within their acceptable limits. The only exceptions were results from some MS/MSD analyses of samples from other sites. No qualifications were applied for these irregularities.

Overall data quality is acceptable, with qualification due to inherent nature of the soil samples. All data are usable as qualified for their intended purposes.

5.1.2 Semivolatile Organic Compounds

The following findings of Tetra Tech’s data verification and validation resulted in data qualification beyond that applied by the analytical laboratory:

All surrogate recoveries and LCS results (including duplicate LCS results used in lieu of MS/MSD analyses in some cases) and almost all MS/MSD results were within acceptance limits.

The sole exceptions were MS/MSD analyses of sample DPTS-120, in which caprolactam yielded recoveries of 21 and 71 percent (versus limits of 50 to 135 percent) and a consequent RPD of 108 percent (versus its limit of 30 percent). These irregular results apparently resulted from heterogeneities within the soil. The caprolactam result for sample DPTS-120 was qualified as estimated. Similar heterogeneities may exist at other sample locations.

Overall data quality is acceptable, with one qualification. All data are usable as qualified for their intended purposes.

5.1.3 Polychlorinated Biphenyls

The following findings of Tetra Tech’s data verification and validation resulted in data qualification beyond that applied by the analytical laboratory:

All surrogate recoveries, LCS results, and MS/MSD results were within limits. The only irregularity in accuracy was detection of Aroclor 1260 in one sample, DPTS-144. Quantitative results from the two
analytical columns differed greatly, with an RPD above 40 percent. This indicates that at least some of the instrument’s response was due to non-PCB organic compounds, probably PAHs. The laboratory reported the lower result and flagged it “P.” This result was qualified as estimated, and the qualifier was modified to the standard “J.”

Overall data quality is acceptable, with one qualification. All data are usable as qualified for their intended purposes.

5.2 REPRESENTATIVENESS

Representativeness of collected samples is facilitated by establishing and following criteria and procedures identified in the Work Plan/QAPP (Tetra Tech 2016), which was designed based on the historical site information and objectives therein. Tetra Tech implemented the Work Plan/QAPP as described in Section 4.0. As noted, deviations primarily included inability to collect (1) soil samples because of refusal in the subsurface, and (2) groundwater samples partly or fully because of insufficient subsurface groundwater availability. These deviations do not detract from representativeness of acquired data.

Representativeness also is assessed by use of QC samples, including field duplicates and blanks. Additional details and formulas are in the Work Plan/QAPP (Tetra Tech 2016). The following subsections discuss this assessment:

5.2.1 Volatile Organic Compounds

Tetra Tech’s data verification and validation resulted in no data qualification beyond that applied by the analytical laboratory.

5.2.2 Semivolatile Organic Compounds

The following findings of Tetra Tech’s data verification and validation resulted in data qualification beyond that applied by the analytical laboratory:

The aqueous equipment blank yielded low concentrations of a number of analytes, including common laboratory contaminants (two phthalate esters) detected in some soil samples, a PAH (naphthalene) found in several soil samples, and two oxygenated aromatic compounds (acetophenone and benzaldehyde) found in some soil samples. No qualifications were applied for these minor irregularities.
Overall data quality is acceptable, with no qualifications applied. All data are usable as reported for their intended purposes.

5.2.3 PCBs

Tetra Tech’s data verification and validation resulted in no data qualification beyond that applied by the analytical laboratory.

5.3 COMPARABILITY

Comparability is the extent to which data can be compared between sample locations or periods of time within the project, or between projects. To ensure project comparability (that data from various phases of the project are comparable), Tetra Tech evaluated historical environmental information compiled for GFC and applied the standardized sampling methods, analytical methods, and units of reporting defined in the Work Plan/QAPP (Tetra Tech Inc. 2016). In some cases, introductions of new sampling and analytical methods were necessary to fill data gaps.

Samples were analyzed by a contract laboratory employing methods selected based on past sampling data and acquired historical information regarding the facility. Laboratory analysis proceeded per the reference methods, as documented or amended by the laboratory’s internal SOPs. Calibration procedures and frequencies accorded with the listed EPA methods, and calibration standards were prepared from standard reference materials. Tetra Tech requested laboratory reporting limits that were equal to or less than appropriate screening levels; however, this was infeasible in some cases because of matrix interference, high analyte concentrations requiring dilution, or technological constraints.

5.4 COMPLETENESS

Data completeness is expressed as the percentage of data generated that is considered valid. A completeness goal of 95 percent was applied to this project; however, even if that goal had not been met, site decisions still would have been reached based on the remaining data. Additional details and formulas are provided in the Work Plan/QAPP (Tetra Tech Inc. 2016).

As previously noted, insufficient subsurface groundwater availability precluded collection of most groundwater samples, and thus the completeness goal of 95 percent was not achieved. However, because no critical samples were identified for the project, absence of the uncollected samples does not detract from the validity of acquired data. All data are usable for their intended purposes with the qualifications discussed above.
6.0 RI RESULTS

This section presents verified results of the May 2016 sampling event and compares the results to applicable state screening levels. Table 2 in Appendix B lists all environmental samples collected as part of the RI, including sample-specific information. Copies of laboratory data packages are in Appendix G, and complete data verification and validation reports are in Appendix H. Sampling locations are shown on Figures 5 through 12 in Appendix A. Figure 13 in Appendix A shows contamination discovered during the RI.

6.1 DIRECT-PUSH TECHNOLOGY SURFACE SOIL

DPT surface soil samples were collected at six buildings/areas of the GFC, where prior sampling had indicated potential for contamination in soil. Sample locations were within building footprints, around perimeters, and upgradient/downgradient of these buildings/areas. Contaminants of concern for analyses—specified building by building / area by area—included VOCs, SVOCs, and PCBs. Results were compared to MRBCA Lowest Default Target Levels (LDTL) and the most conservative non-residential and construction worker RBTLs for soils under Soil Type 1 (sandy). These standards address the relevant exposure pathways, including dermal contact, ingestion, and inhalation of vapor emissions and particulates.

6.1.1 Building 107

One composited surface soil sample (DPTS-101) was collected from four borings around the perimeter of Building 107 (see Appendix A, Figure 6). DPTS-101 was submitted for fixed-base laboratory analysis for PCBs. Table 3 in Appendix B lists PCB results from the soil sample.

No detections of PCBs or exceedances of any MRBCA screening levels were noted in DPTS-101.

6.1.2 Building 136 F

Two surface soil grab samples (DPTS-110, DPTS-116) were collected from three borings upgradient of Building 136 F (see Appendix A, Figure 7). DPTS-110 and DPTS-116 were submitted for fixed-base laboratory analysis for VOCs. Table 4 in Appendix B lists VOC results from soil samples collected upgradient of Building 136 F.

In surface soil samples DPTS-110 and DPTS-116, minor detections of acetone occurred at 0.065 and 0.044 milligrams per kilogram (mg/kg), respectively. Neither detection exceeded any MRBCA screening
level. Acetone is a common laboratory contaminant regularly detected in samples analyzed for VOCs. No other VOC detections or exceedances of any MRBCA screening levels were noted in surface soil samples DPTS-110 and DPTS-116.

### 6.1.3 Buildings 102 J and 102 K

One composited surface soil sample (DPTS-119) was collected from three borings around the perimeters of Buildings 102 K, 102 E, and 102 J (see Appendix A, Figure 8). DPTS-119 was submitted for fixed-base laboratory analysis for SVOCs. Table 5 in Appendix B lists SVOC results from soil samples associated with Buildings 102 J and 102 K.

A total of 15 SVOCs were detected in surface soil sample DPTS-119. All detections were minor or below individual quantitation limits. No other SVOC detections or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-119.

### 6.1.4 Building 102 A/B/C

One composited surface soil sample (DPTS-128) and three surface soil grab samples (DPTS-127, DPTS-133, DPTS-146) were collected from borings around the perimeter of Building 102 A/B/C (see Appendix A, Figure 9). DPTS-128 was submitted for fixed-base laboratory analysis for SVOCs, while DPTS-127, DPTS-133, and DPTS-146 were submitted for VOC analysis. Table 6 in Appendix B lists SVOC and VOC results from soil samples associated with Building 102 A/B/C.

A total of 24 SVOCs were detected in surface soil sample DPTS-128. All detections were minor and/or below individual quantitation limits. No other SVOC detections or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-119.

In surface soil samples DPTS-127 and DPTS-133, minor detections of acetone occurred at 0.081 and 0.065 mg/kg, respectively. Neither detection of acetone exceeded any MRBCA screening level. Acetone is a common laboratory contaminant regularly detected in samples analyzed for VOCs. No other VOC detections or exceedances of any MRBCA screening levels were noted in surface soil samples DPTS-127 and DPTS-133.

No detections of VOCs or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-146.
6.1.5 Building 104 A/B/C/D

Two composited surface soil samples (DPTS-138, DPTS-150) were collected from borings around the perimeter of Building 104 A/B/C/D (see Appendix A, Figure 10). DPTS-138 and DPTS-150 were submitted for fixed-base laboratory analysis for PCBs. Table 7 in Appendix B lists PCB results from soil samples collected around the perimeter of Building 104 A/B/C/D.

In surface soil sample DPTS-150, the PCB Aroclor 1260 was detected at 1.2 mg/kg, which exceeded the MRBCA LDTL of 1.11 mg/kg. However, it was below non-residential and construction worker MRBCA RBTLs for soil of 7.34 and 20.4 mg/kg, respectively. No other detections of PCBs or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-150.

No detections of PCBs or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-138.

6.1.6 Buildings 108 A and 111

Two composited surface soil samples (DPTS-158, DPTS-169) were collected from borings in the vicinity of Buildings 108 A and 111 (see Appendix A, Figure 11). DPTS-158 and DPTS-169 were submitted for fixed-base laboratory analysis for PCBs. Table 8 in Appendix B lists PCB results from soil samples collected in the vicinity of Buildings 108A and 111.

In surface soil sample DPTS-158, the PCB Aroclor 1260 was detected at 110 mg/kg, which exceeded the MRBCA LDTL of 1.11 mg/kg, as well as the non-residential and construction worker MRBCA RBTLs for soil of 7.34 and 20.4 mg/kg, respectively. No other detections of PCBs or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-158.

No detections of PCBs or exceedances of any MRBCA screening levels were noted in surface soil sample DPTS-169.

6.2 DIRECT-PUSH TECHNOLOGY SUB-SURFACE SOIL

DPT sub-surface soil samples were collected at six buildings/areas of the GFC, where prior sampling had indicated potential for exterior contamination in soil. Samples were collected within footprints, around perimeters, and upgradient/downgradient of these buildings/areas. Contaminants of concern for analysis—specified building by building / area by area—included VOCs, SVOCs, and PCBs. Results were compared to MRBCA LDTLs and the most conservative non-residential and construction worker
MRBCA Tier 1 RBTLs for soils under Soil Type 1 (sandy). These standards address the relevant exposure pathways, including dermal contact, ingestion, and inhalation of vapor emissions and particulates.

6.2.1 Building 107

Eight sub-surface soil samples were collected from four borings around the perimeter of Building 107 (see Appendix A, Figure 6). Sub-surface soil samples were submitted for fixed-base laboratory analysis for PCBs. Table 3 in Appendix B lists PCB results from soil samples associated with Building 107.

No detections of PCBs or exceedances of any MRBCA screening levels were noted in any sub-surface soil samples associated with Building 107.

6.2.2 Building 136 F

Seven sub-surface soil samples were collected from three borings upgradient of Building 136 F (see Appendix A, Figure 7). Sub-surface soil samples were submitted for fixed-base laboratory analysis for VOCs. Table 4 in Appendix B lists VOC results from soil samples associated with Building 136 F.

No detections of VOCs or exceedances of any MRBCA screening levels were noted in any sub-surface soil samples associated with Building 136 F.

6.2.3 Buildings 102 J and 102 K

Seven sub-surface soil samples were collected from three borings around the perimeters of Buildings 102 K, 102 E, and 102 J (see Appendix A, Figure 8). Sub-surface soil samples were submitted for fixed-base laboratory analysis for SVOCs. Table 5 in Appendix B lists SVOC results from soil samples associated with Buildings 102 J and 102 K.

A total of 17 SVOCs were detected in sub-surface soil samples. All detections were minor and/or below individual quantitation limits. No other SVOC detections or exceedances of any MRBCA screening levels were noted in any sub-surface soil samples associated with Buildings 102 J and 102 K.

6.2.4 Building 102 A/B/C

Eleven sub-surface soil samples were collected from borings around the perimeter of Building 102 A/B/C (see Appendix A, Figure 9). Sub-surface soil samples were submitted for fixed-base laboratory analyses
for SVOCs and VOCs. Table 6 in Appendix B lists SVOC and VOC results from soil samples associated with Building 102 A/B/C.

A total of 28 SVOCs were detected in sub-surface soil samples. All detections were minor or below individual quantitation limits. No other SVOC detections or exceedances of any MRBCA screening levels were noted in any sub-surface soil samples associated with Building 102 A/B/C.

Minor detections of one VOC, acetone, occurred in sub-surface soil samples DPTS-131 and DPTS-134 at 0.027 and 0.025 mg/kg, respectively. Neither detection of acetone exceeded any MRBCA screening level. Acetone is a common laboratory contaminant regularly detected in samples analyzed for VOCs. No other VOC detections or exceedances of any MRBCA screening levels were noted in any surface soil samples associated with Building 102 A/B/C.

6.2.5 Building 104 A/B/C/D

Fourteen sub-surface soil samples were collected from six borings around the perimeter of Building 104 A/B/C/D (see Appendix A, Figure 10). Sub-surface soil samples were submitted for fixed-base laboratory analysis for PCBs. Table 7 in Appendix B lists PCB results from soil samples associated with Building 104 A/B/C/D.

Minor detections of one PCB, Aroclor 1260, occurred in sub-surface soil samples DPTS-144 and DPTS-151 at 0.024 and 0.045 mg/kg, respectively. Neither detection of Aroclor 1260 exceeded any MRBCA screening level. No other PCB detections or exceedances of any MRBCA screening levels were noted in any surface soil samples associated with Building 104 A/B/C/D.

6.2.6 Buildings 108 A and 111

Fifteen sub-surface soil samples were collected from seven borings in the vicinity of Buildings 108 A and 111 (see Appendix A, Figure 11). Sub-surface soil samples were submitted for fixed-base laboratory analysis for PCBs. Table 8 in Appendix B lists PCB results from soil samples associated with Buildings 108 A and 111.

No detections of PCBs or exceedances of any MRBCA screening levels were noted in any sub-surface soil samples associated with Buildings 108 A and 111.
6.3 DIRECT-PUSH TECHNOLOGY GROUNDWATER

DPT groundwater sampling was attempted at six buildings/areas of the GFC, where prior sampling had indicated potential for exterior contamination in soil. Sampling was attempted within footprints, around perimeters, and upgradient/downgradient of these buildings/areas. Groundwater sampling was attempted at each boring. However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth at all but one boring.

Contaminants of concern for analysis—specified building by building / area by area—including VOCs, SVOCs, PCBs, and RCRA metals. Results were compared to MRBCA LDTLs and the most conservative non-residential and construction worker MRBCA Tier 1 RBTLs for groundwater under Soil Type 1 (sandy). These standards address the relevant exposure pathways, including dermal contact, ingestion, and inhalation of vapor emissions and particulates.

6.3.1 Buildings 108 A and 111

One groundwater sample (DPTGW-101) was collected from a boring (DPT-27) within the footprint of Building 111 (see Appendix A, Figure 9). DPTGW-101 was submitted for fixed-base laboratory analysis for PCBs. Table 9 in Appendix B lists PCB results from DPTGW-101.

No detections of PCBs or exceedances of any MRBCA screening levels were noted in groundwater sample DPTS-101.

6.4 GROUNDWATER ELEVATION MEASUREMENTS

One piezometer was installed at the very southeastern corner of the GFC for the sole purpose of acquiring water elevation data (see Appendix A, Figure 5). The piezometer was allowed to charge for 24 hours, but no groundwater was present within that time period. Hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Moreover, throughout the site, groundwater was found in only one boring. Lack of encounter with groundwater throughout the RI prevented acquisition of usable groundwater elevation measurements.

6.5 BACKGROUND GROUNDWATER QUALITY

To evaluate quality of groundwater entering the GFC from the west, two DPT temporary monitoring wells were installed (see Appendix A, Figures 5 and 12). Groundwater was not encountered at either DPT boring location. Hard clayey soils and/or other unknown sub-surface interference prevented the
DPT from reaching groundwater static water depth. Efforts during the RI to secure off-site groundwater sampling locations for background groundwater quality sampling were unsuccessful because of access issues.

6.6 QUALITY CONTROL

Field QC samples were collected to help evaluate validity of original field sample data. Field QC samples collected included field duplicates, trip blanks, and equipment blanks. Additionally, extra sample volume was collected at select locations for laboratory MS/MSD analysis.

6.6.1 Field Duplicates

Seven field duplicate soil samples were collected as part of RI sampling activities (see Appendix B, Table 2). Field duplicate samples were submitted for fixed-base laboratory analysis for the same parameters as those for other environmental samples. Analytical results from field duplicate samples were used to evaluate precision via calculation of RPDs (see Section 5.1).

Based in part on calculation of RPDs, overall data quality was determined acceptable and useable as qualified for intended purposes.

6.6.2 Equipment Blanks

One aqueous equipment blank sample (EB-1) was collected as part of RI sampling activities. EB-1 was submitted for fixed-base laboratory analyses for PCBs, SVOCs, and VOCs.

Five SVOCs were detected in aqueous equipment blank sample EB-1 at trace levels and/or below individual quantitation limits. No other SVOC detections or exceedances of any MRBCA screening levels were noted. No detections of PCBs or VOCs in EB-1 were reported.

6.6.3 Trip Blanks

Five aqueous trip blanks samples were submitted as part of RI sampling activities. All trip blank samples were analyzed for VOCs.

No detection of a VOC was reported in any aqueous trip blank sample.
6.6.4 MS/MSD

Tetra Tech coordinated with the analytical laboratory (ALS Environmental) to confirm extra sample volumes required to conduct MS/MSD analyses. Results from MS/MSD analyses were used to evaluate accuracy and precision of environmental sample matrixes (see Section 5.1).

Based in part on MS/MSD analyses, overall data quality was determined acceptable and useable as qualified for intended purposes.
7.0 SUMMARY

This section presents location-specific summaries based on the May 2016 RI and discusses contamination identified during the PA/SI, OEE, and RI assessments.

7.1 BUILDING 107

Building 107 historically was utilized for office space and as a SLOP personnel building during Plant No. 1 operations. It currently houses the GSA offices at the GFC. As part of the RI, one composted surface soil and eight sub-surface soil grab samples were collected via DPT from four borings around the perimeter of the building. Groundwater sampling was attempted at each boring. However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Soil samples collected in this area were analyzed for PCBs.

No PCB was detected in any soil sample collected around the perimeter of Building 107.

7.2 BUILDING 136 F

Building 136 F historically was utilized as a SLOP fire equipment storage building during operation of Plant No. 1. The building was removed sometime in the 1970s. As part of the RI, two surface soil grab samples and seven sub-surface grab samples were collected via DPT from three borings. Borings were positioned upgradient of Building 136 F and a previous OEE groundwater sample location (DPTGW-1) (see Section 3.2.5.1) where analytical data had indicated presence of VOCs. Groundwater sampling was attempted at each boring. However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Soil samples collected in this area were analyzed for VOCs.

Minor detections of acetone occurred in both soil samples. Acetone is a common laboratory contaminant regularly detected in environmental samples analyzed for VOCs. No VOC exceedance of a MRBCA screening level was noted in any soil sample collected within this area.

7.3 BUILDINGS 102 J AND 102 K

Buildings 102 J and 102 K historically were utilized as SLOP lubricating oil storage buildings. Both structures were removed some time after World War II. As part of the RI, one composted surface soil sample and seven sub-surface soil grab samples were collected via DPT from three borings around the perimeters of buildings 102 E, 102 J, and 102 K. Groundwater sampling was attempted at each boring.
However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Soil samples collected in this area were analyzed for SVOCs.

A total of 18 SVOCs were detected in soil samples. All detections were minor and/or below individual quantitation limits. No exceedance of any MRBCA screening level was noted in soil samples associated with Buildings 102 J and 102 K.

### 7.4 BUILDING 102 A/B/C

Building 102 A/B/C historically was utilized for SLOP production of 0.30 caliber ammunition. It has been unoccupied since 1995. As part of the RI, 1 composited surface soil sample, 3 surface soil grab samples, and 11 sub-surface soils samples were collected. Soil samples were collected via DPT from five borings around the perimeter of Building 102 A/B/C. Groundwater sampling was attempted at each boring. However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Soil samples collected in this area were analyzed for SVOCs and/or VOCs.

A total of 28 SVOCs were detected in soil samples. All detections were minor or below individual quantitation limits. Minor detections of the VOC acetone occurred in four soil samples. Acetone is a common laboratory contaminant regularly detected in environmental samples analyzed for VOCs. No exceedance of a MRBCA screening level was noted in any soil sample collected within this area.

### 7.5 BUILDING 104 A/B/C/D

Building 104 A/B/C/D historically was utilized in numerous SLOP production activities, and served as a shipping center, a warehouse, and for office space. It currently provides space for archived storage on the first floor and houses USDA computer servers on the second floor. As part of the RI, 2 composited surface soil sample and 14 sub-surface soil grab samples were collected via DPT from six borings around the perimeter of the building. Groundwater sampling was attempted at each boring. However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Soil samples collected in this area were analyzed for PCBs.

The PCB Aroclor 1260 was detected in three soil samples. In one surface soil sample, the concentration of Aroclor 1260 exceeded the MRBCA LDTL, but was below non-residential and construction worker MRBCA RBTLs. No exceedance of a MRBCA screening level was noted in any other soil sample collected within this area. Figure 13 in Appendix A shows soil contamination discussed in this section.
7.6  BUILDINGS 108 A AND 111

Building 108 A historically was used as the south electrical sub-station at the GFC and currently serves the same purpose. Building 111 historically was utilized as a SLOP boiler house for Plant No. 1. It was removed in the 1970s. As part of the RI, 2 composited surface soil samples and 15 sub-surface soil samples were collected via DPT from seven borings in the vicinity and/or within the footprint of the buildings. In addition, one groundwater sample was collected from a boring within the footprint of Building 111. Groundwater sampling was attempted at each boring. However, hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth at the other borings. Samples collected within this area were analyzed for PCBs.

The PCB Aroclor 1260 was detected in one surface soil sample at concentration exceeded the MRBCA LDTL, non-residential MRBCA RBTL, and construction worker MRBCA RBTL designated for Aroclor 1260. No exceedance of a MRBCA screening level was noted in any other sample collected within this area. Figure 13 in Appendix A shows soil contamination discussed in this section.

7.7  GROUNDWATER ELEVATION MEASUREMENTS

One piezometer was installed at the very southeastern corner of the GFC for the sole purpose of acquiring water elevation data. The piezometer was allowed to charge for 24 hours, but no groundwater was present within that time period. Hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Moreover, throughout the site, groundwater was found in only one boring. Lack of encounter with groundwater throughout the RI prevented acquisition of usable groundwater elevation measurements.

7.8  BACKGROUND GROUNDWATER QUALITY

To evaluate quality of groundwater entering the GFC from the west, two DPT temporary monitoring wells were installed. Groundwater was not encountered at either DPT boring location. Hard clayey soils and/or other unknown sub-surface interference prevented the DPT from reaching groundwater static water depth. Efforts during the RI to secure off-site groundwater sampling locations for background groundwater quality sampling were unsuccessful because of access issues.
7.9 QUALITY CONTROL

Field QC samples were collected to help evaluate validity of original field sample data. Field QC samples collected included field duplicates, trip blanks, and equipment blanks. Additionally, extra sample volume was collected at select locations for laboratory MS/MSD analysis.

QC objectives specified for the RI were achieved. All analytical data were determined usable for their intended purposes.

7.10 CONTAMINATION

Environmental contamination was identified during the PA/SI, OEE, and RI. In all these assessments, contamination was detected via analyses of environmental samples, and defined as analyte concentrations exceeding regulatory benchmarks used at the time of the assessment.

Soil samples collected within the interiors of nine buildings at the GFC indicated presence of RCRA metals and/or SVOCs. Groundwater and soil samples collected from exterior borings at multiple areas of the GFC indicated presence of mostly PCBs and SVOCs. Additionally, at three former buildings, RCRA metals exceedances were noted, and a single groundwater sample collected near Building 136 F contained VOCs. Figure 13 in Appendix A presents a contamination summary of the three assessments.
8.0 REFERENCES


APPENDIX A

FIGURES
Figure 1
Facility Location Map

Source: USGS Clayton, MO 7.5 Minute Topo Quad, 1993; USGS Granite City, IL 7.5 Minute Topo Quad, 1998

Date: 6/3/2013
Down By: Nick Wasserholz
Project No: S1058.232.001

St. Louis City County

1,000 2,000
0 Feet
Figure 2
Facility Layout Map with Historical Information

Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.

Goodfellow Federal Complex
Former St. Louis Ordnance Plant
4300 Goodfellow Boulevard
St. Louis, Missouri
Legend

Matrix Type
- Soil boring sample location
- PA Preliminary assessment
- SB Soil boring
- SI Site investigation
- SS Sub-slab

Legend
- Former St. Louis Ordnance Plant
- Soil boring sample location
- Soil boring
- Site investigation
- Sub-slab

Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.
Legend

**Matrix Type**
- Soil boring sample location
- Soil boring and groundwater sample location

**Analyte Type**
- Asbestos (not included as a groundwater analyte)
- Asbestos, metals
- Asbestos, metals, SVOC
- Asbestos, SVOC, TPH, VOC
- PCB
- PCB, SVOC, TPH, VOC
- Pesticides / herbicides, SVOC, TPH, VOC
- SVOC
- Semi-volatile organic compounds
- TPH
- Total petroleum hydrocarbons
- SVOC, TPH, VOC

**Analyte Type**
- OEE Sample Location Map
- PCB, SVOC, TPH, VOC
- PCB
- PCB, pesticides / herbicides, SVOC, TPH, VOC
- TPH
- Total petroleum hydrocarbons

**Source:** SCS Engineers, Figure 2 - Site Plan, March, 2007.

**Date:** 8/16/2016

**Project No:** S1058.232.001

**Figure 4**

OEE Sample Location Map,
Goodfellow Federal Complex

GOODFELLOW BLVD

Not to Scale

Legend

Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.

Date: 8/16/2016

Project No: S1058.232.001

Figure 4

OEE Sample Location Map,
Goodfellow Federal Complex

Goodfellow Federal Complex
Former St. Louis Ordnance Plant
4300 Goodfellow Boulevard
St. Louis, Missouri
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Legend

Matrix Type
- **Direct push technology**
- **Direct push technology soil**
- **Soil boring sample location**
- **Feet below ground surface**
- **PCB Polychlorinated biphenyl**
- **RI Remedial investigation**
- **Building targeted for additional exterior sampling during the RI**

Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.
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**Legend**

**Matrix Type**

- Soil boring sample location
- SVOC

**Analyte Type**

- Direct push technology
- Direct push technology soil

**Source:** SCS Engineers, Figure 2 - Site Plan, March 2007.

---

*Sampling locations are from Occupancy Exposure Evaluation.*

**Exceedance of MRBCA Non-Res standard was for interior sample(s) only.**

**DPT** Direct push technology

**DPTS** Direct push technology soil

**D** Indicates field duplicate sample

**MRBCA** Missouri Risk-Based Corrective Action

**RI** Remedial investigation

**Composite Sample**

---

**Figure 8**

Sample Location Map, Buildings 102J and 102K

**Source:** Goodfellow Federal Complex Former St. Louis Ordnance Plant 4300 Goodfellow Boulevard St. Louis, Missouri

---

**Figure 8**

Sample Location Map, Buildings 102J and 102K

---

**Source:** SCS Engineers, Figure 2 - Site Plan, March 2007.
**Legend**

**Matrix Type**
- Soil boring sample location
- **DPT** Direct push technology
- **DPTS** Direct push technology soil
- **RI** Remedial investigation
- **SVOC** Semi-volatile organic compound
- **VOC** Volatile organic compound

**Analyte Type**
- **ft bgs** Feet below ground surface
- **Composite Sample** Indicates field duplicate sample

---

**Boring ID** | **Sample ID** | **Sample Date** | **Sample Time** | **Sample Depth (ft bgs)** | **Refusal Depth (ft bgs)**
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DPT-17 | DPTS-149 | 5/21/2016 | 16:07 | 14 - 18 | 18

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Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.

*Sampling locations are from Occupancy Exposure Evaluation.

Figure 9
Sample Location Map, Building 102 A/B/C

Godfellow Federal Complex
Former St. Louis Ordnance Plant
4300 Godfellow Boulevard
St. Louis, Missouri
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<td>5/21/2016</td>
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<td>DPT-22,</td>
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<td>5/22/2016</td>
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<td>18 - 22</td>
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<td>DPT-23,</td>
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<td>5/22/2016</td>
<td>16:45</td>
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<td>DPT-156,</td>
<td>5/22/2016</td>
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<td>DPT-157,</td>
<td>5/22/2016</td>
<td>16:50</td>
<td>24 - 28</td>
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</tbody>
</table>

**Legend**

- **Matrix Type**
  - Soil boring sample location
  - Building targeted for additional exterior sampling during the RI

- **Analyte Type**
  - PCB

- **Source:** SCS Engineers, Figure 2 - Site Plan, March, 2007.

**Reporting Standards**

- MRBCA LDTL
- MRBCA RBLT NR Soil
- MRBCA RBLT CW Soil

**Exceedance of MRBCA Non-Res standard was for interior sample(s) only**

- LDTL: MRBCA Lowest Default Target Level
- mg/kg: Milligrams per kilogram
- MRBCA: Missouri Risk-Based Corrective Action
- NR: Non-residential
- PCB: Polychlorinated biphenyl
- RI: Remedial investigation
- *: Indicates field duplicate sample
- Composite Sample

**Building targeted for additional exterior sampling during the RI**

**RI**

- CW Construction Worker
- DPT: Direct push technology
- DPTS: Direct push technology soil
- ft bgs: Feet below ground surface

**Source:** SCS Engineers, Figure 2 - Site Plan, March, 2007.
**Legend**

**Matrix Type**
- ☑ Proposed groundwater sample location
- PCB Polychlorinated biphenyl
- RCRA Resource Conservation and Recovery Act
- SVOC Semi-volatile organic compounds
- VOC Volatile organic compounds
- DPT Direct push technology

- **Analyte Type**

**Sampling locations are from Occupancy Exposure Evaluation Goodfellow Federal Complex Former St. Louis Ordnance Plant 4300 Goodfellow Boulevard St. Louis, Missouri**

**Figure 12**
Sample Location Map, Background Samples

Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.

- Date: 3/4/2016
- Project No: S1058.232.001
- X:\S\1058\232\001\FH10\081616\Figure12.FH10
Contamination Summary Map, Goodfellow Federal Complex

Resource Conservation and Recovery Act

Legend

Matrix Type
- Soil boring sample location
- Groundwater sample location
- Soil boring and groundwater sample location

Exterior Sample Analyte Type
- PCB
- PCB, SVOC
- RCRA metals
- SVOC
- VOC

Interior Building Soil Sample Analyte Exceedance Type
- RCRA metals
- RCRA metals, SVOC

Sample ID | Sample Type | Chemical Type | Analytes | Investigation
--- | --- | --- | --- | ---
SB-126 | Soil | PCBs | Arcoel 1260 | PA/SI
SB-122 | Soil | Metals | Mercury | PA/SI
105-3 | Soil | SVOCs | Benzo[a]pyrene | PA/SI
SB-126 | Groundwater | PCBs | Arcoel 1260 | PA/SI
SB-133 | Groundwater | PCBs | Arcoel 1260 | PA/SI
DPTS-2 | Soil | SVOCs | Dibenzo[a,h]anthracene | EOE
DPTS-3 | Soil | SVOCs | Benzo[a]pyrene | OEE
DPTS-9 | Soil | SVOCs | Dibenzo[a,h]anthracene | OEE
DPTS-32 | Soil | SVOCs | Benzo[a]pyrene | OEE
DPTS-39 | Soil | SVOCs | Dibenzo[a,h]anthracene | OEE
DPTS-20 | Soil | Metals | Arsenic | OEE
DPTS-21 | Soil | Metals | Arsenic | OEE
DPTS-34 | Soil | Metals | Arsenic | OEE
DPTGW-1 | Groundwater | VOCs | Trichloroethene | OEE
DPTGW-0 | Groundwater | PCBs | Total PCBs | OEE
DPTS-150* | Soil | PCBs | Arcoel 1260 | RI
DPTS-156* | Soil | PCBs | Arcoel 1260 | RI

Goodfellow Federal Center
Former St. Louis Ordnance Plant
4300 Goodfellow Boulevard
St. Louis, Missouri

Figure 13
Contamination Summary Map, Goodfellow Federal Complex

Source: SCS Engineers, Figure 2 - Site Plan, March, 2007.
APPENDIX B

TABLES
<table>
<thead>
<tr>
<th>Building</th>
<th>Historical Use</th>
<th>Current Use</th>
<th>Construction</th>
<th>Renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Administrative building for St. Louis Ordnance Plant (SLOP) Plant No. 1; Thurgood Marshall Academy (charter school)</td>
<td>Unoccupied office and classroom space</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry exterior walls, flat tar and rock roof system, full basement, partial sub-basement</td>
<td>Rehabilitation (1990s), lead abatement (2000)</td>
</tr>
<tr>
<td>102 D</td>
<td>SLOP powder packing; warehouse; Department of Defense photo processing (1st floor); office space (2nd floor)</td>
<td>Unoccupied photo laboratory (1st floor) and office space (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>Renovated (1981)</td>
</tr>
<tr>
<td>102 E</td>
<td>SLOP primer packing; warehouse; office space</td>
<td>Post office (1st floor) and unoccupied office space (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>Completely renovated (2007-2008)</td>
</tr>
<tr>
<td>Former 102 F/G/H</td>
<td>SLOP powder canning and storage, inside blast proof bunkers (F/H) or south of the production buildings (G)</td>
<td>Not applicable (N/A)</td>
<td>Removed in 1980; cast-in-place concrete barricade structure (H) surrounding two small (~400-square-foot [ft²]) wood frame buildings (F/G)</td>
<td>N/A</td>
</tr>
</tbody>
</table>
TABLE 1 (Continued)

BUILDING HISTORICAL AND CURRENT USE

<table>
<thead>
<tr>
<th>Building</th>
<th>Historical Use</th>
<th>Current Use</th>
<th>Construction</th>
<th>Renovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Former 102 J/K</td>
<td>SLOP lubricating oil storage</td>
<td>N/A</td>
<td>Removed sometime after World War II; one-story, small (~150 ft²), masonry</td>
<td>N/A</td>
</tr>
<tr>
<td>103 A/B/C</td>
<td>SLOP brass cartridge annealing and shaping, powder and primer packaging, lead core insertion, and sorting, packaging, and shipping; warehouse; office space</td>
<td>Defense Information Systems Agency (DISA) and unoccupied space (1st floor); DISA and U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, three freight elevators servicing the main floor levels, backup generator fueled by three diesel fuel underground storage tanks (UST)</td>
<td>Renovated (1995-1999), USDA-FSA (2005), DISA carpet and paint (2010), lay concrete path in crawlspace for utility workers (2010), General Services Administration (GSA)-Public Buildings Service (PBS) first floor scheduled for renovation</td>
</tr>
<tr>
<td>103 D</td>
<td>SLOP powder packing; warehouse; office space</td>
<td>Unoccupied space and public health nursing area (1st floor), DISA (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>Renovated (1981-1982); no current renovation plans</td>
</tr>
<tr>
<td>103 E</td>
<td>SLOP primer packing</td>
<td>Continuity of Operations Program (COOP), secure building</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>Renovated (1981); no current renovation plans</td>
</tr>
<tr>
<td>103 F (former 112)</td>
<td>SLOP lead core processing (melting, shaping, forming) through at least February 1957</td>
<td>Cafeteria</td>
<td>One-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, unfinished basement level</td>
<td>Renovated (2002, 2004); dining room scheduled (2011)</td>
</tr>
<tr>
<td>Former 103 F/G/H</td>
<td>SLOP powder canning and storage, inside blast proof bunkers (F/H) or south of the production buildings (G); storage</td>
<td>N/A</td>
<td>Removed in 1980; cast-in-place concrete barricade structure (H) surrounding two small (~400 ft²) wood frame buildings (F/G)</td>
<td>N/A</td>
</tr>
<tr>
<td>Building</td>
<td>Historical Use</td>
<td>Current Use</td>
<td>Construction</td>
<td>Renovation</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Former 103 J/K</td>
<td>SLOP lubricating oil storage</td>
<td>N/A</td>
<td>Removed sometime after World War II; one-story, small (~150 ft²), masonry</td>
<td>N/A</td>
</tr>
<tr>
<td>104 A/B/C/D</td>
<td>SLOP brass cartridge annealing and shaping, powder and primer packaging, lead core insertion, and sorting, packaging, and shipping; warehouse; office space</td>
<td>Archived storage (1st floor), USDA computer servers (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, four freight elevators servicing the main floor levels</td>
<td>Veterans Administration (VA) (1990), USDA-Rural Development (RD) (2002, 2006); completely renovated within last 5 years</td>
</tr>
<tr>
<td>104 E</td>
<td>SLOP powder packing; warehouse; Uncle Sam’s Kids daycare; office space</td>
<td>Veteran's Administration (VA) (1st floor), USDA Farm Service (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>USDA-FSA (1995), VA (1990, 2010); part of first floor (vacant daycare) abated and renovated for VA</td>
</tr>
<tr>
<td>104 F</td>
<td>SLOP primer packing; warehouse; office space</td>
<td>USDA Office of Chief Information Officer (OCIO) and Office of Inspector General (OIG) (1st floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>USDA-OIG (1996), OSDA-OCIO (2009); renovation scheduled for common spaces and stairwells</td>
</tr>
<tr>
<td>Former 104 G/H/J</td>
<td>SLOP powder canning and storage, inside blast proof bunkers (G/J) or south of the production buildings (H)</td>
<td>N/A</td>
<td>Removed in 1980; cast-in-place concrete barricade structure (H) surrounding two small (~400 ft²) wood frame buildings (F/G)</td>
<td>N/A</td>
</tr>
<tr>
<td>Former 104 K</td>
<td>SLOP water softener plant servicing Plant No. 1; salt storage; equipment room; general storage</td>
<td>N/A</td>
<td>Removed in 1980; Free-standing, ~2,000 ft², basement level</td>
<td>N/A</td>
</tr>
<tr>
<td>Building</td>
<td>Historical Use</td>
<td>Current Use</td>
<td>Construction</td>
<td>Renovation</td>
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</tr>
<tr>
<td>Former 104 L</td>
<td>SLOP chemical storage building servicing Plant No. 1; basement tank storage (aboveground storage tank [AST]) for acids and caustics; truck and work rooms; general storage</td>
<td>N/A</td>
<td>Removed in 1980; Free-standing, ~1,000 ft², basement level, adjacent rail spur</td>
<td>N/A</td>
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<tr>
<td>Former 104 M/N</td>
<td>SLOP lubricating oil storage</td>
<td>N/A</td>
<td>Removed sometime after World War II; one-story, small (~150 ft²), masonry</td>
<td>N/A</td>
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<tr>
<td>105 A/B/C/D</td>
<td>SLOP brass cartridge annealing and shaping, powder and primer packaging, lead core insertion, and sorting, packaging, and shipping; basement small arms firing range; warehouse; office space</td>
<td>USDA (1st and 2nd floors)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, four freight elevators servicing the main floor levels</td>
<td>USDA-RD (2002-2006), USDA-Food Safety and Inspection Service (2009-2010); completely renovated in last 5 years</td>
</tr>
<tr>
<td>105 E</td>
<td>SLOP powder packing; warehouse; office space</td>
<td>USDA and mail room (1st floor), Army Audit (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>Army Audit Agency (1996), USDA-RD (2009); no current renovation plans</td>
</tr>
<tr>
<td>105 F</td>
<td>SLOP primer packing; warehouse; kitchen/cafeteria</td>
<td>Snack shop and USDA servers (1st floor), USDA (2nd floor)</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, utility crawlspace level, one freight elevator servicing the main floor levels</td>
<td>USDA-RD and snack shop (2009); no current renovation plans</td>
</tr>
<tr>
<td>Former 105 G/H/J</td>
<td>SLOP powder canning and storage, inside blast proof bunkers (G/J) or south of the production buildings (H); general storage</td>
<td>N/A</td>
<td>Removed in 1980; cast-in-place concrete barricade structure (H) surrounding two small (~400 ft²) wood frame buildings (F/G)</td>
<td>N/A</td>
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<tr>
<td>Building</td>
<td>Historical Use</td>
<td>Current Use</td>
<td>Construction</td>
<td>Renovation</td>
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<tr>
<td>105 L</td>
<td>SLOP warehouse and kitchen for Plant No. 1; storage</td>
<td>Training classrooms; storage</td>
<td>One-story, structural steel columns, cast-in-place concrete floors, masonry walls, arched tar and rubber membrane roof system, no basement or utility crawlspace level</td>
<td>Fire destroyed warehouse on north half (1964); renovated (1970); upgraded (2010-2012)</td>
</tr>
<tr>
<td>Former 105 M/N</td>
<td>SLOP lubricating oil storage</td>
<td>N/A</td>
<td>Removed sometime after World War II; one-story, small (~150 ft²), masonry</td>
<td>N/A</td>
</tr>
<tr>
<td>106</td>
<td>Guard shack</td>
<td>Guard shack</td>
<td>One-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, more recent construction than other facility buildings, no basement or utility crawlspace level</td>
<td>No renovation records or plans</td>
</tr>
<tr>
<td>108 A</td>
<td>South electrical substation</td>
<td>South primary electrical substation, including two large oil-filled transformers on rails, electrical switchgear, and concrete secondary containment structures (crawlspace vault pits and overflow piping)</td>
<td>One-story, structural steel columns, cast-in-place concrete floor, masonry walls, flat tar and rock roof system, utility crawlspace level accessible by a series of man ways set into the main floor slab</td>
<td>Renovated (1995), transformer repaired (2001); no current renovation plans</td>
</tr>
<tr>
<td>108 B</td>
<td>North electrical substation</td>
<td>North primary electrical substation, including two large oil-filled transformers on rails, electrical switchgear, and concrete secondary containment structures (crawlspace vault pits and overflow piping)</td>
<td>One-story, structural steel columns, cast-in-place concrete floor, masonry walls, flat tar and rock roof system, utility crawlspace level accessible by a series of man ways set into the main floor slab</td>
<td>Renovated (2005); no current renovation plans</td>
</tr>
<tr>
<td>Building</td>
<td>Historical Use</td>
<td>Current Use</td>
<td>Construction</td>
<td>Renovation</td>
</tr>
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</tr>
<tr>
<td>110</td>
<td>SLOP tool and gauge shop (forge shop, production, oil extraction, oil/battery/chemical storage); warehouse; office space</td>
<td>Social Security Administration office</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, and a flat tar and rock roof system, full basement level, two freight elevators servicing all floors</td>
<td>Renovated (2010)</td>
</tr>
<tr>
<td>Former 111</td>
<td>SLOP boiler house for Plant No. 1</td>
<td>N/A</td>
<td>Removed in the 1970s; operated using natural gas</td>
<td>N/A</td>
</tr>
<tr>
<td>115</td>
<td>SLOP truck garage for Plant No. 1; former fueling area north of building</td>
<td>Fitness center</td>
<td>One-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, small basement level mechanical equipment room and utility crawlspace; fuel pump island and USTs reportedly removed and covered by asphalt</td>
<td>Renovated (1988)</td>
</tr>
<tr>
<td>122 B</td>
<td>SLOP service building for Plant No. 1; maintenance area for building and grounds crews</td>
<td>Maintenance shop for mechanical contractors</td>
<td>Two-story, structural steel columns, cast-in-place concrete floors, masonry walls, flat tar and rock roof system, small basement level mechanical equipment room and utility crawlspace (east end), open work bay area with two large overhead doors (west end)</td>
<td>No renovation records or plans</td>
</tr>
<tr>
<td>Former 136 A/B/E/F</td>
<td>SLOP fire equipment storage buildings during operation of Plant No. 1</td>
<td>N/A</td>
<td>Demolished in 1970s; free-standing, ~400 ft² each</td>
<td>N/A</td>
</tr>
<tr>
<td>Former 137 A</td>
<td>SLOP building and grounds workshop during operation of Plant No. 1</td>
<td>N/A</td>
<td>Demolished in 1970s; free-standing, ~400 ft² each</td>
<td>N/A</td>
</tr>
<tr>
<td>141 C</td>
<td>SLOP pump house and mechanical equipment for Plant No. 1</td>
<td>Pump house; mechanical equipment</td>
<td>Free-standing, ~400 ft²</td>
<td>None noted</td>
</tr>
<tr>
<td>Building</td>
<td>Sample Location</td>
<td>Sample Matrix</td>
<td>Sample ID</td>
<td>Boring ID</td>
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<td>---------------</td>
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<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-101</td>
<td>DPT-3, DPT-4, DPT-5, DPT-6</td>
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<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-102</td>
<td>DPT-3</td>
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<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-103</td>
<td>DPT-3</td>
</tr>
<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-104</td>
<td>DPT-4</td>
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<tr>
<td>107</td>
<td>Perimeter</td>
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<td>DPTS-105</td>
<td>DPT-4</td>
</tr>
<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-106</td>
<td>DPT-5</td>
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<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-107</td>
<td>DPT-5</td>
</tr>
<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-108</td>
<td>DPT-6</td>
</tr>
<tr>
<td>107</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-109</td>
<td>DPT-6</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-110</td>
<td>DPT-7</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-111</td>
<td>DPT-7</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-112</td>
<td>DPT-7</td>
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<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-113</td>
<td>DPT-7</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-114</td>
<td>DPT-8</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-115</td>
<td>DPT-8</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-116</td>
<td>DPT-9</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-117</td>
<td>DPT-9</td>
</tr>
<tr>
<td>136F</td>
<td>Upgradient; Along Patton Street</td>
<td>Soil</td>
<td>DPTS-118</td>
<td>DPT-9</td>
</tr>
<tr>
<td>102K, 102E, 102J</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-119</td>
<td>DPT-10, DPT-11, DPT-12</td>
</tr>
<tr>
<td>102K</td>
<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-120</td>
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<td>Soil</td>
<td>DPTS-121</td>
<td>DPT-10</td>
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<td>Soil</td>
<td>DPTS-122</td>
<td>DPT-11</td>
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<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-123</td>
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<tr>
<td>102J</td>
<td>Perimeter</td>
<td>Soil</td>
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<td>DPT-12</td>
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<td>DPT-12</td>
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<td>DPT-13</td>
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<td>Soil</td>
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</tr>
<tr>
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<td>Perimeter</td>
<td>Soil</td>
<td>DPTS-129</td>
<td>DPT-13</td>
</tr>
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<td>DPT-13</td>
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<td>Soil</td>
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<td>Boring ID</td>
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<td>---------------</td>
<td>-------------</td>
<td>-----------</td>
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<td>Soil</td>
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<td>DPT-14</td>
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<td>Soil</td>
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<td>DPT-16</td>
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<td>DPT-16</td>
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<td>Soil</td>
<td>DPTS-138</td>
<td>DPT-18, DPT-19, DPT-20</td>
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<td>Soil</td>
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<td>Soil</td>
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<td>Soil</td>
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<td>DPT-22</td>
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<td>Soil</td>
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<td>DPT-23</td>
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<td>Soil</td>
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<td>DPT-23</td>
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<td>Soil</td>
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<td>DPT-23</td>
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<td>108A, 111</td>
<td>Upgradient</td>
<td>Soil</td>
<td>DPTS-158</td>
<td>DPT-24, DPT-25, DPT-26, DPT-27</td>
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<tr>
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<td>Upgradient</td>
<td>Soil</td>
<td>DPTS-159</td>
<td>DPT-24</td>
</tr>
<tr>
<td>108A, 111</td>
<td>Upgradient</td>
<td>Soil</td>
<td>DPTS-160</td>
<td>DPT-24</td>
</tr>
<tr>
<td>108A, 111</td>
<td>Upgradient</td>
<td>Soil</td>
<td>DPTS-161</td>
<td>DPT-25</td>
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<tr>
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<td>Upgradient</td>
<td>Soil</td>
<td>DPTS-162</td>
<td>DPT-25</td>
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</tr>
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<td>111</td>
<td>Footprint</td>
<td>Soil</td>
<td>DPTS-167</td>
<td>DPT-27</td>
</tr>
<tr>
<td>111</td>
<td>Footprint</td>
<td>Soil</td>
<td>DPTS-168</td>
<td>DPT-27</td>
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<td>111</td>
<td>Footprint</td>
<td>Groundwater</td>
<td>DPTGW-101</td>
<td>DPT-27</td>
</tr>
</tbody>
</table>

**TABLE 2 (Continued)**

SOIL AND GROUNDWATER SAMPLE COLLECTION INFORMATION

PCBs: Polychlorinated Biphenyls
SVOCs: Semivolatile Organic Compounds
VOCs: Volatile Organic Compounds
<table>
<thead>
<tr>
<th>Building</th>
<th>Sample Location</th>
<th>Sample Matrix</th>
<th>Sample ID</th>
<th>Boring ID</th>
<th>Sample Depth (ft bgs)</th>
<th>Refusal Depth (ft bgs)</th>
<th>Requested Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>108A, 111</td>
<td>Downgradient</td>
<td>Soil</td>
<td>DPTS-169</td>
<td>DPT-28, DPT-29, DPT-30</td>
<td>0-1</td>
<td>b</td>
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</tr>
<tr>
<td>108A, 111</td>
<td>Downgradient</td>
<td>Soil</td>
<td>DPTS-170</td>
<td>DPT-28</td>
<td>4-8</td>
<td>28</td>
<td>PCBs</td>
</tr>
<tr>
<td>108A, 111</td>
<td>Downgradient</td>
<td>Soil</td>
<td>DPTS-171</td>
<td>DPT-28</td>
<td>24-28</td>
<td>28</td>
<td>PCBs</td>
</tr>
<tr>
<td>108A, 111</td>
<td>Downgradient</td>
<td>Soil</td>
<td>DPTS-172</td>
<td>DPT-29</td>
<td>4-8</td>
<td>28</td>
<td>PCBs</td>
</tr>
<tr>
<td>108A, 111</td>
<td>Downgradient</td>
<td>Soil</td>
<td>DPTS-173</td>
<td>DPT-29</td>
<td>24-28</td>
<td>28</td>
<td>PCBs</td>
</tr>
<tr>
<td>108A, 111</td>
<td>Downgradient</td>
<td>Soil</td>
<td>DPTS-174</td>
<td>DPT-30</td>
<td>4-8</td>
<td>28</td>
<td>PCBs</td>
</tr>
</tbody>
</table>

Notes:

- Indicates field duplicate sample
- Indicates composite surface soil sample collected from multiple borings

bgs Below ground surface
ID Identification
DPT Direct-push technology
DPTGW Direct-push technology groundwater sample
DPTS Direct-push technology soil sample
ft Feet
PCB Polychlorinated biphenyl
SVOC Semivolatile organic compound
VOC Volatile organic compound
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Date (ft bgs)</th>
<th>PCBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPTS-101</td>
<td>5/18/2016</td>
<td>16:38</td>
<td>0-1</td>
<td>ND ND ND ND ND ND ND ND ND</td>
</tr>
<tr>
<td>DPTS-102</td>
<td>5/18/2016</td>
<td>15:10</td>
<td>4-8</td>
<td>ND ND ND ND ND ND ND ND ND</td>
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<tr>
<td>DPTS-103</td>
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<td>13:25</td>
<td>23.5-27.5</td>
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<tr>
<td>DPTS-104</td>
<td>5/18/2016</td>
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<td>4-8</td>
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<tr>
<td>DPTS-105</td>
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<td>14:48</td>
<td>15-19</td>
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<tr>
<td>DPTS-106</td>
<td>5/18/2016</td>
<td>15:45</td>
<td>4-8</td>
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<tr>
<td>DPTS-107</td>
<td>5/18/2016</td>
<td>15:50</td>
<td>12-16</td>
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<td>DPTS-108</td>
<td>5/18/2016</td>
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<tr>
<td>DPTS-109</td>
<td>5/18/2016</td>
<td>17:05</td>
<td>9-23</td>
<td>ND ND ND ND ND ND ND ND ND</td>
</tr>
</tbody>
</table>

Notes:

1 The most conservative non-residential or construction worker MRBCA RBTL for soil was selected for comparison.

Colored highlighted value indicates exceedance of benchmark(s) associated with that/those color(s).

CW  Construction worker  
DPTS Direct-push technology soil sample  
ID  Identification  
LDTL MRBCA Lowest Default Target Level  
mg/kg Milligrams per kilogram  
MDNR Missouri Department of Natural Resources  
MRBCA MDNR Risk-based Corrective Action  
ND  Non-detectable  
NE  Not established  
NR  Non-residential  
PCB  Polychlorinated biphenyl  
RBTL MRBCA Risk-based Target Level, Soil Type 1 (Sandy)
## TABLE 4
SOIL SAMPLE RESULTS SUMMARY, BUILDING 136F

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Depth (ft bgs)</th>
<th>MRBCA LDTL</th>
<th>VOCs</th>
<th>Acetone</th>
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<tbody>
<tr>
<td>DPTS-110</td>
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<td>DPTS-111</td>
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<tr>
<td>DPTS-112</td>
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<td>23-27</td>
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<tr>
<td>DPTS-113</td>
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<td>08:40</td>
<td>23-27</td>
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<td>ND</td>
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<td>DPTS-114</td>
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<td>DPTS-118</td>
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<td>8-12</td>
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</tr>
</tbody>
</table>

**Notes:**

1. The most conservative non-residential or construction worker MRBCA RBTL for soil was selected for comparison.

Colored highlighted value indicates exceedance of benchmark(s) associated with that/those color(s).

- **CW**: Construction worker
- **DPTS**: Direct-push technology soil sample
- **ID**: Identification
- **LDTL**: MRBCA Lowest Default Target Level
- **mg/kg**: Milligrams per kilogram
- **MDNR**: Missouri Department of Natural Resources
- **MRBCA**: MDNR Risk-based Corrective Action
- **ND**: Non-detectable
- **NE**: Not established
- **NR**: Non-residential
- **RBTL**: MRBCA Risk-based Target Level, Soil Type 1 (Sandy)
- **VOC**: Volatile organic compound
## TABLE 5

### SOIL SAMPLE RESULTS SUMMARY, BUILDINGS 102 J AND 102 K

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Depth (ft bgs)</th>
<th>MRBCA LDTL</th>
<th>MRBCA RBTL</th>
<th>MRBCA RBTL - CW Soil</th>
<th>MRBCA RBTL - CW Soil</th>
<th>MRBCA RBTL - CW Soil</th>
<th>MRBCA RBTL - CW Soil</th>
<th>MRBCA RBTL - CW Soil</th>
<th>MRBCA RBTL - CW Soil</th>
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</thead>
<tbody>
<tr>
<td>DPTS-119</td>
<td>5/20/2016</td>
<td>08:45</td>
<td>4-8</td>
<td>ND</td>
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<td>ND</td>
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<td>ND</td>
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<tr>
<td>DPTS-120</td>
<td>5/19/2016</td>
<td>14:35</td>
<td>4-8</td>
<td>ND</td>
<td>0.0045 J</td>
<td>ND</td>
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<td>ND</td>
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<td>DPTS-121</td>
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<tr>
<td>DPTS-122</td>
<td>5/19/2016</td>
<td>16:30</td>
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<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
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<td>0.0047 J</td>
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<td>16-20</td>
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<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
</tbody>
</table>

Notes:

1. The most conservative non-residential or construction worker MRBCA RBTL for soil was selected for comparison.

Colored highlighted values indicate exceedance of benchmark(s) associated with that/those color(s).

- **CW**: Construction worker
- **DPTS**: Direct-push technology soil sample
- **ID**: Identification
- **J**: Analyte detected below quantitation limit
- **LDTL**: MRBCA Lowest Default Target Level
- **mg/kg**: Milligrams per kilogram
- **MDNR**: Missouri Department of Natural Resources
- **MRBCA**: MRBCA Risk-based Corrective Action
- **ND**: Non-detectable
- **NE**: Not established
- **NR**: Non-residential
- **RBTL**: MRBCA Risk-based Target Level, Soil Type 1 (Sandy)
- **VOC**: Volatile organic compound
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Depth (ft lbs)</th>
<th>MRBCA LDTL</th>
<th>MRBCA RBTL 1 NR Soil</th>
<th>MRBCA RBTL 1 CW Soil</th>
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</thead>
<tbody>
<tr>
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**TABLE 6**

SOIL SAMPLE RESULTS SUMMARY, BUILDING 102 A/B/C

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<th>SVOCs</th>
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<tr>
<td>3,4-Methylphenol</td>
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<td>Acenaphthene</td>
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<tr>
<td>Acenaphthylene</td>
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<tr>
<td>Anthracene</td>
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</tr>
<tr>
<td>Benzo(a)anthracene</td>
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</tr>
<tr>
<td>Benzo(b)fluoranthene</td>
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<tr>
<td>Benzo(k)fluoranthene</td>
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<tr>
<td>Bis(2-ethylhexyl)phthalate</td>
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<tr>
<td>Chlorinated phenols</td>
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<td>Coal tar pitch</td>
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<td>Caprolactam</td>
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**SVOCs**
### TABLE 6 (Continued)

**SOIL SAMPLE RESULTS SUMMARY, BUILDING 102 A/B/C**

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<thead>
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<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Depth (ft bgs)</th>
<th>MRBCA LDTL</th>
<th>MRBCA RBTL</th>
<th>CW Soil</th>
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<td>0.012</td>
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### Notes:
1. The most conservative non-residential or construction worker MRBCA RBTL for soil was selected for comparison.
2. Colored highlighted value indicates exceedance of benchmark(s) associated with that/those color(s).

**Abbreviations:**
- CW: Construction worker
- DPTS: Direct-push technology soil sample
- ID: Identification
- J: Analyte detected below quantitation limit
- LDTL: MRBCA Lowest Default Target Level
- MRBCA: Missouri Department of Natural Resources Risk-based Corrective Action
- NA: Not analyzed
- ND: Non-detectable
- NE: Not established
- NR: Non-residential
- RBTL: MRBCA Risk-based Target Level, Soil Type 1 (Sandy)
- SVOC: Semivolatile organic compound
- VOC: Volatile organic compound
- mg/kg: Milligrams per kilogram
### TABLE 7

**SOIL SAMPLE RESULTS SUMMARY, BUILDING 104 A/B/C/D**

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<th>Sample ID</th>
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<th>MRBCA RBTL&lt;sup&gt;1&lt;/sup&gt; NR Soil</th>
<th>MRBCA RBTL&lt;sup&gt;3&lt;/sup&gt; CW Soil</th>
<th>Aroclor 1016</th>
<th>Aroclor 1221</th>
<th>Aroclor 1232</th>
<th>Aroclor 1242</th>
<th>Aroclor 1248</th>
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</table>

Notes:

1. The most conservative non-residential or construction worker MRBCA RBTL for soil was selected for comparison.

Colored highlighted value indicates exceedance of benchmark(s) associated with that/those color(s).

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<tr>
<th>CW</th>
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<td>Direct-push technology soil sample</td>
</tr>
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<td>Identification</td>
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<td>Milligrams per kilogram</td>
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**Analytes and Results (mg/kg)**

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### TABLE 8

SOIL SAMPLE RESULTS SUMMARY, BUILDINGS 108A AND 111

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<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Depth (ft bgs)</th>
<th>Analytes and Results (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Aroclor 1016</td>
<td>Aroclor 1221</td>
<td>Aroclor 1232</td>
<td>Aroclor 1242</td>
</tr>
<tr>
<td>DPTS-158</td>
<td>5/23/2016</td>
<td>14:45</td>
<td>0-1</td>
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</tr>
<tr>
<td>DPTS-159</td>
<td>5/23/2016</td>
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<td>4-8</td>
<td>ND</td>
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<tr>
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<td>DPTS-166</td>
<td>5/23/2016</td>
<td>15:15</td>
<td>1-3</td>
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<tr>
<td>DPTS-167</td>
<td>5/23/2016</td>
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<td>DPTS-168</td>
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<td>5/23/2016</td>
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<td>17:00</td>
<td>24-28</td>
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<td>5/24/2016</td>
<td>12:15</td>
<td>4-8</td>
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</tr>
</tbody>
</table>

Notes:
1. The most conservative non-residential or construction worker MRBCA RBTL for soil was selected for comparison.

Colored highlighted value indicates exceedance of benchmark(s) associated with that/those color(s).

- CW: Construction worker
- DPTS: Direct-push technology soil sample
- ID: Identification
- LDTL: MRBCA Lowest Default Target Level
- mg/kg: Milligrams per kilogram
- MDNR: Missouri Department of Natural Resources
- MRBCA: MDNR Risk-based Corrective Action
- ND: Non-detectable
- NE: Not established
- NR: Non-residential
- PCB: Polychlorinated biphenyl
- RBTL: MRBCA Risk-based Target Level, Soil Type 1 (Sandy)
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Depth (ft bgs)</th>
<th>MRBCA LDTL</th>
<th>MRBCA RBTL&lt;sup&gt;1&lt;/sup&gt; NR Groundwater</th>
<th>MRBCA RBTL&lt;sup&gt;2&lt;/sup&gt; CW Groundwater</th>
</tr>
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<tbody>
<tr>
<td>DPTGW-101</td>
<td>5/23/2016</td>
<td>15:35</td>
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</tbody>
</table>

Notes:

1. The most conservative non-residential land use MRBCA RBTL for indoor inhalation of vapor emissions for groundwater was selected for comparison.

2. The most conservative construction worker MRBCA RBTL for outdoor inhalation of vapor emissions for groundwater was selected for comparison.

Colored highlighted value indicates exceedance of benchmark(s) associated with that/those color(s).

CW Construction worker
DPTGW Direct-push technology groundwater sample
ID Identification
LDTL MRBCA Lowest Default Target Level
mg/kg Milligrams per kilogram
MDNR Missouri Department of Natural Resources
MRBCA MDNR Risk-based Corrective Action
ND Non-detectable
NE Not established
NR Non-residential
PCB Polychlorinated biphenyl
RBTL MRBCA Risk-based Target Level, Soil Type 1 (Sandy)
APPENDIX C

BORING LOGS
### Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-3  
**Date Drilled (Start/Finish):** 5/16/16  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 27.5' BGS  
**Coordinates:** LAT: 38.69934 LON: -90.269134  
**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSELL  
**Weather:** 70°F, SUNNY  

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Soil Rev.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT100</td>
<td>100%</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>TOPSOIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LIGHT BROWN CLAY, LOW MOISTURE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT102</td>
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<td>0</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>SOFT, LIGHT BROWN CLAY, LOW MOISTURE</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>SOFT, LIGHT BROWN CLAY, LOW MOISTURE</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>LIGHT BROWN CLAY, LOW MOISTURE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LIGHT BROWN CLAY, LOW MOISTURE</td>
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</tr>
<tr>
<td>DPT103</td>
<td>100%</td>
<td>0</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td>LIGHT BROWN CLAY, LOW MOISTURE</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>LIGHT BROWN CLAY, LOW MOISTURE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DARK BROWN CLAY, LOW MOISTURE</td>
</tr>
</tbody>
</table>
# Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-4  
**Date Drilled (Start/Finish):** 5-18-16  
**Drilling Method:** GEOFROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:** Total Depth: 19' BGS  
**Coordinates:** LAT: 38.16931429  
**Depth to Water:** NA  
**Project Number:** 105G1058231  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 70°F, SUNNY

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Rev.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT-105</td>
<td>5%</td>
<td>0</td>
<td>4</td>
<td></td>
<td>Topsoil/Clay mixture</td>
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<td></td>
<td>Slightly Saturated</td>
</tr>
<tr>
<td>DPT-105</td>
<td>10%</td>
<td>0</td>
<td>8</td>
<td></td>
<td>Light Brown Clay</td>
<td></td>
<td></td>
<td>Moderately Saturated</td>
</tr>
<tr>
<td>DPT-105</td>
<td>10%</td>
<td>0</td>
<td>12</td>
<td></td>
<td>Light Brown Clay</td>
<td></td>
<td></td>
<td>Moderately Saturated</td>
</tr>
<tr>
<td>DPT-105</td>
<td>10%</td>
<td>0</td>
<td>16</td>
<td></td>
<td>Light-Medium Brown Clay</td>
<td></td>
<td></td>
<td>Slightly Saturated</td>
</tr>
<tr>
<td>DPT-105</td>
<td>10%</td>
<td>0</td>
<td>20</td>
<td></td>
<td>Red &amp; Gray Clay</td>
<td></td>
<td></td>
<td>Low Moisture</td>
</tr>
<tr>
<td>DPT-105</td>
<td>10%</td>
<td>0</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT-105</td>
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<td>0</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>DPT-105</td>
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<td>30</td>
<td></td>
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<td></td>
<td></td>
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<td>Interval</td>
<td>Soil Recovery</td>
<td>PID Reading (ppm)</td>
<td>Depth (Feet)</td>
<td>Color (Munsell or Rock)</td>
<td>Lithology</td>
<td>Graphic Log</td>
<td>Description and Remarks</td>
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<tr>
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<td>------------------------</td>
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</tr>
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</tr>
<tr>
<td>DPT5-105</td>
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</tr>
<tr>
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<td></td>
<td>16</td>
<td>RED-GRAY CLAY, LOW MOISTURE</td>
<td></td>
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</tr>
<tr>
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<td></td>
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<td>DARK BROWN CLAY, LOW MOISTURE</td>
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</table>
**Boring Log Form**

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-U

**Date Drilled (Start/Finish):** 5-18-110

**Drilling Method:** GEOPROBE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:** Total Depth: 23' BGS

**Coordinates:** LAT: 38.693305  
**LONG: -90.230832

**Depth to Water:** NA  
**Geologist:** CHRISTIN KUSSLER  
**Weather:** 70° F, SUNNY

<table>
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<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recovery</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
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<tbody>
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<td>MEDIUM BROWN CLAY</td>
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<tr>
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<td>MEDIUM BROWN CLAY</td>
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</tr>
<tr>
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<td>LOW MOISTURE</td>
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<tr>
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<td>MEDIUM BROWN CLAY</td>
<td>LOW MOISTURE</td>
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</table>

**Description and Remarks**
- ASPHALT / CONCRETE
- MEDIUM BROWN CLAY
- LOW MOISTURE

---

**Project Number:** 103-0104231
## Boring Log Form

**Site Name:** Goodfellow  
**Boring Number:** DPT-7

**Date Drilled (Start/Finish):** 5-19-16  
**Drilling Method:** Geoprobe DPT  
**Drilling Company:** Plains Environmental

**Elevation:**  
**Total Depth:** 27' BGS

**Coordinates:**  
**Lon.:** -90.266705

**Depth to Water:** NA  
**Geologist:** Christin Russell  
**Weather:** 60°F, Sunny

### Sample Interval

<table>
<thead>
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<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recv.</th>
<th>PID Reading (ppm)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<tbody>
<tr>
<td>DEPT-116</td>
<td>100'</td>
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<td>MEDIUM BROWN CLAY</td>
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<td>TOPSOIL / SAND</td>
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<td>MEDIUM BROWN CLAY SLIGHTLY SATURATED</td>
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<td>LOW MOISTURE</td>
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<td>0</td>
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<td>30</td>
<td>LOW MOISTURE</td>
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</table>
# Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-8  
**Date Drilled (Start/Finish):** 5-19-16  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 12' BGS  
**Coordinates:** LAT: 38.693494  
**LOM: -90.264815  
**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 60° F, SUNNY  
**Project Number:** 10361058231  

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Soil Recovery</th>
<th>PID Reading (ppm)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
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<tr>
<td>DPTS-1.5</td>
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<td>RED-BROWN CLAY</td>
<td>LOW MOISTURE</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td>LIGHT-MEDIUM BROWN CLAY</td>
<td>LOW MOISTURE</td>
<td></td>
</tr>
<tr>
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<td></td>
<td>MEDIUM BROWN CLAY</td>
<td>LOW MOISTURE</td>
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</tbody>
</table>
**Boring Log Form**

- **Site Name:** GSA GOODFELLOW  
  **Boring Number:** DPT-9
- **Date Drilled (Start/Finish):** 5-19-16
- **Drilling Method:** GEOPROBE DPT
- **Drilling Company:** PLAINS ENVIRONMENTAL
- **Elevation:** Total Depth: 12' BGS
- **Coordinates:** LAT: 38.19344 LON: -90.20713
- **Depth to Water:** NA
- **Geologist:** CHRISTIN RUSSELL
- **Weather:**

<table>
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<th>Interval</th>
<th>Soil Rec.</th>
<th>PID Reading</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT-112</td>
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<td>TOPSOIL</td>
<td>MEDIUM BROWN CLAY</td>
<td>LOW MOISTURE</td>
<td></td>
</tr>
<tr>
<td>DPT-117</td>
<td>0 100'-7'</td>
<td>0</td>
<td>8</td>
<td>MEDIUM BROWN CLAY</td>
<td>LOW MOISTURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT-118</td>
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## Boring Log Form

**Site Name:** GOODFELLOW  
**Boring Number:** DPT-10  
**Date Drilled (Start/Finish):** 5-19-16  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 12' BGS  
**Coordinates:**  
**LAT:** 38.1092°  
**LON:** -90.2670°  
**Depth to Water:** NA  
**Geologist:** CHESTIN RUSSELL  
**Project Number:** 1575  
**Weather:** 70°F, SUNNY

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<th>Interval</th>
<th>Soil Recov.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
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**Sample Table:**

- **Depth to Water:** NA  
- **Geologist:** CHESTIN RUSSELL  
- **Project Number:** 1575  
- **Weather:** 70°F, SUNNY

### Description and Remarks:

- **TOPSOIL**
  - MEDIUM BROWN CLAY
  - LOW MOISTURE
  - SAND

- **SAND**
  - MEDIUM BROWN CLAY, LOW MOISTURE

- **LIGHT, MEDIUM, + DARK BROWN CLAY**
  - LOW MOISTURE
**Boring Log Form**

**Site Name:** CSHA (GOODFELLOW)  
**Boring Number:** DPT-11

**Date Drilled (Start/Finish):** 5-19-11

**Drilling Method:** GEOPROBE OPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**  
**Total Depth:** 36' BGS

**Coordinates:**  
**LAT:** 38.692414  
**LON:** -90.267344

**Depth to Water:** NP

**Geologist:** CRISTIN RUSSELL

**Weather:** 65°F, Sunny

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**Boring Log Form**

**Site Name:** GSA GOODFELLOW  **Boring Number:** DPT-12

**Date Drilled (Start/Finish):** 5-20-16

**Drilling Method:** GEOPROBE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**
**Total Depth:** 20', BGS

**Coordinates:**
LAT: 38.092515  LON: -90.26764

**Depth to Water:** NA

**Project Number:** 103G105B23.1

**Geologist:** CHRISTIN RUSSELL

**Weather:** 55°F, CLOUDY
# Boring Log Form

**Site Name:** GSA (GOOD FELLOW)  
**Boring Number:** DPT-13  
**Date Drilled (Start/Finish):** 5-20-16  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 14' BGS  
**Coordinates:** LAT: 38.693916, LON: -90.266980  
**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 60 °F, CLOUDY  

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<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
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## Boring Log Form

### Site Name: GSA (GOODFELLOW) Boring Number: DPT-14

**Date Drilled (Start/Finish):** 5-20-16

**Drilling Method:** GEOPROBE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**

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**Total Depth:** 160' BGS

**Coordinates:**

**Depth to Water:** NA

**Geologist:** CHRISTIN RUSSELL

**Weather:** 60° F, CLOUDY

### Sample Interval

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<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
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# Boring Log Form

**Site Name:** GSA (GOODFELLOW)  
**Boring Number:** DPT-16  
**Date Drilled (Start/Finish):** 5-20-11  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 29’ BGS  
**Coordinates:** LAT: 38.083432 LON: -90.262545  
**Depth to Water:** NA  
**Geologist:** ADAM WATKINS  
**Weather:** 71°F, PARTLY CLOUDY  

**Project Number:** 103 [105823]  

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# Boring Log Form

**Site Name:** GS A GOODFELLOW  
**Boring Number:** DPT-11

**Date Drilled (Start/Finish):** 5-20-11

**Drilling Method:** GEOPROBE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**  
**Total Depth:** 14' BGS

**Coordinates:**  
**LAT:** 38.169796  
**LON:** -90.244274

**Depth to Water:** NA

**Project Number:** 103411058231

**Geologist:** ADAM WATKINS

**Weather:** 72°F, PARTLY CLOUDY

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</table>
# Boring Log Form

**Site Name:** GSA (GOODFELLOW)  
**Boring Number:** DPT-17  
**Date Drilled (Start/Finish):** 5-21-16  
**Drilling Company:** GEOPROBE DPT  
**Elevation:**  
**Total Depth:** 15' BGS  
**Coordinates:** Lot: 38.1092121, Lon: -90.266617  
**Depth to Water:** NA  
**Project Number:** 10341058231  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 71° F, Sunny

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recl</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<tbody>
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<td>TOPSOIL</td>
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<tr>
<td>DPT-14F</td>
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<td>BOY</td>
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<td>LOW MOISTURE</td>
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<td>LOW MOISTURE</td>
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<tr>
<td>DPT-14F</td>
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## Boring Log Form

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<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recv.</th>
<th>PID Reading (ppm)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<tbody>
<tr>
<td>DPT-19</td>
<td>40 Y.</td>
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<td>TOPSOIL / GRAVEL</td>
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<td>SEMI - HARD</td>
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<tr>
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<tr>
<td></td>
<td>100 Y.</td>
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<td>SLIGHTLY SATURATED HARD</td>
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**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-19  
**Date Drilled (Start/Finish):** 5-21-10  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLANS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 28.1 BGS  
** Coordinates:** LAT: 38.699420 LON: -90.245851  
**Depth to Water:** N/A  
**Geologist:** CHRISTIN KUSSELL  
**Weather:** 64° F, PARTLY CLOUDY  
**Project Number:** 103 G1058231
### Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-19  
**Date Drilled (Start/Finish):** 5-21-19  
**Drilling Method:** GEOPHORE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 24' BGS  
**Coordinates:** LAT: 38.091427  
**LOM: -90.265332**  
**Depth to Water:** NA  
**Project Number:** 10291059231  
**Geologist:** ADAM WATKINS  
**Weather:** 72° F, SUNNY

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Type</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<td>DPT-141</td>
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<td></td>
<td><strong>FILL MATERIAL-GRavel/SAND</strong></td>
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<td>DPT-141</td>
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<td></td>
<td><strong>BROWN CLAY, SLIGHTLY SATURATED, FIRM</strong></td>
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<tr>
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<td>DPT-141</td>
<td>Galiano</td>
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<td></td>
<td><strong>BROWN CLAY WITH RED/GRAY TRACES SATURATED SOFT</strong></td>
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<td>32-36</td>
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<td></td>
<td><strong>BROWN CLAY, LOW MOISTURE HARD</strong></td>
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<tr>
<td>36-40</td>
<td>DPT-141</td>
<td>Galiano</td>
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<td><strong>BROWN CLAY, LOW MOISTURE, SEMI-SOFT</strong></td>
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<td>44-48</td>
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<td>Galiano</td>
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<td><strong>BROWN CLAY, LOW MOISTURE HARD</strong></td>
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# Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-20

**Date Drilled (Start/Finish):** 5-21-16

**Drilling Method:** GTEPLOGRE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**   
**Total Depth:** 14' BGS

**Coordinates:**  
**LAT:** 38.1042493  
**LON:** -96.241847

**Depth to Water:** NA

**Geologist:** BOB M. WATKINS

**Weather:** 75°F, SUNNY

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recv.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10'-14'</td>
<td></td>
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<td></td>
<td>4</td>
<td>5'</td>
<td></td>
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<td><strong>TOPSOIL &amp; FILL MATERIAL</strong></td>
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<td>20'-14'</td>
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<td></td>
<td>8</td>
<td>10'</td>
<td></td>
<td></td>
<td><strong>LIGHT BROWN CLAY</strong></td>
</tr>
<tr>
<td>20'-14'</td>
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<td></td>
<td></td>
<td>12</td>
<td>95'</td>
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<td><strong>BROWN CLAY</strong></td>
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<tr>
<td>20'-14'</td>
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<td></td>
<td></td>
<td>16</td>
<td>100'</td>
<td></td>
<td></td>
<td><strong>BROWN CLAY</strong></td>
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</table>

**Project Number:** 1034105923
### Boring Log Form

**Site Name:** GISAI GOODFELLOW  
**Boring Number:** DPT-21

**Date Drilled (Start/Finish):** 5-22-16

**Drilling Method:** GEOPROBE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**  
**Total Depth:**

**Coordinates:** LAT: 35.34739  
**Lon:** -90.249293

**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL

**Project Number:** 103 G104231  
**Weather:** 70°F, SUNNY

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recv.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT-150</td>
<td>51.0</td>
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<td></td>
<td></td>
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<td>FILL MATERIAL MIXED WITH TOPSOIL</td>
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</table>
| DPT-151         | 51.0     | 0          | 8                 |              |                         |           |             | MEDIUM BROWN CLAY MIXED WITH SAND  
|                 |          |             |                   |              | LOW MOISTURE             |           |             | MEDIUM BROWN CLAY  
|                 |          |             |                   |              | LOW MOISTURE             |           |             | MEDIUM BROWN CLAY MIXED W/ GRAVEL/FILL MATERIAL  
|                 |          |             |                   |              | LOW MOISTURE             |           |             | MEDIUM BROWN CLAY  
|                 | 100.0    | 0          | 12                |              |                         |           |             | LOW MOISTURE |
|                 | 50.0     | 0          | 16                |              |                         |           |             | MEDIUM BROWN CLAY  
|                 | 100.0    | 0          | 20                |              |                         |           |             | LOW MOISTURE |
|                 |          |             |                   |              |                         |           |             | MEDIUM BROWN CLAY  
|                 |          |             |                   |              | LOW MOISTURE             |           |             | LOW MOISTURE |
# Boring Log Form

**Site Name:** C-SA GOODFELLOW  
**Boring Number:** DPT-22  
**Date Drilled (Start/Finish):** 5-22-11  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 22' BGS  
**Coordinates:** LAT: 38.61142  
**LONG: -96.714855**  
**Depth to Water:** NA  
**Project Number:** 10361058231  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 70°F, SUNNY

## Sample Interval

<table>
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<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Rec.</th>
<th>PID Reading (ppm)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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</thead>
<tbody>
<tr>
<td>DPT-150</td>
<td>150'</td>
<td>50'</td>
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<td></td>
<td></td>
<td>TOPSOIL W/ GRAVEL</td>
</tr>
<tr>
<td></td>
<td>50'</td>
<td>100'</td>
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<td>MEDIUM BROWN CLAY/ GRAVEL</td>
</tr>
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<td>100'</td>
<td>100'</td>
<td>0</td>
<td></td>
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<td>LOW MOISTURE</td>
</tr>
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<td>MEDIUM BROWN CLAY/ GRAVEL</td>
</tr>
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<td></td>
<td>100'</td>
<td>100'</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>LOW MOISTURE</td>
</tr>
<tr>
<td></td>
<td>100'</td>
<td>100'</td>
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<td>MEDIUM BROWN CLAY</td>
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<td>LOW MOISTURE</td>
</tr>
<tr>
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<td>MEDIUM BROWN CLAY</td>
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<td>LOW MOISTURE</td>
</tr>
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<td>100'</td>
<td>100'</td>
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<td>MEDIUM BROWN CLAY</td>
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<td>100'</td>
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<td></td>
<td></td>
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<td>LOW MOISTURE</td>
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# Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-23  
**Date Drilled (Start/Finish):** 5-22-10  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLANS ENVIRONMENTAL  
**Coordinates:** LAT: 38.69142  LON: -90.264858  
**Depth to Water:** NA  
**Project Number:** 103G1059231  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 75° F, SUNNY

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Recov.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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</thead>
<tbody>
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<td>0-38'</td>
<td>0-3'</td>
<td>30%</td>
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<td>TOPSOIL / GRAVEL / MEDIUM BROWN CLAY / LOW MOISTURE</td>
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<tr>
<td>38'-155'</td>
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<td>5%</td>
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<td>GRAVEL / LIGHT BROWNCLAY / GRAY CLAY / LS MOIST</td>
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<td>155'-198'</td>
<td>24'</td>
<td>80%</td>
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<tr>
<td>198'-252'</td>
<td>24'</td>
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<td>MEDIUM GRAY CLAY / LIGHT BROWN CLAY MODERATELY SATURATED</td>
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<td>LIGHT - MEDIUM BROWN CLAY / LOW MOISTURE</td>
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<tr>
<td>283'-300'</td>
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<td>MEDIUM BROWN CLAY / LOW MOISTURE</td>
</tr>
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### Boring Log Form

**Site Name:** MSA GOODFELLOW  
**Boring Number:** DPT-24  
**Date Drilled (Start/Finish):** 5-23-16  
**Drilling Method:** GEOPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:** Total Depth: 32' BGS  
**Coordinates:** LAT: 38.492416  
**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL  
**Project Number:** 103G10582831  
**Weather:** 70°F SUNNY

<table>
<thead>
<tr>
<th>Sample</th>
<th>Interval</th>
<th>Soil Recv.</th>
<th>PID Reading (ppm)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<tbody>
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<td>MEDIUM BROWN CLAY LOW MOISTURE</td>
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<td>MEDIUM BROWN CLAY LOW MOISTURE</td>
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## Boring Log Form

**Site Name:** GSA (GOODFELLOW)  
**Boring Number:** DPT-25  
**Date Drilled (Start/Finish):** 5-23-11  
**Drilling Method:** CROPROBE DPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 27' BGS  
**Coordinates:** LAT: 38.089043  LON: -90.267397  
**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL  
**Project Number:** 15391059231  
**Weather:** 70°F, SUNNY  

<table>
<thead>
<tr>
<th>Sample Interval</th>
<th>Interval</th>
<th>Soil Rez.</th>
<th>PID Reading (ppm)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<td>TOPSOIL</td>
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<td>10-0-7</td>
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<td>LOW MOISTURE</td>
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<td>10-0-7</td>
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</table>
## Boring Log Form

**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-26

**Date Drilled (Start/Finish):** 5-23-16

**Drilling Method:** GEOPROBE DPT

**Drilling Company:** PLAINS ENVIRONMENTAL

**Elevation:**  
**Total Depth:** 24' B.G.S.

**Coordinates:** LAT: 38.689190  
**LONG:** -90.217154

**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL

**Project Number:** 103G1058231  
**Weather:** 75°F, SUNNY

<table>
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<tr>
<th>Sample</th>
<th>Interval</th>
<th>Soil Recovery</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<tbody>
<tr>
<td>DPT1</td>
<td>1'6</td>
<td>9D7.</td>
<td>0</td>
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</tr>
<tr>
<td>DPT1-1'6.4</td>
<td>9D7.</td>
<td>0</td>
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<td>8</td>
<td>LIGHT GRAY CLAY</td>
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<td>GRAY/ MEDIUM BROWN CLAY</td>
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<tr>
<td>DPT1-1'6.4</td>
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<td>Sample</td>
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<td>PID Reading (ppm)</td>
<td>Depth (Feet)</td>
<td>Color (Munsell or Rock)</td>
<td>Lithology</td>
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<td>Description and Remarks</td>
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<td>FILL / MEDIUM BROWN CLAY LOW MOISTURE</td>
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**Site Name:** GSA GOODFELLOW  
**Boring Number:** DPT-27  
**Date Drilled (Start/Finish):** 5-23-16  
**Drilling Method:** GEEPORE OPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:** Total Depth: 18' BGS  
**Coordinates:** Lat: 38.68910 Long: -90.2668917  
**Depth to Water:** 11.75' BGS  
**Geologist:** CHRISTIN RUSSELL  
**Weather:** 75°F, sunny  
**Project Number:** 102G1058231
### Boring Log Form

**Site Name:** CISA GOODELL | **Boring Number:** DPT-28

**Date Drilled (Start/Finish):** 5-23-11

**Drilling Method:** PLAINS ENVIRONMENTAL

**Drilling Company:** GEOPROBE DPT

**Elevation:**

**Total Depth:** 28' BGS

**Coordinates:**

**Lat:** 38.628946 **Lon:** -90.226504

**Depth to Water:** NA

**Project Number:** 103G1058231

**Geologist:** CHRISTIN RUSSELL

**Weather:** 75° F SUNNY

<table>
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<tr>
<th>Sample Interval</th>
<th>Interval (FT)</th>
<th>Soil Recv.</th>
<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
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### Boring Log Form

**Site Name:** CSA GOODFELLOW  
**Boring Number:** DPT-29  
**Date Drilled (Start/Finish):** 5-24-16  
**Drilling Method:** GEOPROBE OPT  
**Drilling Company:** PLAINS ENVIRONMENTAL  
**Elevation:**  
**Total Depth:** 28' BGS  
**Coordinates:** LAT: 39.68711, LON: -90.261501  
**Depth to Water:** NA  
**Geologist:** CHRISTIN RUSSELL  
**Project Number:** 10361058231  
**Weather:** 72°F, CLOUDY  

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<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
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**Boring Log Form**

**Site Name:** GSA GOOD FELLOW  
**Boring Number:** DPT-30  
**Date Drilled (Start/Finish):** 5-24-16  
**Drilling Method:** GEOPROBE DOT  
**Drilling Company:** Plains Environmental  
**Elevation:**  
**Total Depth:** 28' FGI  
**Coordinates:** LAT: 38.88718  
**LONG: -90.204925  
**Depth to Water:** 26.59' FGI  
**Geologist:** CHRISTIN RUSSELL  
**Project Number:** 10SG108823  
**Weather:** 72°F, PARTLY CLOUDY

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<th>PID Reading (ppm)</th>
<th>Depth (Feet)</th>
<th>Color (Munsell or Rock)</th>
<th>Lithology</th>
<th>Graphic Log</th>
<th>Description and Remarks</th>
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<td>LIGHT GRAY CLAY</td>
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</tr>
</tbody>
</table>
| 4    | TetraTech PM: Adam Watkins  
415 Oak St.  
816-412-1284 |
|      | GSA PM: Kevin Phillips  
kevin.phillips@gsa.gov  
816-806-1684 (cell) |
|      | Drillers: Plains Environmental  
Henry 785-822-5424 |

Name

Address

Phone

Project  GSA Goodfellow RI
Monday, May 16, 2016

1330 Arrive on site. Team members have meeting with GSA representative Kevin Phillips, and receive badges.

1430 Baxter Peterson Utility Locate arrives on site, and begins utility locating activities. Watkins conducts safety meeting. Topics include general slips, trips, and falls, as well as lightning caution.

1800 End field activities. Depart site.

GSA RI Sampling Event
Tuesday, May 17, 2016

0700 Arrive on site. Watkins conducts safety meeting. Topics include general slips, trips, and falls, as well as lightning caution.

0730 Baxter Peterson begins utility locate activities. Henry departs site.

1230 Depart site for lunch.

1315 Arrive on site. Continue utility locate activities.

1630 Finish utility locate.

Depart site and travel to Pine Environmental to pick up water level indicator.

S-16-16
C. Russell

S-17-16
C. Russell
**GISA RI Sampling Event**

**Wednesday, May 18, 2016**

**0715** Arrive on site. Watering conducts safety meeting.
Topics include sun protection, traffic, and geoprobe operations.
Set up sampling supplies in building 122B.

**0830** Arrive at DPT-2, lat: 38.693625°
Lon: -90.267705°. Refusal at 22 ft bgs, no groundwater encountered.
Left geoprobe rods in place.
Depart DPT-1.

**0940** Arrive at DPT-2, lat: 38.691247°

**1010** Depart site. Travel to Pine environmental to swap out water level indicator, and pick up PID.

**1140** Arrive on site

**1145** Arrive at DPT-1. No groundwater encountered. Abandoned hole.

**1204** Arrive at DPT-2. No groundwater encountered. Abandoned hole.
Will consult with client about relocating background location.

**1220** Arrive at DPT-3.
Lat: 38.693834° Lon: -90.267134°

**1240** Collect Sample DPTS-101, 0 ft bgs light to dark brown clay.

**1320** Collect Sample DPTS-102, 4 ft bgs.

**1325** Collect Sample DPTS-103, 23 ft bgs.

**1355** Arrive at DPT-4
Lat: 38.693629° Lon: -90.267225°
Collect Sample DPTS-101, 0 ft bgs.

**1440** Collect Sample DPTS-104, 4 ft bgs.

**1648** Collect Sample DPTS-105, 15 ft bgs.

**1700** Arrive at DPT-5
Lat: 38.693127°

**1745** Collect Sample DPTS-106, 4 ft bgs.
GSA-R1 Sampling Event

Wednesday, May 18, 2016

1550 Collect Sample DPTS-107, 12-16 ft bgs
No refusal at 16 ft bgs
No groundwater encountered

1610 Arrive at DPT-6

1630 Collect Sample DPTS-108, 4-8 ft bgs

1700 Collect Sample DPTS-109, 19-23 ft bgs
No refusal at 23 ft bgs

1800 Depart site

---

GSA-R1 Sampling Event

Thursday, May 19, 2016

0700 Arrive on site, Watkins conducts safety meeting. Topics include sun protection, local traffic, and geophysical activities.

0730 Arrive at DPT-3
Calibrate PID with isobutyl to 100 ppm

0750 Collect sample DPTS-110, 0-1 ft bgs
Lat: 38.643706 Lon: -90.266872

0825 Collect sample DPTS-111, 4-8 ft bgs

0835 Collect sample DPTS-112, 23-27 ft bgs

0840 Collect sample DPTS-113, 23-27 ft bgs

0850 Collect sample DPTS-114, 4-8 ft bgs
Lat: 38.643994 Lon: -90.266610

0950 Collect sample DPTS-115, 8-12 ft bgs
GISAR1 Sampling Event
Thursday, May 19, 2016

1000 Henry departs site to replenish field supplies

1050 Henry arrives on site

1115 Arrive at DPT-9

Lat: 38.693834 Long: -90.267041

Due to low recovery of soil and shallow refusal, DPT-9 was relocated south by 15 ft. New location is at Lat: 38.693044 Long: -90.267133

1200 Collected sample at DPT - 118, 0-1 ft bgs

1215 Collected sample DPTs - 117, 4-8 ft bgs

1225 Collected sample DPTs - 118, 8-12 ft bgs

Refusal at 12 ft bgs, bedrock
No groundwater encountered

Note: No groundwater encountered at DPT-7 & DPT-8

1340 Depart site for lunch

1410 Arrive on site.
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700</td>
<td>Arrive on site. Watkins conducts safety meeting. Topics include rain gear, traffic, geophone activities, slips, trips, and falls. Calibration of PID to 100 ppm isobutylene.</td>
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<tr>
<td>0730</td>
<td>Collect composite sample DPTS-119, 0-1 ft bags.</td>
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<tr>
<td>0740</td>
<td>Collect DPTS-124, 4-8 ft bags.</td>
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<tr>
<td>0740</td>
<td>Collect DPTS-125, 4-8 ft bags.</td>
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<tr>
<td>0800</td>
<td>Collect sample DPTS-126, 10-20 ft bags. Refusal at 20 ft bags. No groundwater encountered.</td>
<td></td>
</tr>
<tr>
<td>0840</td>
<td>Collect sample DPTS-127, 0-1 ft bags.</td>
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</tr>
<tr>
<td>0845</td>
<td>Prepare composite sample DPTS-119, 0-1 ft bags.</td>
<td></td>
</tr>
<tr>
<td>0910</td>
<td>Collect sample DPTS-129, 4-8 ft bags.</td>
<td></td>
</tr>
<tr>
<td>0910</td>
<td>Collect sample DPTS-130, 10-14 ft bags. Refusal at 10-14 ft bags. No groundwater encountered.</td>
<td></td>
</tr>
<tr>
<td>0925</td>
<td>Arrive at DPT-14.</td>
<td></td>
</tr>
<tr>
<td>0930</td>
<td>Henry received badge. Lat: 38.693724 Lon: -90.26252.</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>Collect composite DPTS-128, 0-1 ft bags.</td>
<td></td>
</tr>
<tr>
<td>1035</td>
<td>Collect sample DPTS-131, 4-8 ft bags.</td>
<td></td>
</tr>
<tr>
<td>1035</td>
<td>Collect sample DPTS-132, 12-14 ft bags. Refusal at 14 ft bags. No groundwater encountered.</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Watkins &amp; Russell depart site for lunch. Russell departs St. Louis.</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Collect DPTS-133, 0-1 ft bags.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Collect composite DPTS-128, 0-1 ft bags.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Watkins in the rain.
GSA RI SAMPLING

EVENT

5-20-2016

1430 COLLECT DPTS-134. 4'-8' BGS
1440 COLLECT DPTS-135. 20'-24' BGS
1510 ARRIVE AT DPT-16.

LAT: 38.692396. LONG: -90.266296.

1526 COLLECT COMPOSITE DPTS-128. 0'-1' BGS

NO GROUNDWATER ENCOUNTERED.

REFUSAL AT 14 BGS.

1600 COLLECT DPTS-136. 4'-8' BGS.

1615 COLLECT DPTS-137. 10'-14' BGS.

1640 FINISHED W/ GEOPROBE ACTIVITIES FOR

THE DAY. PLAIN ENVIRONMENTAL DRILLER

DEPARTS SITE. WATKINS MOVES TO THE

SITE STAGING AREA (BUILD 122). TO PROCESS

SOIL SAMPLES.

1740 WATKINS DEPARTS SITE.

GSA RI SAMPLING

EVENT

5-21-2016

0750 WATKINS ARRIVES ONSITE & PREP

TO BEGIN GEOPROBE ACTIVITIES IN

THE AREA AROUND BUILDING 169.

WATKINS CALIBRATES THE PID TO

100 ppm ISOBUttyL.

0830 CHARITY ENGEMANN (IT) ARRIVES ONSITE

WATKINS CONDUCTS THE MORNING

SAFETY TAILGATE MEETING. TOPICS

INCLUDE PRE AROUND THE GEOPROBE &

SLIPS, TRIPS, & FALLS.

0850 WATKINS, ENGEMANN, & HENRY (PLAIN)

ARRIVE AT DPT-18. LAT: 38.690920.

LONG: -90.265551. NO GW ENCOUNTERED.

0930 COLLECT COMPOSITE DPTS-138. 0'-1'

1110* COLLECT DPTS-139. 4'-8' BGS

1120 COLLECT DPTS-140. 24'-28' BGS

1130 MOVE TO DPT-19. LAT: 38.691423.

LONG: -90.265392.

1145 COLLECT COMPOSITE DPTS-138. 0'-1' BGS

1210 COLLECT DPTS-141. 4'-8' BGS

1210 COLLECT DPTS-142. 4'-4' BGS

1230 COLLECT DPTS-143. 20'-24' BGS

NO GW ENCOUNTERED.

1300 DEPART SITE FOR LUNCH.
GSA RI Sampling Event

R. T."14 May 21, 2011"  
To field office to prep samples.

17:30 Depart site

5-21-11
C. Russell

arrive onsite at DPT-20.
Lat: 38.692093  Lon: -90.244847.
Collect composite DPTS-138, 0-1' BGS.
15:30
Collect DPTS-144, 4-8' BGS.
15:00
Collect DPTS-145, 12-16' BGS.
Refusal at 16' BGS. No GW encountered.
Russell onsite.
15:30
Arrive at DPT-17.
Lat: 38.692121  Lon: -90.246617
15:35
Collect sample DPTS-146, 0-1' ft bgs.
15:40
Collect composite sample DPTS-128, 0-1' ft bgs. Prepare composite sample DPTS-128.
16:00
Collect sample DPTS-147, 4-8' ft bgs.
16:07
Collect sample DPTS-148, 14-18' ft bgs.
16:07
Collect sample DPTS-149, 14-18' ft bgs.
Refusal at 18' ft bgs. No groundwater encountered.
16:30
Henry departs site.
Watkins and Russell return.
GSA RI Sampling Event

Sunday, May 22, 2016

1000 Arrive on site. Watkins conducts safety meeting. Topics include sun protection and Geoprobe activities. Watkins calibrates PID to 100 ppm Isobutylene.

1025 Arrive at DPT-21.
Lat: 38.691779 Lon: -90.269273

1120 Collect sample for composite DPTS-150, 0-1 ft bgs.

1225 Collect sample DPTS-151, 9-18 ft bgs.

1230 Collect sample DPTS-152, 15-19 ft bgs.
Refusal at 19 ft bgs.
No groundwater encountered.

1300 Depart site for lunch.

1330 Arrive at DPT-22.
Lat: 38.691142 Lon: -90.269058

1400 Collect sample for composite DPTS-150, 0-1 ft bgs.

1435 Collect sample DPTS-153, 4-8 ft bgs.

1445 Collect sample DPTS-154,

GSA RI Sampling Event

Sunday, May 22, 2016
18-22 Refusal at 48 ft bgs.

1500 Arrive at DPT-23
Lat: 38.691142 Lon: -90.269058

1540 Collect and prep composite sample DPTS-150, 0-1 ft bgs.

1600 Collect sample DPTS-155, 4-8 ft bgs.

1645 Collect sample DPTS-156, 4-8 ft bgs.

1650 Collect sample DPTS-157, 24-28 ft bgs.
Refusal at 28 ft bgs.
No groundwater encountered.

1715 Henry departs site.
Watkins and Russell return to field office.

1745 Depart site.

C. Russell
5-22-16
GSA RI Sampling Event
Monday, May 23, 2016

0700 Arrive on site. Watkins conducts safety meeting. Topics include hearing protection, Geoprobe operations, & sun protection. Watkins calibrates PID to 100 ppm Isobutylene.

0730 Arrive DPT-24
Lat: 38.68461° Long: -90.26739°

0825 Collect sample for composite DPT-158, 0-1 ft bgs

0905 Collect sample DPT-160, 0-9 ft bgs

0910 Collect sample DPT-160, 28-32 ft bgs

0940 Arrive at DPT-25
Lat: 38.68904° Long: -90.26797°

1005 Collect sample for composite DPT-158, 0-1 ft bgs

1040 Collect sample DPT-160, 0-1 ft bgs

1050 Collect sample DPT-160, 23-27 ft bgs

1050 Collect sample DPT-160, 23-27 ft bgs

1145 Depart site for lunch.

1230 Arrive on site.

1245 Arrive at DPT-24
Lat: 38.68196° Long: -90.26718°

1315 Collect composite sample DPT-158, 0-1 ft bgs

1340 Collect sample DPT-160, 4-8 ft bgs

1350 Collect sample DPT-160, 10-20 ft bgs

Refusal at 28 ft bgs

No groundwater encountered.

1405 Arrive at DPT-27
Lat: 38.68910° Long: -90.26679°

1445 Collect and prepare composite sample DPT-158, 0-1 ft bgs

1515 Collect sample DPT-160, 1-3 ft bgs

1525 Collect sample DPT-160, 4-8 ft bgs

Refusal at 19 ft bgs

Groundwater was encountered at 12 ft bgs.

1525 Collect sample DPT-160, 4-8 ft bgs
GSA RI Sampling Event
Monday, May 23, 2016
1345 Arrive at DPT-28
Lat: 38.608916 Lon: -90.26457
1450 Collect sample for composite
DPTS-169, 0-1 ft bgs
1655 Collect sample DPTS-170,
4-8 ft bgs
1700 Collect sample DPTS-171,
21-28 ft bgs.
Refusal at 28 ft bgs.
No groundwater encountered.
1745 Depart site. Watkins and
Russell travel to FedEx
To ship out samples.

GSA RI Sampling Event
Tuesday, May 24, 2016
0700 Arrive on site. Watkins
Conducts safety meeting.
Topics include: Sun protection,
Thunderstorm awareness,
Traffic, and Geoprobe
Operations. Russell calibrates
PID to 100 ppm (isobutylene).
0730 Arrive at DPT-29.
Lat: 38.488718 Lon: -90.246425
0900 Collect sample for composite
DPTS-169, 0-1 ft bgs
0905 Collect sample DPTS-172,
4-8 ft bgs
0945 Collect sample DPTS-173,
21-28 ft bgs.
Refusal at 28 ft bgs.
No groundwater encountered.
1030 Arrive at DPT-30
Lat: 38.608918 Lon: -90.246425
1145 Collect and prep composite
Sample DPTS-169, 0-1 ft bgs.
1215 Collect sample DPTS-1784
4-8 ft bgs.
GSA R1 Sampling Event

Tuesday, May 24, 2016

1230 Arrive at Piezometer location
Install Piezometer

Lat: Long:

1330 Collect sample EB-1

1400 Plains installs temporary well at DPT-30

1530 Plains performs demobilization activities

1640 Henry departs site.

1930 Arrive at department of labor facility to attempt to gain access for three monitoring wells.

1830 Purchase field supplies and return to hotel.

C. Russell

---

GSA R1 Sampling Event

Wednesday, May 25, 2016

0700 Arrive on site. Meet with Rachel from GSA to discuss Geoprobe activities being completed.

0730 Arrive at Department of labor facility. Attempt to gain access.

0830 Arrive at field office.

0830 Prepare samples for shipment.

1130 Clean field office.

1230 Pick up flags and repair any landscape disturbances.

1330 Land surveyor arrives.

1530 Surveyor departs site. Watkins and Russell return to Department of labor to attempt to gain access.

1630 Return to site.

Check water levels and secure temp wells.
GSA RI Sampling Event

Wednesday, May 25, 2016

1700 Depart site and travel to Pine to return equipment.
1800 Deliver samples to FedEx
1900 Return to hotel. Complete remaining field documents.
2100 End field activities.

Note: 
- DPTS-108 is composite for DPT-3, -4, -5, -6
- DPTS-119 is composite for DPT-10, -11, -12
- DPTS-128 is composite for DPT-13, -14, -17
- DPTS-138 is composite for DPT-18, -19, -20
- DPTS-150 is composite for DPT-21, -22, -23
- DPTS-158 is composite for DPT-24, -25, -26, -27
- DPTS-169 is composite for DPT-28, -29, -30

Note: The following samples were duplicate samples:
- DPTS-113
- DPTS-125
- DPTS-142
- DPTS-149
- DPTS-150
CISA R1 Sampling Event

Note: The following locations were monitoring wells:

DPT-27
DPT-30
Piezometer
APPENDIX E

PHOTOGRAPHIC LOG
<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>This photograph shows a private utility locator with ground penetrating radar.</th>
<th>1</th>
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<tbody>
<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
<td>Date</td>
<td>5/17/2016</td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>This photograph shows a private utility locator checking sewer run directions.</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
<td>Date</td>
<td>5/17/2016</td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Goodfellow Federal Complex**  
**St. Louis, Missouri**

<table>
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<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>CLIENT</th>
<th>PHOTOGRAPHER</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direction: East</strong></td>
<td>This photograph shows private utility locating activities.</td>
<td>U.S. General Services Administration</td>
<td>Adam Watkins</td>
<td>5/17/2016</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>CLIENT</th>
<th>PHOTOGRAPHER</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direction: South</strong></td>
<td>This photograph shows the location of direct-push technology location 1 (DPT-1) near the entrance to the Goodfellow Federal Complex (GFC).</td>
<td>U.S. General Services Administration</td>
<td>Adam Watkins</td>
<td>5/18/2016</td>
</tr>
</tbody>
</table>
Goodfellow Federal Complex  
St. Louis, Missouri

<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direction: South</strong></td>
<td>This photograph shows DPT-2 near Goodfellow Boulevard.</td>
<td>5</td>
</tr>
<tr>
<td><strong>CLIENT</strong></td>
<td>U.S. General Services Administration</td>
<td><strong>Date</strong> 5/18/2016</td>
</tr>
<tr>
<td><strong>PHOTOGRAPHER</strong></td>
<td>Adam Watkins</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direction: South</strong></td>
<td>This photograph shows DPT-3 along the perimeter of Building 107.</td>
<td>6</td>
</tr>
<tr>
<td><strong>CLIENT</strong></td>
<td>U.S. General Services Administration</td>
<td><strong>Date</strong> 5/18/2016</td>
</tr>
<tr>
<td><strong>PHOTOGRAPHER</strong></td>
<td>Adam Watkins</td>
<td></td>
</tr>
</tbody>
</table>
### Description

This photograph shows a Tetra Tech geologist recording field notes in a project logbook.

<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO.</th>
<th>DESCRIPTION</th>
<th>CLIENT</th>
<th>PHOTOGRAPHER</th>
<th>Direction: Northeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>103G1058231</td>
<td>This photograph shows a Tetra Tech geologist recording field notes in a project logbook.</td>
<td>U.S. General Services Administration</td>
<td>Adam Watkins</td>
<td>7</td>
</tr>
<tr>
<td>Date 5/18/2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This photograph shows DPT-4 along the perimeter of Building 107.

<table>
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<tr>
<th>TETRA TECH PROJECT NO.</th>
<th>DESCRIPTION</th>
<th>CLIENT</th>
<th>PHOTOGRAPHER</th>
<th>Direction: Northeast</th>
</tr>
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<tbody>
<tr>
<td>103G1058231</td>
<td>This photograph shows DPT-4 along the perimeter of Building 107.</td>
<td>U.S. General Services Administration</td>
<td>Adam Watkins</td>
<td>8</td>
</tr>
<tr>
<td>Date 5/18/2016</td>
<td></td>
<td></td>
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</table>
**Goodfellow Federal Complex**  
**St. Louis, Missouri**

<table>
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<th>DESCRIPTION</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td><strong>Direction: Northwest</strong></td>
<td>This photograph shows a Tetra Tech geologist recording notes on a boring log sheet.</td>
<td>5/18/2016</td>
</tr>
<tr>
<td><strong>CLIENT</strong></td>
<td>U.S. General Services Administration</td>
<td></td>
</tr>
<tr>
<td><strong>PHOTOGRAPHER</strong></td>
<td>Adam Watkins</td>
<td></td>
</tr>
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<th>DESCRIPTION</th>
<th>Date</th>
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<tbody>
<tr>
<td><strong>Direction: East</strong></td>
<td>This photograph shows DPT-5 along the perimeter of Building 107.</td>
<td>5/18/2016</td>
</tr>
<tr>
<td><strong>CLIENT</strong></td>
<td>U.S. General Services Administration</td>
<td></td>
</tr>
<tr>
<td><strong>PHOTOGRAPHER</strong></td>
<td>Adam Watkins</td>
<td></td>
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<td>TETRA TECH PROJECT NO.</td>
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<tr>
<td>103G1058231</td>
<td>This photograph shows DPT-5 along the perimeter of Building 107.</td>
<td>U.S. General Services Administration</td>
</tr>
<tr>
<td>Direction: Southeast</td>
<td></td>
<td>Date</td>
</tr>
<tr>
<td></td>
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<td>DESCRIPTION</td>
<td>CLIENT</td>
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<tr>
<td>103G1058231</td>
<td>This photograph shows DPT-6 along the perimeter of Building 107.</td>
<td>U.S. General Services Administration</td>
</tr>
<tr>
<td>Direction: North</td>
<td></td>
<td>Date</td>
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<tr>
<td>Project No.</td>
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<tr>
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<tr>
<td>103G1058231</td>
<td>This photograph shows DPT-6 sealed with asphalt patch.</td>
<td>U.S. General Services Administration</td>
</tr>
<tr>
<td>103G1058231</td>
<td>This photograph shows DPT-7 along Patton Street.</td>
<td>U.S. General Services Administration</td>
</tr>
<tr>
<td>TETRA TECH PROJECT NO. 103G1058231</td>
<td>DESCRIPTION</td>
<td>This photograph shows DPT-8 along Patton Street.</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------</td>
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</tr>
<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
<td>Date</td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
<td></td>
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</table>

**Description:**

This photograph shows DPT-8 along Patton Street.

**Client:**

U.S. General Services Administration

**Photographer:**

Adam Watkins

---

<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>This photograph shows DPT-9 along Patton Street.</th>
<th>16</th>
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<tbody>
<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
<td>Date</td>
<td>5/19/2016</td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
<td></td>
<td></td>
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</table>

**Description:**

This photograph shows DPT-9 along Patton Street.

**Client:**

U.S. General Services Administration

**Photographer:**

Adam Watkins
<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>This photograph shows a Tetra Tech geologist screening soils by use of a photoionization detector (PID).</th>
<th>17</th>
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<tbody>
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<td>CLIENT</td>
<td>U.S. General Services Administration</td>
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<td>Date</td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
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<td>5/19/2016</td>
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<table>
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<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>This photograph shows DPT-10 along the former perimeter of Building 102 K.</th>
<th>18</th>
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<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
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<td>Adam Watkins</td>
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<td>-------------</td>
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<td></td>
</tr>
<tr>
<td>Direction: South</td>
<td>This photograph shows DPT-11 along the perimeter of Building 102 E.</td>
<td>5/19/2016</td>
<td></td>
</tr>
<tr>
<td>CLIENT</td>
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<td></td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
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<tr>
<td>Direction: East</td>
<td>This photograph shows DPT-12 along the former perimeter of Building 102 J.</td>
<td>5/20/2016</td>
</tr>
<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
<td></td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
<td></td>
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<tr>
<td>TETRA TECH PROJECT NO. 103G1058231</td>
<td>DESCRIPTION</td>
<td>U.S. General Services Administration</td>
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<td>--------------------------------------</td>
</tr>
<tr>
<td>Direction: Southwest</td>
<td>This photograph shows DPT-13 along the perimeter of Building 102 A/B/C.</td>
<td>Adam Watkins</td>
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</tbody>
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<table>
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<th>U.S. General Services Administration</th>
<th>Date 5/20/2016</th>
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<tbody>
<tr>
<td>Direction: N/A</td>
<td>This photograph shows the DPT operator cutting open a soil core liner.</td>
<td>Adam Watkins</td>
<td>22</td>
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<tr>
<td>TETRA TECH PROJECT NO. 103G1058231</td>
<td>DESCRIPTION</td>
<td>This photograph shows DPT-14 along the perimeter of Building 102 A/B/C.</td>
<td>23</td>
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<tr>
<td>CLIENT</td>
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<td>5/20/2016</td>
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<td>PHOTOGRAPHER</td>
<td>Adam Watkins</td>
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<table>
<thead>
<tr>
<th>TETRA TECH PROJECT NO. 103G1058231</th>
<th>DESCRIPTION</th>
<th>This photograph shows DPT-15 along the perimeter of Building 102 A/B/C.</th>
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<td>Adam Watkins</td>
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Direction: East

Direction: Northeast
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<tr>
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<th>DESCRIPTION</th>
<th>This photograph shows DPT-16 along the perimeter of Building 102 A/B/C.</th>
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<th>This photograph shows the DPT operator placing soil cuttings back into the boring at DPT-16.</th>
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<td>This photograph shows DPT-17 along the perimeter of Building 102 A/B/C.</td>
<td>U.S. General Services Administration</td>
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<td>This photograph shows DPT-18 along the perimeter of Building 104 A/B/C/D.</td>
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### Goodfellow Federal Complex
#### St. Louis, Missouri

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### Goodfellow Federal Complex
#### St. Louis, Missouri

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<tr>
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<tr>
<td>Date</td>
<td>5/22/2016</td>
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<tr>
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<td>5/22/2016</td>
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| DESCRIPTION | This photograph shows DPT-24 upgradient of Buildings 108 A and 111. |
| CLIENT | U.S. General Services Administration |
| PHOTOGRAPHER | Adam Watkins |
| DATE | 5/23/2016 |
### TETRA TECH
**PROJECT NO.** 103G1058231

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<td>This photograph shows DPT-25 upgradient of Buildings 108 A and 111.</td>
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### TETRA TECH
**PROJECT NO.** 103G1058231

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<td>This photograph shows DPT-26 within the former footprint of Building 111.</td>
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<td>5/23/2016</td>
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<td>Direction: North</td>
<td>This photograph shows DPT-27 within the former footprint of Building 111.</td>
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<td>U.S. General Services Administration</td>
<td>Date 5/23/2016</td>
</tr>
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<td>Adam Watkins</td>
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<tr>
<td>Direction: Northeast</td>
<td>This photograph shows the DPT operator purging groundwater at DPT-27.</td>
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<tr>
<td>CLIENT</td>
<td>U.S. General Services Administration</td>
<td>Date 5/23/2016</td>
</tr>
<tr>
<td>PHOTOGRAPHER</td>
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### Goodfellow Federal Complex
#### St. Louis, Missouri

<table>
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<th>PHOTOGRAPHER</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>103G1058231</td>
<td>This photograph shows groundwater sampling activities at DPT-27.</td>
<td>U.S. General Services Administration</td>
<td>Adam Watkins</td>
<td>5/23/2016</td>
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<th>DATE</th>
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**Direction: West**
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<th>CLIENT</th>
<th>PHOTOGRAPHER</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction: N/A</td>
<td>This photograph shows a Tetra Tech geologist recording notes on a soil boring log.</td>
<td>U.S. General Services Administration</td>
<td>Adam Watkins</td>
<td>5/24/2016</td>
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<th>DESCRIPTION</th>
<th>CLIENT</th>
<th>PHOTOGRAPHER</th>
<th>Date</th>
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APPENDIX F

FIELD SAMPLE COLLECTION SHEETS AND CHAIN-OF-CUSTODY RECORDS
### Chain of Custody Form

**COC ID:** 142747

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<th>Customer Information</th>
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<td><strong>Purchase Order</strong></td>
<td><strong>Project Name</strong></td>
</tr>
<tr>
<td><strong>Work Order</strong></td>
<td><strong>ALS Project Manager</strong></td>
</tr>
<tr>
<td><strong>Vendor</strong></td>
<td><strong>Project Information</strong></td>
</tr>
<tr>
<td><strong>Company Name</strong></td>
<td><strong>Project Number</strong></td>
</tr>
<tr>
<td><strong>Send Report To</strong></td>
<td><strong>Note</strong></td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td><strong>Matrix</strong></td>
</tr>
<tr>
<td><strong>City/State/Zip</strong></td>
<td><strong>Pres.</strong></td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td><strong>Attorney</strong></td>
</tr>
<tr>
<td><strong>Fax</strong></td>
<td><strong>Sample/Time</strong></td>
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<thead>
<tr>
<th><strong>Sample Description</strong></th>
<th><strong>Date</strong></th>
<th><strong>Time</strong></th>
<th><strong>Matrix</strong></th>
<th><strong>Pres.</strong></th>
<th><strong>Note</strong></th>
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<tbody>
<tr>
<td>DPTS - 101</td>
<td>5/18/11</td>
<td>14:38</td>
<td>Soil</td>
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<td>X</td>
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<tr>
<td>DPTS - 102</td>
<td>5/18/11</td>
<td>13:20</td>
<td>Soil</td>
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<tr>
<td>DPTS - 103</td>
<td>5/18/11</td>
<td>13:25</td>
<td>Soil</td>
<td></td>
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</tr>
<tr>
<td>DPTS - 104</td>
<td>5/18/11</td>
<td>14:40</td>
<td>Soil</td>
<td></td>
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<tr>
<td>DPTS - 105</td>
<td>5/18/11</td>
<td>14:48</td>
<td>Soil</td>
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<td>X</td>
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<tr>
<td>DPTS - 106</td>
<td>5/18/11</td>
<td>15:45</td>
<td>Soil</td>
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<td>DPTS - 107</td>
<td>5/18/11</td>
<td>15:50</td>
<td>Soil</td>
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<td>Soil</td>
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<td>DPTS - 109</td>
<td>5/18/11</td>
<td>17:05</td>
<td>Soil</td>
<td></td>
<td></td>
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<td>5/18/11</td>
<td>17:05</td>
<td>Soil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
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2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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# Chain of Custody Form

## Customer Information

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<th>Address</th>
<th>City/State/Zip</th>
<th>Phone</th>
<th>Fax</th>
<th>e-Mail Address</th>
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<tr>
<td></td>
<td></td>
<td>Tetra Tech, Inc.</td>
<td>Adam Watkins</td>
<td>415 Oak Street</td>
<td>Kansas City, MO 64106</td>
<td>(816) 412-1741</td>
<td></td>
<td><a href="mailto:adrian.watkins@tetratech.com">adrian.watkins@tetratech.com</a></td>
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## Project Information

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<td>GSA Goodfellow</td>
<td>P1058 2 31</td>
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## Project Details

| Sample Description | Date | Time | Matrix | Pres. | # Bottles | A | B | C | D | E | F | G | H | I | J | Hold |
|--------------------|------|------|--------|-------|-----------|---|---|---|---|---|---|---|---|---|-----|
| DP117              | 5-19-11 | 0835 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP112              | 5-19-11 | 0835 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP113              | 5-19-11 | 0840 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP114              | 5-19-11 | 0840 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP115              | 5-19-11 | 1200 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP116              | 5-19-11 | 1200 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP117              | 5-19-11 | 1200 | Soil   | 4     |           |   |   |   |   |   |   |   |   |   |   |      |
| DP118              | 5-19-11 | 1236 | Water  | 4     |           |   |   |   |   |   |   |   |   |   |   |      |

## Additional Information

- **Note:** Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
- **Note:** Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the service agreement.
- **Note:** The Chain of Custody is a legal document. All information must be accurate and complete.

---

** ALS Environmental **

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** Right Solutions | Right Partner **
<table>
<thead>
<tr>
<th>No.</th>
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<th>Date</th>
<th>Time</th>
<th>Matrix</th>
<th>Pres.</th>
<th># Bottles</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
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# Chain of Custody Form

**COC ID: 145496**

## Customer Information

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<tr>
<td></td>
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<th>Work Order</th>
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<tr>
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<table>
<thead>
<tr>
<th>Company Name</th>
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<th>Phone</th>
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<tbody>
<tr>
<td>Tetra Tech, Inc.</td>
<td>Kansas City, MO 64106</td>
<td>(816) 412-1741</td>
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<table>
<thead>
<tr>
<th>Address</th>
<th>Fax</th>
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<tbody>
<tr>
<td>415 Oak Street</td>
<td></td>
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## Project Information

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</thead>
<tbody>
<tr>
<td>(816) 412-1741</td>
<td></td>
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## Test Information

| No. | Sample Description | Date | Time | Matrix | Pres. | # Bottles | A | B | C | D | E | F | G | H | I | J | Hold |
|-----|--------------------|------|------|--------|-------|-----------|---|---|---|---|---|---|---|---|---|-----|
| 1   | DPTS-129           | 5-20-116 | 09:05 | Soil  | <X>   | <X>       | X | X |   |   |   |   |   |   |   |   |
| 2   | DPTS-130           | 5-20-116 | 09:10 | Soil  | <X>   | <X>       | X | X |   |   |   |   |   |   |   |   |
| 3   | DPTS-131           | 5-20-116 | 10:35 | Soil  | <X>   | <X>       | X | X |   |   |   |   |   |   |   |   |
| 4   | DPTS-132           | 5-20-116 | 10:45 | Soil  | <X>   | <X>       |   |   | X | X |   |   |   |   |   |   |
|     | TripBlank-TSP 05/11/08 | 5-12-116 | 11:00 | Water | <X> | 2         |   |   |   |   |   |   |   |   |   |   |

## Required Turnaround Time

- **Shipment Method:** FedEx
- **Required Turnaround Time:** 24 Hour

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<tr>
<td>e-Mail Address</td>
<td><a href="mailto:adam.watkins@tetratech.com">adam.watkins@tetratech.com</a></td>
</tr>
</tbody>
</table>

### Customer Information
- **Company Name**: Tetra Tech, Inc.
- **City/State/Zip**: Kansas City, MO 64106
- **Phone**: (816) 412-1741
- **Fax**: 
- **e-Mail Address**: adam.watkins@tetratech.com

### Project Information
- **Project Name**: GSA Goodfellow
- **Project Number**: HS16051317
- **ALS Project Manager**: 
- **Sample Description**
  - **Sample**: DPTS-133
  - **Date**: 5-20-16
  - **Time**: 1400
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: 4
- **Sample**: DPTS-134
  - **Date**: 5-20-16
  - **Time**: 1430
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-135
  - **Date**: 5-20-16
  - **Time**: 1440
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-136
  - **Date**: 5-20-16
  - **Time**: 1450
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-137
  - **Date**: 5-20-16
  - **Time**: 1500
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-138
  - **Date**: 5-21-16
  - **Time**: 1110
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-139
  - **Date**: 5-21-16
  - **Time**: 1120
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-140
  - **Date**: 5-21-16
  - **Time**: 1210
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-141
  - **Date**: 5-21-16
  - **Time**: 1210
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X
- **Sample**: DPTS-142
  - **Date**: 5-21-16
  - **Time**: 1210
  - **Matrix**: Soil
  - **Pres.**: A
  - **Bottles**: X

### Notes
- **Sample Description**: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions of said contract.
- **COC ID**: 145492
- **Environmental Customer Information**: Purchase Order, Work Order, Project Name, Project Number.
- **Project Information**: Project Name, Project Number, ALS Project Manager.

---

**Page 196 of 202**

**RIGHT SOLUTIONS | RIGHT PARTNER**
### Customer Information

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<td>Kansas City, MO 64106</td>
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<td>PCBs (6092)</td>
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### Sample Information

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### Shipment Method

- Fed Ex

### Required Turnaround Time

- Check Box
  - Other
  - 5 WK Days
  - 2 WK Days
  - 24 Hour

### Results Due Date

- Date
- Time
- Received by:
- Date
- Time

### Preservative Key


### Additional Notes

1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the face of this document.
3. The Chain of Custody is a legal document. All information must be correct.

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</tr>
</tbody>
</table>

### Customer Information
- **Company Name**: Tetra Tech, Inc.
- **Send Report To**: Adam Watkins
- **Address**: 415 Oak Street
- **City/State/Zip**: Kansas City, MO 64106
- **Phone**: (816) 412-1741
- **Fax**: (816) 412-1741
- **e-Mail Address**: adam.watkins@tetratech.com

### Project Information
- **Project Name**: GSA Goodfellow
- **Project Number**: B J/I
- **Invoice Attn**: Tetra Tech, Inc.
- **Address**: 103P105D231

### ALS Project Manager
- **Name**: Tetr2 Tech, Inc.
- **Phone**: 425 356 2600
- **Fax**: 616 399 6070
- **e-Mail Address**: Adams@tetratech.com

### Notes
- **Sample(s) Please Print & Sign**
- **Shipment Method**: Fed EX
- **Required Turnaround Time**: 10 WK Days
- **GC Package**: (Check One Box Below)
  - **QC Package**: Level 2 Std QC
  - **TRRP Level**: Level 4 SWM/GCLP

### Preservative Key
1. HCl
2. HNO3
3. H2SO4
4. NaOH
5. Na2SO4
6. NaHSO4
7. Other
8. 8-4°C
9. 9-50°C

---

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### Sample Information

| No. | Sample Description | Date       | Time  | Matrix | Pres. | # Bottles | A | B | C | D | E | F | G | H | I | J | Hold |
|-----|--------------------|------------|-------|--------|-------|-----------|---|---|---|---|---|---|---|---|---|-----|
| 1   | DPTS - 158         | 5-28-14    | 14:15 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 2   | DPTS - 159         | 5-23-14    | 09:05 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 3   | DPTS - 160         | 5-23-14    | 09:10 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 4   | DPTS - 161         | 5-23-14    | 10:40 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 5   | DPTS - 162         | 5-23-14    | 10:50 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 6   | DPTS - 163         | 5-23-14    | 10:50 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 7   | DPTS - 164         | 5-23-14    | 13:40 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 8   | DPTS - 165         | 5-23-14    | 13:50 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 9   | DPTS - 166         | 5-23-14    | 15:25 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |
| 10  | DPTS - 167         | 5-23-14    | 15:15 | Soil   |       | 1         | X |   |   |   |   |   |   |   |   |     |

### Notes

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3. The Chain of Custody is a legal document. All information must be accurate.
Cincinnati, OH Fort Col/Ins, co
Everett, WA +1 513 733 5336 +I 970 490 1511

Chain of Custody For i8HS16051515

Everett, WA Holland, Mi J

Tetr~ Tech, Inc +1 425 356 2600 +1616399 6070

GSA Goodfellow 103D1050231

Customer Information

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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>15:26</td>
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Notes:
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### Customer Information

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<td></td>
<td>Tetra Tech, Inc.</td>
<td>Adam Watkins</td>
<td>415 Oak Street</td>
<td>Kansas City, MO</td>
<td>(816) 412-1741</td>
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<td><a href="mailto:adam.watkins@tetratech.com">adam.watkins@tetratech.com</a></td>
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### Project Information

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<td>A) VOC TCL 4.3 (5035/8260)</td>
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<td>C) PCBs (8082)</td>
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<td>D) Moisture%</td>
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### Parameter/Method Details

| Sample Description | Date     | Time     | Matrix | Pres. | # Bottles | A | B | C | D | E | F | G | H | I | J | K |
|--------------------|----------|----------|--------|-------|-----------|---|---|---|---|---|---|---|---|---|---|
| 1 DPTGW-101        | 5/23/16  | 1535     | Water  |       | 2         | X |   |   |   |   |   |   |   |   |   |
| 2 EB-1             | 5/24/16  | 1330     | Water  |       | 2         | X |   |   |   |   |   |   |   |   |   |
| 3 Trip Blank-TSP-05/20/14  | 5/23/16  | 1200     | Water  |       | 2         | X |   |   |   |   |   |   |   |   |   |

### Hold No.

- HS16051527

### Reporter

- Tetra Tech, Inc.
- GSA Goodfellow 103P105231

### Notes:

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### Copyright

Copyright 2011 by ALS Environmental.
Field Sample Collection Sheet

Project Number: 10361058231  Matrix: Soil

Project ID: GoodFellow  Project Manager: Adam Watkins
Site Name: 2016 RE  Site Location: St. Louis, MO

Sample Number: DPTS-101
Sample Location Description: DPT-3, 4, 5, 6
Latitude: NA
Longitude: NA
Sample Collection Date: 5/18/16
Sample Collection Time: 10:30
Sample collected by: Adam Watkins

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 0-1' BGS

COMPOSITE SAMPLE OF DPT-3, 4, 5, 6
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 RI
Site Location: ST. LOUIS, MO

Site ID:

Sample Number: DPTS-102
Sample Location Description: N. SIDE OF BUILDING 107. DPT-3
Latitude: 38.693839
Longitude: -90.267134
Sample Collection Date: 5/12/16
Sample Collection Time: 13:20
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments:

Sample Location Map:

4'8' 5G5
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GISA GOODFELLOW
Site Name: 201621
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-103
Sample Location Description: NORTH OF BUILDING 107, DPT-3
Latitude: 38.493334
Longitude: -90.207134
Sample Collection Date: 5/18/16
Sample Collection Time: 13:25
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments:

23.5' - 27.5' BS
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 R1
Site Location: ST. LOUIS, MO
Site ID:

Project Manager: ADAM WATLINS

Sample Number: DPTS-104
Sample Location Description: NORTH SIDE OF BUILDING 107, DPT-4
Latitude: 38.695629
Longitude: -90.267225
Sample Collection Date: 5/18/14
Sample Collection Time: 14:40
Sample collected by: ADAM WATLINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments:

Sample Location Map:

4'-8' BGS
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 R1
Site Location: ST. LOUIS, MO
Project Manager: ADAM WATKINS

Sample Number: DPTS-105
Sample Location Description: NORTH SIDE OF BUILDING 107, DPT-4
Latitude: 38.693629
Longitude: -90.267225
Sample Collection Date: 5/18/16
Sample Collection Time: 14:48
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: 15'-19' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GIS A GOODFELLOW
Site Name: 2016 R1
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-106
Sample Location Description: SOUTH WEST CORNER OF BUILDING 167, DPT-S
Latitude: 38.1693423
Longitude: -90.247243
Sample Collection Date: 6/18/16
Sample Collection Time: 15:45
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4'-8' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: CASA GOODFELLOW
Site Name: 2016 21
Site Location: ST. LOUIS, MO

Sample Number: DPT 5 - 107
Sample Location Description: SOUTHWEST CORNER OF BUILDING 107, DPT 5
Latitude: 38.693427
Longitude: -90.267243
Sample Collection Date: 5/18/16
Sample Collection Time: 15:50
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 12'-16' BG5
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G0158231
Matrix: SOIL

Project ID: CISA GOODFELLOW
Site Name: 2016 21
Site Location: ST. LOUIS, MO

Sample Number: DPTS-108
Sample Location Description: SOUTH SIDE OF BUILDING 107, DPT-L
Latitude: 38.693705
Longitude: -90.246872
Sample Collection Date: 5/18/16
Sample Collection Time: 13:00
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: A1-8 BGS
Sample Location Map:
### Field Sample Collection Sheet

**Project Number:** 103GL058251  
**Matrix:** SOIL

**Project ID:** GSK GOODFELLOW  
**Project Manager:** ADAM WATKINS

**Site Name:** 2016 B1  
**Site Location:** ST. LOUIS, MO

---

**Sample Number:** DPT5 - 109  
**Sample Location Description:** SOUTH SIDE OF BUILDING 107, DPT-3

**Latitude:** 38.693705  
**Longitude:** -90.266872

**Sample Collection Date:** 5/18/14  
**Sample Collection Time:** 17:05  
**Sample collected by:** ADAM WATKINS

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**Sample Information:**

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**Sample Comments:** 19'-23' BGS

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**Property Owner Information:**

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**Sample Location Map:**
Field Sample Collection Sheet

Project Number: 10361058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 RI
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-110
Sample Location Description: SOUTH OF BUILDING 107, DPT-107
Latitude: 38.695913
Longitude: -90.246705
Sample Collection Date: 5/19/16
Sample Collection Time: 07:50
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: D1-1' RBS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G108231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 21
Site ID:

Sample Number: DPTS-111
Sample Location Description: SOUTH OF BUILDING 107, DPT-7
Latitude: 38.695913
Longitude: -90.264705
Sample Collection Date: 5/19/11
Sample Collection Time: 08:25
Sample collected by: ADAM WATKINS

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VOCs

Property Owner Information:

Sample Comments: 4' - 8' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103 G1058231  Matrix: SDIL

Project ID: G10 A GOODFELLOW  Project Manager: ADAM M WATKINS
Site Name: 2016 RI  Site Location: ST. LOUIS, MO

Sample Number: DPTS-112
Sample Location Description: SOUTH OF BUILDING 107, DPT-7
Latitude: 38.693913
Longitude: -90.212705
Sample Collection Date: 5/19/14
Sample Collection Time: 08:35
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: 23'-27' BUS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Project Manager: ADAM WATKINS
Site Name: 2014 K1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-113
Sample Location Description: SOUTH OF BUILDING 103, DPT-7
Latitude: 38.693913
Longitude: -90.226705
Sample Collection Date: 5/19/11
Sample Collection Time: 08:40
Sample collected by: ADAM WATKINS

Sample Information:

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VOC

Property Owner Information:

Sample Comments:

23' - 27' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231 Matrix: SOIL

Project ID: GSHA GOODFELLOW Project Manager: ADAM WATKINS
Site Name: 2010 E1 Site Location: ST. LOUIS, MO
Site ID: 

Sample Number: DPTS-114
Sample Location Description: SOUTH OF BUILDING 157, DPT-8
Latitude: 38.6934940
Longitude: -90.2164810
Sample Collection Date: 5/19/11
Sample Collection Time: 09:50
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: 4' - 8' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G10S8281  
Matrix: Soil

Project ID: GIS P GOODFELLOW  
Project Manager: ADAM WATKINS

Site Name: 2016 E1  
Site Location: ST. LOUIS, MO

Sample Number: DPT5-115
Sample Location Description: SOUTH OF BUILDING 107, DPT-8
Latitude: 38.693496
Longitude: -90.264810
Sample Collection Date: 5/19/16
Sample Collection Time: 10:00
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: 8'-12' BDS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 10261058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 K1
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPT5-116
Sample Location Description: SOUTH OF VISITOR PARKING LOT, DPT-9
Latitude: 38.69304
Longitude: -90.267133
Sample Collection Date: 5/19/16
Sample Collection Time: 12:00
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: D'-1' BAS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: CASA GOODFELLOW
Site Name: 2016 R1
Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-117
Sample Location Description: SOUTH OF VISITOR PARKING LOT, DPT-9
Latitude: 38.695044
Longitude: -90.267133
Sample Collection Date: 5/19/16
Sample Collection Time: 12:15
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: A'-B'-B'-B'-B'
Field Sample Collection Sheet

Project Number: 103G105B251
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-118
Sample Location Description: SOUTH OF VISITOR PARKING LOT, DPT-9
Latitude: 38.693044
Longitude: -90.243133
Sample Collection Date: 5/19/16
Sample Collection Time: 12:25
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: 8'-12' BGS

Sample Location Map:
### Field Sample Collection Sheet

**Project Number:** 10391058231  
**Matrix:** SOIL

**Project ID:** GSA GOODFELLOW  
**Project Manager:** ADAM WATKINS

**Site Name:** 2014 21  
**Site Location:** ST. LOUIS, MO

**Sample Number:** DPTS-119

**Sample Location Description:** EAST OF BUILDING 102E, DPT-9, 10, 11

**Latitude:** NA  
**Longitude:** NA

**Sample Collection Date:** 5/20/11  
**Sample Collection Time:** 09:45

**Sample collected by:** ADAM WATKINS

#### Sample Information:

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**Sample Comments:**

0'-1' BGS

**Sample Location Map:**

COMPOSITE SAMPLE OF DPT-9, 10, 11
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 201W 21
Site Location: ST. LOUIS, MO

Sample Number: DPTS-120
Sample Location Description: EAST OF BUILDING 102E, DPT-10
Latitude: 38.69 2865
Longitude: -90.267041
Sample Collection Date: 5/19/14
Sample Collection Time: 14:35
Sample collected by: ADAM WATKINS

Sample Information:

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Sample Comments:

A'-B' BUS
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GISA GOODFELLOW
Site Name: 2016 K1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-121
Sample Location Description: EAST OF BUILDING 102 E, DPT-10
Latitude: 38.692865
Longitude: -90.263041
Sample Collection Date: 5/19/14
Sample Collection Time: 14:40
Sample collected by: ADAM WATKINS

Sample Information:

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Sample Comments: 8'-12' BGS
Field Sample Collection Sheet

Project Number: 103 G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 R1
Site Location: ST. LOUIS, MO

Sample Number: DPT 5-122
Sample Location Description: NORTH SIDE OF BUILDING 102E, DPT-11
Latitude: 38.692414
Longitude: -90.247364
Sample Collection Date: 5/19/11
Sample Collection Time: 14:50
Sample collected by: ADAM WATKINS

Sample Information:

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SND

Property Owner Information:

Sample Comments: 4' 8' B.U.
Field Sample Collection Sheet

Project Number: 103G1058291
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2010 K1
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS - 123
Sample Location Description: NORTH OF BUILDING 102E, DPT-11
Latitude: 38.692614
Longitude: -90.207364
Sample Collection Date: 5/19/11
Sample Collection Time: 12:40
Sample collected by: ADAM WATKINS

Sample Information:

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Sample Comments: 121 - 16' BAS

Property Owner Information:

Sample Location Map:

SVOCs
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA (GOODFELLOW)
Site Name: 2014 R1
Site Location: ST. LOUIS, MO

Sample Number: DPT5-124
Sample Location Description: Northwest of building 102E, DPR-12
Latitude: 38.692515
Longitude: -90.214444
Sample Collection Date: 5/20/11
Sample Collection Time: 07:40
Sample collected by: ADAM WATKINS

Sample Information:

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SVOC,

Property Owner Information:

Sample Comments: 4'-8' BDS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058251
Matrix: SOIL

Project ID: CISA GOODFELLOW
Site Name: 2014 B1
Site Location: ST. LOUIS, MO

Sample Number: DPT-125
Sample Location Description: NORTHWEST OF BUILDING 102E, DPT-12
Latitude: 38.692515
Longitude: -90.267444
Sample Collection Date: 5/20/14
Sample Collection Time: 07:40
Sample collected by: ADAM WATKINS

Sample Information:

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SWDC, S

Property Owner Information:

Sample Comments: 8' - 8' BUS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103 G105 8231
Matrix: SOIL

Project ID: GISA GOODFELLOW
Project Manager: ADAM WATKINS

Site Name: 2014 R1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-126
Sample Location Description: NORTHWEST OF BUILDING 102E, DPT-12
Latitude: 38.692515
Longitude: -90.267449
Sample Collection Date: 5/20/14
Sample Collection Time: 08:00
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs

Property Owner Information:

Sample Comments:

16' - 20' RG5
Field Sample Collection Sheet

Project Number: 103G1058231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2014 R1  Site Location: ST. LOUIS, MO
Site ID: 

Sample Number: DPTS-127
Sample Location Description: NORTH OF BUILDING 102
Latitude: 38.693194
Longitude: -90.2666981
Sample Collection Date: 5/20/11
Sample Collection Time: 08:40
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: 0'-1' RGB

Sample Location Map:
Field Sample Collection Sheet

Project Number: 1031658231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 21  Site Location: ST. LOUIS, MO
Site ID:

Sample Number: DPT5 - 12B  Sample Location Description: SURROUNDING BUILDING 102, DPT-13, 14, 15, 14, +17
Latitude: NA  Longitude: NA
Sample Collection Date: 5/21/16  Sample Collection Time: 15:40
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs.

Property Owner Information:

Sample Comments:  Sample Location Map:

0'-1' BGS  COMPOSITE OF DPT-13, 14, 15, 14, +17
Field Sample Collection Sheet

Project Number: 10341088231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 K1
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-129
Sample Location Description: NORTH OF BUILDING 102, DPT-13
Latitude: 38.693197
Longitude: -90.246780
Sample Collection Date: 5/20/11
Sample Collection Time: 09:07
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments: 4'-8' BUS

Sample Location Map:
## Field Sample Collection Sheet

**Project Number:** 10361056231  
**Matrix:** SOIL

**Project ID:** GSA GOODFELLOW  
**Project Manager:** ADAM WATKINS

**Site Name:** 2016 21  
**Site Location:** ST. LOUIS, MO

**Sample Number:** DPTS-130  
**Sample Location Description:** NORTH OF BUILDING 102, DPT-13

**Latitude:** 38.693141  
**Longitude:** -90.246980

**Sample Collection Date:** 5/20/11  
**Sample Collection Time:** 09:10

**Sample collected by:** ADAM WATKINS

### Sample Information:

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**SVOCs, VOCs**

### Property Owner Information:

### Sample Comments:

10’-19’ BS

### Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: CISA GOODFELLOW
Site Name: 2016 21
Site Location: ST. LOUIS, MO

Sample Number: DPTS-131
Sample Location Description: EAST OF BUILDING 102, DPT-14
Latitude: 38.693724
Longitude: -90.206232
Sample Collection Date: 5/20/16
Sample Collection Time: 10:35
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, TVOCs

Property Owner Information:

Sample Comments: 4' 8' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1DS8231
Matrix: SOIL

Project ID: CISA GOODFELLOW
Site Name: 2016 R1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-132
Sample Location Description: EAST OF BUILDING 102, DPT-14
Latitude: 38.693724
Longitude: -90.244282
Sample Collection Date: 5/20/14
Sample Collection Time: 12:45
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments: 12'-16' BDS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 105168231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 R1  Site Location: ST. LOUIS, MO
Site ID: 

Sample Number: DPT5-133  Sample Location Description: DPT-15, EAST OF BUILDING 102
Latitude: 38.693482  Longitude: -90.205457
Sample Collection Date: 5/22/16  Sample Collection Time: 14:00
Sample collected by: ADAM WATKINS

Sample Information:

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VOC

Property Owner Information:

Sample Comments: 

Sample Location Map: 

0'1' 045
Field Sample Collection Sheet

Project Number: 103610S8231
Project ID: GSA GOODFELLOW
Site Name: 2010 R1
Site ID: 
Matrix: SOIL

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-193
Sample Location Description: EAST OF BUILDING 102, DPT-15
Latitude: 38.693482
Longitude: -90.265657
Sample Collection Date: 5/20/11
Sample Collection Time: 14:00
Sample collected by: ADAM WATKINS

Sample Information:

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VOC

Property Owner Information:

Sample Comments: 0'-1' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GS V GOODFELLOW
Site Name: 2014 21
Site ID:

Sample Number: DPTS-134
Sample Location Description: EAST OF BUILDING 102, DPT-15
Latitude: 38.693482
Longitude: -90.248687
Sample Collection Date: 6/20/11
Sample Collection Time: 9:30
Sample collected by: ADAM WATKINS

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SVOC, VOC

Property Owner Information:

Sample Comments:

Sample Location Map:

4' - 8' BGS
Field Sample Collection Sheet

Project Number: 102G1058231
Matrix: SOIL

Project ID: CSA GOODFELLOW
Site Name: 2016 R1
Site ID:

Sample Number: DPTS-135
Sample Location Description: EAST OF BUILDING 102, DPT-15
Latitude: 38.693482
Longitude: -90.203457
Sample Collection Date: 5/20/16
Sample Collection Time: 14:40
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments: 20-24 PBGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G10S8231  Matrix: SOIL

Project ID: COFA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2014 R1  Site Location: ST. LOUIS, MO

Sample Number: DPTS-130
Sample Location Description: DPT-116, SOUTH OF BUILDING 102
Latitude: 39.6927,94
Longitude: -90.264271
Sample Collection Date: 5/20/14
Sample Collection Time: 10:00
Sample collected by: ADAM WATKINS

Sample Information:

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Sample Comments: 9'-8' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G10S8231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2010 R1
Site Location: ST. LOUIS, MO

Sample Number: DPT5-137
Sample Location Description: SOUTH OF BUILDING 102, DPT-1L
Latitude: 38.692891
Longitude: -90.216236
Sample Collection Date: 5/20/11
Sample Collection Time: 16:15
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments: 10'-14' BGS
## Field Sample Collection Sheet

**Project Number:** 103910580231  
**Matrix:** soil

**Project ID:** GISR  
**Project Manager:** ADAM WATKINS  
**Site Name:** 2016 R1  
**Site Location:** ST. LOUIS, MO

---

**Sample Number:** DPT5-138  
**Sample Location Description:** BETWEEN BUILDINGS 109 + 104 E, DPT-18  
**Latitude:** NA  
**Longitude:** NA  
**Sample Collection Date:** 5/21/11  
**Sample Collection Time:** 15:30  
**Sample collected by:** ADAM WATKINS

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### Sample Information:

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### Property Owner Information:

---

### Sample Comments:

- Sample Comments: O'1' BGS  
- Sample Location Map: Composite of DPT-18, 19, 420
Field Sample Collection Sheet

Project Number: 103G1058231
Project ID: G10A (GOODFELLOW)
Site Name: 2016 B1
Site ID:

Matrix: SOIL
Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-139
Sample Location Description: BETWEEN BUILDINGS 104-104 E, DPT-1B
Latitude: 38.690720
Longitude: -90.248451
Sample Collection Date: 5/21/11
Sample Collection Time: 11:10
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments:

A1-8' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 10341058231
Matrix: SOIL

Project ID: GSA (GOODFELLOW)
Site Name: 2016 R1
Site ID: 

Sample Number: DPTS-140
Sample Location Description: BETWEEN BUILDINGS 104 & 104E
Latitude: 38.690920
Longitude: -90.205451
Sample Collection Date: 5/21/14
Sample Collection Time: 11:20
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

PCBS

Sample Comments: 24'-28' BUS

Sample Location Map:
# Field Sample Collection Sheet

**Project Number:** 103 G1058231  
**Matrix:** SOIL

**Project ID:** CASA GOODFELLOW  
**Site Name:** 2016 K-1  
**Project Manager:** ADAM WATKINS  
**Site Location:** ST. LOUIS, MO

---

**Sample Number:** DPT-191  
**Sample Location Description:** DPT-19, BETWEEN BUILDINGS 104 & 104 F  
**Latitude:** 38.1091429  
**Longitude:** -90.263372  
**Sample Collection Date:** 5/21/14  
**Sample Collection Time:** 12:16  
**Sample collected by:** ADAM WATKINS

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**Sample Information:**

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**Property Owner Information:**

---

**Sample Comments:** 1'-8' BGS  
**Sample Location Map:**
Field Sample Collection Sheet

Project Number: 103471058231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 21  Site Location: ST. LOUIS, MO
Site ID:

Sample Number: DPT5-142
Sample Location Description: BETWEEN BUILDINGS 104 AND 105, DPT-19
Latitude: 38.69427
Longitude: -90.268342
Sample Collection Date: 5/21/14
Sample Collection Time: 12:16
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 1'-8' BUS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103611058231  Matrix: SOIL

Project ID: GISAGOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 E1  Site Location: ST. LOUIS, MO

Sample Number: DPTS-143
Sample Location Description: BETWEEN BUILDINGS 104 A 104F
Latitude: 38.691427  Longitude: -90.205372
Sample Collection Date: 5/21/16  Sample Collection Time: 12:30
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments:  Sample Location Map:

20'-24' R(4)
Field Sample Collection Sheet

Project Number: 03G11058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 21
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-144
Sample Location Description: NORTH OF BUILDING 104, DPT-20
Latitude: 38.692093
Longitude: -90.244893
Sample Collection Date: 5/21/16
Sample Collection Time: 14:50
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments:

4'-8' BUS
Field Sample Collection Sheet

Project Number: 10341058231  Matrix: SOIL

Project ID: CISA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 R1  Site Location: ST. LOUIS, MO
Site ID:

Sample Number: DPT5-145  Sample Location Description: NORTH OF BUILDING 104, DPT-20
Latitude: 38.692093  Longitude: -90.264817
Sample Collection Date: 5/21/16  Sample Collection Time: 15:00
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 121-16 BGS  Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 R1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-146
Sample Location Description: SOUTH OF BUILDING 102, DPT-17
Latitude: 38.692121
Longitude: -90.266617
Sample Collection Date: 5/21/14
Sample Collection Time: 15:35
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs

Property Owner Information:

Sample Comments: D1-1' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1068231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 K1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-147
Sample Location Description: SOUTH OF BUILDING 102, DPT -17
Latitude: 39.692121
Longitude: -90.264117
Sample Collection Date: 5/21/14
Sample Collection Time: 14:00
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments:

4' - 8' BUS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 10361058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 R1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-148
Sample Location Description: SOUTH OF BUILDING 102, DPT-17

Latitude: 38.692121
Longitude: -90.246617
Sample Collection Date: 5/21/16
Sample Collection Time: 14:07
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments: 141-18' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231  Matrix: SOIL

Project ID: GISA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 R1  Site Location: ST. LOUIS, MO
Site ID:

Sample Number: DPTS-149  Sample Location Description: SOUTH OF BUILDING 102, DPT-17
Latitude: 38.692121  Longitude: -90.266417
Sample Collection Date: 5/21/16  Sample Collection Time: 11:07
Sample collected by: ADAM WATKINS

Sample Information:

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SVOCs, VOCs

Property Owner Information:

Sample Comments:  Sample Location Map:

191-18' BGS
Project Number: 10391058231
Matrix: SOIL

Project ID: GSIA-GOODFELLOW
Site Name: 201W R1
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPTS-150
Sample Location Description: SOUTH OF BUILDING 104, DPT-21, 22, 23
Latitude: NA
Longitude: NA
Sample Collection Date: 5/22/11
Sample Collection Time: 15:40
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments:

Sample Location Map:

0'-1' BGS

COMPOSITE SAMPLE OF DPT-21, 22, 23
Field Sample Collection Sheet

Project Number: 103G1058231
Project ID: GSA GOODFELLOW
Site Name: 2014 21
Site ID:

Sample Number: DPTS-151
Sample Location Description: SOUTH OF BUILDING 104, DPT-21
Latitude: 38.691739
Longitude: -90.249213
Sample Collection Date: 5/22/16
Sample Collection Time: 12:25
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4-Bas
Sample Location Map:
### Field Sample Collection Sheet

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<td>Project Manager:</td>
<td>ADAM WATKINS</td>
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<td>Sample Location Description:</td>
<td>SOUTH OF BUILDING 104, DPT-21</td>
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<td>Latitude:</td>
<td>38.691779</td>
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<tr>
<td>Longitude:</td>
<td>-90.244293</td>
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<td>Sample Collection Date:</td>
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#### Sample Information:

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**PCB**

#### Property Owner Information:

- **Sample Comments:** 18'-19' BAS
- **Sample Location Map:**
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 R1
Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPT5-153
Sample Location Description: SOUTH OF BUILDING 104, DPT-22
Latitude: 38.691142
Longitude: -90.244858
Sample Collection Date: 5/22/11
Sample Collection Time: 14:35
Sample collected by: ADAM WATKINS

Sample Information:

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PLBS

Property Owner Information:

Sample Comments: A1-8 BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G105B231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 21  Site Location: ST. LOUIS, MO
Site ID:

Sample Number: DPTS-154
Sample Location Description: SOUTH OF BUILDING 104, DPT - 22
Latitude: 38.691142
Longitude: -90.249858
Sample Collection Date: 5/22/14
Sample Collection Time: 14:45
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: 18'-22' BGS
Field Sample Collection Sheet

Project Number: 103G1058231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2014 12  Site Location: ST. LOUIS, MO
Site ID: 

Sample Number: DPTS-155
Sample Location Description: SOUTH OF BUILDING 104, DPT-23
Latitude: 38.69142
Longitude: -90.244868
Sample Collection Date: 5/22/14
Sample Collection Time: 14:45
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4'-8' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231  Matrix: SOIL

Project ID: GSA GOODFELLOW  Project Manager: ADAM WATKINS
Site Name: 2016 R1  Site Location: ST. LOUIS, MO
Site ID:

Sample Number: DPT5-156
Sample Location Description: SOUTH OF BUILDING 104, DPT-23
Latitude: 38.691192
Longitude: -90.244858
Sample Collection Date: 5/22/11
Sample Collection Time: 16:45
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4'-8' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G 105B 231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 K1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-157
Sample Location Description: SOUTH OF BUILDING 104, DPT-23
Latitude: 38.61142
Longitude: -90.241858
Sample Collection Date: 5/22/14
Sample Collection Time: 16:50
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 2A'-28'BS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 21
Site Location: ST. LOUIS, MO
Project Manager: ADAM WATKINS

Site ID:

Sample Number: DPT5-158
Sample Location Description: SURROUNDING BUILDING 108A, DPT-24, 25, 27
Latitude: NA
Longitude: NA
Sample Collection Date: 5/23/14
Sample Collection Time: 14:45
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: D'1' BGS
Sample Location Map: COMPOSITE SAMPLE OF DPT-24, 25, 26, 27
Field Sample Collection Sheet

Project Number: 108G105B231
Matrix: SOIL

Project ID: CISA GOODFELLOW
Project Manager: ADAM WATKINS

Site Name: 2014 R1
Site Location: ST. LOUIS

Site ID: 

Sample Number: DPTS-159
Sample Location Description: WEST OF SUBSTATION, DPT-24

Latitude: 38.688411
Longitude: -90.268307
Sample Collection Date: 5/28/16
Sample Collection Time: 09:05
Sample collected by: ADAM WATKINS

Sample Information:

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Sample Comments:

0'-1' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103 41058231
Matrix: SOIL

Project ID: GSA 4100DF ELLOW
Site Name: 2016 Z1
Site ID:

Sample Number: DPTS-160
Sample Location Description: WEST OF SUBSTATION, DPT - 24
Latitude: 38.684116
Longitude: -90.247307
Sample Collection Date: 5/25/16
Sample Collection Time: 09:10
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 281-32' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G10S8231
Matrix: SOIL

Project ID: GSA GOOD FELLOW
Site Name: 2014 121
Site Location: St. Louis, MO

Sample Number: DPTS-161
Sample Location Description: NORTH OF BUILDING 108A, DPT-25
Latitude: 38.689043
Longitude: -90.267397
Sample Collection Date: 5/23/14
Sample Collection Time: 10:40
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: 4' - 6' Bags
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSHA GOODFELLOW
Site Name: 2010 R1
Site Location: ST. LOUIS, MO

Sample Number: DPTS-1U2
Sample Location Description: NORTH OF BUILDING 108A, DPT-25
Latitude: 38.689043
Longitude: -90.247393
Sample Collection Date: 5/23/11
Sample Collection Time: 10:30
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments:

23' - 23' BUS

Sample Location Map:
Project Number: 103G1058231

Matrix: SOIL

Project ID: GSA GOODFELLOW

Site Name: 201W21

Site ID:

Sample Number: DPT5-143

Sample Location Description: NORTH OF BUILDING 108A, DPT-25

Latitude: 38.689043

Longitude: -90.247397

Sample Collection Date: 5/23/16

Sample Collection Time: 10:50

Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments:

23'-27' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 12
Site ID:

Sample Number: DPTS-1a4
Sample Location Description: EAST SIDE OF BUILDING 108A, DPT-2U
Latitude: 38.689190
Longitude: -90.247150
Sample Collection Date: 5/23/14
Sample Collection Time: 13:40
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4'-8' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G105B231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2012 R1
Site Location: St. Louis, MO

Sample Number: DPTS-1105
Sample Location Description: EAST SIDE OF BUILDING 108 A, DPT-26
Latitude: 38.689140
Longitude: -90.263150
Sample Collection Date: 5/23/14
Sample Collection Time: 13:50
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: 16'-20' BUS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 10341058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 R1
Site ID:

Sample Number: DPT5 - 166
Sample Location Description: EAST SIDE OF BUILDING JOB A, DPT - 27
Latitude: 38.689101
Longitude: -90.2668910
Sample Collection Date: 5/23/16
Sample Collection Time: 15:15
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments:
1' - 3' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 10361058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 21
Site ID:

Project Manager: ADAM WATKINS
Site Location: ST. LOUIS, MO

Sample Number: DPT1-1167
Sample Location Description: EAST OF BUILDING 108A
Latitude: 38.689101
Longitude: -90.2410890
Sample Collection Date: 5/23/14
Sample Collection Time: 15:25
Sample collected by: ADAM WATKINS

Sample Information:

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PCB's

Property Owner Information:

Sample Comments: 41-8 BUS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G105 8231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 RI

Sample Number: DPT 5-168
Sample Location Description: EAST OF BUILDING 108A, DPT - 27
Latitude: 38.689101
Longitude: -90.244890
Sample Collection Date: 5/23/14
Sample Collection Time: 15:25
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: A-8, BUS
Field Sample Collection Sheet

Project Number: 03G10S 8231
Matrix: Water

Project ID: GSA GOODFELLOW
Site Name: 2016 R1
Site ID:

Sample Number: DPTGW-101
Sample Location Description: EAST OF BUILDING 108A
Latitude: 38.689101
Longitude: -90.2648910
Sample Collection Date: 5/23/14
Sample Collection Time: 15:35
Sample collected by: ADAM WATKINS

Sample Information:

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Property Owner Information:

Sample Comments: 15'-19' BGS
Project Number: 10361058231  
Matrix: SOIL

Project ID: CSA GOODFELLOW  
Site Name: 2014 R1  
Site Location: ST. LOUIS, MO

Sample Number: DPTS-1U9  
Sample Location Description: SOUTH OF BUILDING 108A, DPT-28,29,430

Latitude: NA  
Longitude: NA

Sample Collection Date: 5/24/11  
Sample Collection Time: 11:45

Sample collected by: ADAM WATKINS

Sample Information:

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PCB's

Property Owner Information:

Sample Comments:  

D'1' BUS  

COMPOSITE SAMPLE OF DPT-28,29,430
Field Sample Collection Sheet

Project Number: 10361058231
Matrix: SOIL

Project ID: CASF GOODFELLOW
Site Name: 2016 RI
Site ID:

Sample Number: DPTS-170
Sample Location Description: SOUTHEAST OF BUILDING 10BA, DPT 28
Latitude: 38.688946
Longitude: -90.240504
Sample Collection Date: 5/23/14
Sample Collection Time: 14:55
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments:

4'8' BGS

Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2016 K1
Site ID:

Sample Number: DPTS-171
Sample Location Description: SOUTHEAST OF BUILDING IOBA, DPT-28
Latitude: 38.688946
Longitude: -90.244804
Sample Collection Date: 5/23/14
Sample Collection Time: 17:00
Sample collected by: ADAM WATKINS

Sample Information:

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<th>Analysis</th>
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PCBs

Property Owner Information:

Sample Comments: 24' - 28' BUS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 10341058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 R1
Site ID: 

Sample Number: DPT5-172
Sample Location Description: SOUTH OF BUILDING 10DA, DPT - 29
Latitude: 38.68830
Longitude: -90.266501
Sample Collection Date: 5/24/14
Sample Collection Time: 09:05
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4'-8' bags

Sample Location Map:
# Field Sample Collection Sheet

**Project Number:** 10361058231  
**Matrix:** Soil

**Project ID:** GSA GOODFELLOW  
**Site Name:** 2016 R1  
**Site Location:** ST. LOUIS, MO  
**Project Manager:** ADAM WATKINS

---

**Sample Number:** DPTS-173  
**Sample Location Description:** SOUTH OF BUILDING 108A, DPT-29  
**Latitude:** 38.688714  
**Longitude:** -96.226501  
**Sample Collection Date:** 5/24/14  
**Sample Collection Time:** 09:45  
**Sample collected by:** ADAM WATKINS

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**Sample Information:**

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- PCBs

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**Property Owner Information:**

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**Sample Comments:** 24'-28' BSY

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**Sample Location Map:**
Field Sample Collection Sheet

Project Number: 103G1058231
Matrix: SOIL

Project ID: GSA GOODFELLOW
Site Name: 2014 K1
Site ID:

Sample Number: DPTS-174
Sample Location Description: SOUTH OF BUILDING 108A, DPT-30
Latitude: 38.688318
Longitude: -90.246925
Sample Collection Date: 5/24/14
Sample Collection Time: 12:15
Sample collected by: ADAM WATKINS

Sample Information:

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PCBs

Property Owner Information:

Sample Comments: 4'-8' BGS
Sample Location Map:
Field Sample Collection Sheet

Project Number: 103G105B231
Matrix: WATER

Project ID: GSA GOODFELLOW
Project Manager: ADAM WATKINS
Site Name: 201C 21
Site Location: ST. LOUIS, MO

Sample Number: EB-1
Sample Location Description: NA
Latitude: NA
Longitude: NA
Sample Collection Date: 5/24/14
Sample Collection Time: 13:30
Sample collected by: ADAM WATKINS

Sample Information:

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VOCs, SVOCs, PCBs

Property Owner Information:

Sample Comments: EQUIPMENT BLANK

Sample Location Map: