



January 25, 2022

Mr. Todd Davis
EPA Site Assessment Coordinator
U.S. Environmental Protection Agency, Region 7
11201 Renner Boulevard
Lenexa, Kansas 66219

**Subject: Integrated Site Assessment and Removal Site Evaluation Report
regarding Sunshine Laundry Site, Fort Dodge, Iowa
EPA SEMS Identification No. IAN000706520
U.S. EPA Region 7, START 5, Contract No. 68HE0719D0001
Task Order No. 19F0086.008
Task Monitor: Todd Davis, EPA Site Assessment Manager**

Dear Mr. Davis:

Tetra Tech, Inc. submits the enclosed updated Integrated Site Assessment and Removal Site Evaluation Report regarding the Sunshine Laundry site in Fort Dodge, Iowa. This report has been revised to include additional sample results from December 2021. A Hazard Ranking System (HRS) scoring memorandum submitted on September 10, 2021, was not affected by the additional sampling and per your authorization will not be revised. If you have any questions or comments about this submittal, please contact the Project Manager at (816) 412-1771.

Sincerely,

A handwritten signature in blue ink that reads 'Jenna Mead'.

Jenna Mead, R.G.
START Project Manager

A handwritten signature in blue ink that reads 'Ted Faile'.

Ted Faile, PG, CHMM
START Program Manager

Enclosures

cc: Sharon Kennedy, On-Scene Coordinator

**INTEGRATED SITE ASSESSMENT AND
REMOVAL SITE EVALUATION REPORT**

**SUNSHINE LAUNDRY SITE
FORT DODGE, IOWA**

EPA SEMS ID – IAN000706520

**Superfund Technical Assessment and Response Team (START) 5 Contract
Contract No. 68HE0719D0001, Task Order 19F0086.008**

Prepared For:

U.S. Environmental Protection Agency
Region 7
Superfund Division
11201 Renner Boulevard
Lenexa, Kansas 66219

January 25, 2022

Prepared By:

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division tasked the Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START), under contract number 68HE0719D0001, to conduct an Integrated Site Assessment (ISA) (consisting of a preliminary assessment [PA], site inspection [SI]), and a removal site evaluation [RSE]) of the Sunshine Laundry site (the site) in Fort Dodge, Iowa (the City) (see Figure 1, Appendix A). This task was under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA). Work proceeded under Task Order Number 19F0086.008. The site has been entered into the Superfund Enterprise Management System (SEMS), with site identification number IAN000706520.

The purpose of the ISA was to determine whether any threats to human health or the environment exist as a result of the releases of volatile organic compounds (VOC) such as tetrachloroethene (PCE) associated with a former dry cleaning facility at the site—specifically, releases to soil and/or groundwater that could migrate via vapor intrusion (VI) into nearby structures. In addition, the RSE was conducted to delineate extents of soil and groundwater contamination for potential removal or remedial action prior to a proposed purchase of the property by the City of Fort Dodge. Those data would be evaluated to determine whether EPA removal response and/or further pre-remedial evaluation would be warranted.

Apparent Problem

Rainbow Cleaners operated at the site (2422 5th Avenue South in Fort Dodge, Iowa) from about 1984 to 1992. The building previously had been used as a restaurant. Sunshine Laundry (Sunshine Laundromat and Tanning or Sunshine Laundromat Deli and Tanning) operated from 1992 until June 2021 and reportedly did not perform dry cleaning. A December 1992 inspection of Rainbow Cleaners indicated that significant evidence (spills and odors) suggested storage of PCE wastes and/or spent filters and still bottoms in a shed behind the building, and disposal of these materials in a trash dumpster in the same area (Iowa Department of Natural Resources [IDNR] 2021b). Dry cleaning had ceased by the time of the inspection, and the machine had been moved to another facility in Des Moines. Investigations between 2008 and 2014 identified PCE contamination in soils and groundwater at the property, with groundwater contamination extending east onto the neighboring bank property. In 2014, IDNR suspended further monitoring requirements because site conditions had not changed within the previous 5 years. In 2021, the City of Fort Dodge asked EPA to investigate the former dry cleaning site, which the City was considering purchasing for use as a parking lot.

2.0 SITE DESCRIPTION

This section conveys information regarding the site's location, description, operational history, waste characteristics, geology, and hydrogeology.

2.1 SITE LOCATION AND DESCRIPTION

The City of Fort Dodge (City) is on the Des Moines River in Webster County, Iowa (Appendix A, Figure 1), and according to the 2010 census, had a population of 25,206 (U.S. Census Bureau 2021). The City supplies potable water to the population; however, many residing outside of city limits obtain their water from private wells (Iowa Geologic Survey [IGS] 2021). The City has an economy primarily involving biofuels, livestock feed, gypsum and limestone mining, can production, drywall manufacturing, trucking, manufacture of veterinary pharmaceuticals and vaccines, and retail (Wikipedia 2020). The City appears on 7.5-minute topographic quadrangle maps of Fort Dodge South, Iowa and Fort Dodge North, Iowa (U.S. Geological Survey [USGS] 2018a, b).

The approximately 0.94-acre site is on the eastern side of the City at 2422 5th Avenue South (Appendix A, Figure 2). The single-story building on the site was constructed in 1974, and the site also features a shed north of the building and a paved parking lot. A stormwater drain is in the parking lot about 50 feet north of the and in line with the sidewalk at the west side of the building. Sunshine Laundry was operating during the initial ISA investigation; however, the laundromat manager indicated that it was slated for closure in mid-June 2021. The manager indicated that the dry cleaning machine had been at the northwest corner of the building in the area hosting a television lounge at the time of the manager's statement. Inside the southwest entrance was a former snack bar used as the attendant's counter/office area; east-west lines of washers occupied the eastern half of the building, with dryers along the eastern and northern walls. Floor drains were present between the rows of machines. The laundromat manager indicated the drain lines flow east and then south. A furnace/utility room was at the northeast part of the building inside the north door to the building. This building was vacant during December 2021 field activities.

The site is surrounded by an asphalt parking lot in poor condition, with commercial/industrial buildings beyond. A partially vacant shopping center is across an alley to the north, a former Wells Fargo Bank adjoins to the east. The former bank was vacant in June 2021, but had been purchased and was being remodeled as a jewelry store during December 2021 activities. La' James International College (cosmetology) is across 5th Avenue South to the south, and Nestlé Purina PetCare Company (NPPC) is beyond a power/cable utility easement to the west. Numerous vacant properties are present in the area;

however, revitalization and redevelopment has been planned or is underway in the area. The immediate area surrounding the site is commercial, with the closest residential structures about 0.25 mile to the south and west. The Crossroads Mall (to be demolished and redeveloped) and retail stores are generally northeast (downgradient) of the site, with the closest downgradient residences about 0.5 mile north or 0.8 mile northeast. Global Positioning System (GPS) coordinates at the approximate center of the Sunshine Laundry property are 42.50142 degrees (°) north latitude and 94.16390° west longitude.

2.2 OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

The building at 2422 5th Avenue South was constructed in 1974 as a restaurant, and the land previously had been used for agriculture (Burns & McDonnell Engineering Company, Inc. [Burns & McDonnell] 2008). Rainbow Laundry and Dry Cleaning (Eugene Hiskey, owner) operated as a coin-operated dry cleaning and laundry at the property from approximately 1984 until 1992 (NewspaperArchive 2020). Mr. Hiskey sold the property in 1994 to Sunshine Company LC. The City purchased the property in June 2021 (Webster County, Iowa 2022). Sunshine Laundry operated out of the building from 1994 until June 2021.

PCE

PCE is a chlorinated solvent with an ether-like odor that has been typically used in dry cleaning operations and as a degreaser for metal parts (Agency for Toxic Substances and Disease Registry [ATSDR] 2019a). Prolonged exposure to PCE may cause vision changes and neurobehavioral effects.

The common dry-cleaning solvent PCE was not used in the United States until 1934; however, petroleum solvents and carbon tetrachloride were in use as dry-cleaning solvents in the early 1900s. By 1948, PCE had replaced carbon tetrachloride as the major chlorinated dry cleaning solvent used in the United States (petroleum solvents still dominated overall). By 1962, dry cleaning operations accounted for 90 percent of the PCE used in the United States (State Coalition for Remediation of Drycleaners [SCRD] 2007). PCE degrades to trichloroethene (TCE). PCE has low to moderate mobility in soil and may leach slowly to groundwater. Its solubility in groundwater is slight (0.15 grams per liter) at 25 degrees Celsius (°C), and its specific gravity is 1.62 (Centers for Disease Control and Prevention [CDC] 2020). PCE tends to accumulate at greater depths with increasing distance from the source area.

Biodegradation of chlorinated VOCs (CVOC) such as PCE may be enhanced by presence of petroleum hydrocarbons. The microorganisms obtain energy by transferring electrons from fuel hydrocarbons or native carbon (electron donors) to CVOCs (electron acceptors) in an oxidation-reduction reaction

(EPA 1998). Moreover, microbes feeding on petroleum hydrocarbons may consume CVOCs in the groundwater contaminant plume.

TCE

TCE is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste (ATSDR 2019b). TCE is reasonably anticipated to be a human carcinogen. Drinking small amounts of TCE for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women (ATSDR 2019b). The *cis*- and *trans*- isomers of 1,2-dichloroethene (DCE) are common degradation products from TCE. These daughter products eventually degrade to vinyl chloride.

TCE was introduced as a dry cleaning solvent in the United States in 1930 (SCRD 2007) and many dry cleaning operations during the early-late 1900s used TCE as a spotting agent or specialty cleaner. In addition to dry cleaning, TCE is used as a degreaser for metal parts and as a precursor chemical in industry (ATSDR 2019b). TCE is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE has low to moderate mobility in soil and may leach slowly to groundwater. Its solubility in groundwater is low (1 gram per liter at 25 °C), and its specific gravity is 1.46 (CDC 2020). TCE is denser than water and is typically found at greater depths with increased time and/or distance from a source area if released to the environment.

2.3 GEOLOGY AND HYDROGEOLOGY

Webster County is in the northwest portion of central Iowa within the Central Lowlands Physiographic Province. Wisconsin-aged glaciation occurred in central Iowa during three major advances across an area referred to as the Des Moines Lobe. Glacial till comprised of silt loam and sandy loam overlies Pennsylvanian and Mississippian bedrock. The irregular bedrock surface topography in this region varies considerably and ranges in elevation from 700 to 950 feet above mean sea level (amsl). Regional Pleistocene deposits vary in thickness from about 100 to 300 feet, depending on the bedrock surface elevation (University of Iowa 2020). The Mississippian Saint Louis (sandy to silty dolomite) and Pella (calcareous shale) Formations form the uppermost bedrock in the site area (IDNR 1997). Iowa's Geosam database of water wells indicates that typically about 80-100 feet of glacial till overlies bedrock in this area (IGS 2021).

The exposed geologic units in the Fort Dodge area include early Pennsylvanian shale and sandstone; late Mississippian dolomite, limestone, and sandstone; and Jurassic gypsum and red beds (Iowa Geologic and

Water Survey [IGWS] 2010). The City's bedrock geology is unique, including conglomerates, gypsum beds, and red beds of the Upper Jurassic-aged Fort Dodge Formation. The Fort Dodge Formation contains some of the most quarried bedrock units in Iowa due to economic viability of the high-quality gypsum exposed in the Fort Dodge area (Geological Society of Iowa 2014).

Soils in Fort Dodge are very deep and well drained on foot slopes, alluvial fans, upland drainageways, treads, and risers on stream terraces. These soils formed in loamy colluvium or alluvium overlying coarse textured sediments (U.S. Department of Agriculture [USDA] 2006).

Fort Dodge is part of Iowa's Southern Groundwater Province, which is classified as a poor groundwater area in terms of sufficient quantity and quality (IDNR 2003). Public water supply (PWS) wells serving Fort Dodge are near the Des Moines River in an area extending from about 2.75 miles northwest of the site to 1.1 miles southwest of the site. The Fort Dodge PWS serves a population of 26,186 persons (IDNR 2021a). Five active municipal wells pump from sandstones and dolomites of the Cambrian-Ordovician Aquifer and have total depths of 1,830 to 2,307 feet below ground surface (bgs). Three active wells draw from the Mississippian Aquifer sandstones and dolomites, with total depths between 516 and 980 feet bgs (Fort Dodge Water Department [FDWD] 2017, IDNR 2021b).

Domestic wells in the area are typically installed in the Mississippian Aquifer. The IDNR Private Well Tracking System (PWTS) identified several commercial wells, generally associated with gypsum mines, about 1.5-2 miles southeast of the site. These wells have total depths ranging from 345 to 720 feet, suggesting that they are producing water from the Mississippian Aquifer. One household well was identified in the PWTS, about 1.9 miles northeast of the site, and just outside of Fort Dodge city limits. The IGS GeoSam database indicates that this well has a static water level (SWL) of 44 feet bgs and produces groundwater from sand and gravel at 85-95 feet bgs (IGS 2021). The well log indicates that clay and sandy clay are present from the surface to 70 feet bgs, and sand and gravel below that to 98 feet bgs, where shale and limestone Mississippian bedrock is present. IGS GeoSam well records indicate most wells in this rural area are between 148 and 192 feet deep and produce groundwater from the Mississippian Aquifer. The GeoSam database also includes records pertaining to six wells in the northwest quarter of Section 22, T89N, T28W, about 1 mile northeast of the site. These wells were drilled between 1960 and 1966 to depths between 232 and 380 feet bgs. It is uncertain whether these wells were associated with houses on 5th Avenue North or 10th Avenue North; however, these residences are within current city limits and likely are now supplied with municipal water.

Groundwater flow in the Fort Dodge area is generally southwest toward the Des Moines River and regionally toward the south-southeast. The regional groundwater flow of the Mississippian Aquifer is to the south, with discharge into the Des Moines River. Regional groundwater flow of the Silurian-Devonian Aquifer is to the southeast, with discharges into several rivers including the Iowa, Winnebago, Shell Rock, Cedar, and Maquoketa Rivers. Regional groundwater flow of the Cambrian-Ordovician Aquifer is to the southeast, with discharge into the Mississippi River Valley (IDNR 2003). Based on the historical plume maps, shallow groundwater flow at the site is to the northeast, and groundwater first occurs at depth of 5.45 feet bgs. The Des Moines River is approximately 1.25 miles southwest of the site. Two tributaries of the Des Moines River are near the site—Soldier Creek is approximately 1.5 miles north of the site, and Gypsum Creek is less than 1 mile southeast of the site (Appendix A, Figure 1).

3.0 PREVIOUS INVESTIGATIONS

START reviewed documents regarding previous investigations at the site available through IDNR's Contaminated Sites webpage (IDNR 2021c). In June 1992, EPA inspected the site under Section 3007 of the Resource Conservation and Recovery Act (RCRA). EPA sent a Letter of Warning to Mr. Hiskey of Rainbow Cleaners in December 1992 stating that the inspection had revealed significant evidence suggesting storage of PCE wastes and/or spent filters and still bottoms in a shed behind the building, and disposal of these materials in a trash dumpster in the same area (IDNR 2021c).

In 2008, NPPC retained Burns & McDonnell to conduct a Phase I Environmental Site Assessment (ESA) of the site. NPPC was considering purchase of the property for additional facility parking. Burns & McDonnell obtained documents regarding the 1992 EPA inspection through the Freedom of Information Act (FOIA). The Phase I ESA report alludes to a RCRA complaint inspection that indicated cessation of dry cleaning operations at the facility about 6 months before that inspection—and when the dry cleaning machinery was moved to another facility owned by Mr. Hiskey in Des Moines. The documents reportedly indicated no presence of wastes at the time; however, staining and PCE odors were detected. Mr. Hiskey admitted previous storage of PCE wastes in the shed in 5-gallon buckets, and previous placements of waste filters back into the box as new filters had been removed. Reportedly, the owner's son had transported the wastes to the Des Moines facility, or (during 1990-91 only) Safety Kleen had collected those wastes (Burns & McDonnell 2008). This shed is still present at the site and is about 25 feet north of the building at the east property line. Trash dumpsters are between the shed and the building.

Ms. Jyoti Raval, co-owner of Sunshine Laundry, stated that no dry cleaning had occurred at the site during Sunshine Laundry ownership (Burns & McDonnell 2008).

A subsequent (2008) Phase II ESA of the site by Burns & McDonnell at the request of NPPC included direct-push borings (DP-1 through DP-10) advanced at 10 locations for collection of soil and groundwater samples; two sub-slab vapor samples (SVP-1 and SVP-2) also were collected inside the Sunshine Laundry building. The soil and groundwater sampling locations were in or near areas suspected to be along likely pathways of contaminant migration. Three or four samples from each boring were collected and field-screened for organic vapors by use of a photoionization detector (PID). One sample from each boring was selected for laboratory analysis for VOCs. Figure 2 in Appendix A shows sampling locations during the 2008 Phase II ESA. Table B-1 in Appendix B lists VOC results from the soil samples, and includes information on depths where elevated PID readings were noted on the soil boring logs.

Analytical results from the Phase II ESA indicated that soils collected within 14-15 feet bgs (just above the water table) at DP-9 contained 22,100 micrograms per kilogram ($\mu\text{g}/\text{kg}$) of PCE, which exceeded the Iowa Statewide Standard (ISS) referenced as applicable at that time (5,700 $\mu\text{g}/\text{kg}$, compared to the current ISS of 1,500,000 $\mu\text{g}/\text{kg}$). DP-9 was about 50 feet north of the building near a storm sewer inlet in the parking lot. The second highest PCE concentration in soil was 1,850 $\mu\text{g}/\text{kg}$ detected at 2-3 feet bgs at DP-4, near the northwest corner of the building and along the storm sewer line.

A groundwater sample collected within the interval from 22-26 feet bgs at DP-9 contained 2,130 micrograms per liter ($\mu\text{g}/\text{L}$) of PCE and 4.2 $\mu\text{g}/\text{L}$ of TCE. Groundwater at DP-6, near the dumpster where disposal of PCE waste likely had occurred, contained 1,040 $\mu\text{g}/\text{L}$ of PCE and 37.9 $\mu\text{g}/\text{L}$ of TCE. Groundwater at DP-8, just north of the shed, contained 178 $\mu\text{g}/\text{L}$ of PCE, 103 $\mu\text{g}/\text{L}$ of TCE, 302 $\mu\text{g}/\text{L}$ of *cis*-1,2-DCE, 139 $\mu\text{g}/\text{L}$ of *trans*-1,2-DCE, 2.3 $\mu\text{g}/\text{L}$ of vinyl chloride, and 1.4 $\mu\text{g}/\text{L}$ of chloroethane—indicating that PCE is degrading to its daughter products in this area. Table B-2 in Appendix B lists data from all groundwater samples in chronological order, and Table B-3 lists groundwater data from the six monitoring wells (MW) by grouped by well.

In VI sub-slab sample SVP-2, collected near the northwest corner inside the laundromat, PCE was detected at 630,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Sample SVP-1, collected at the northeast sub-slab port, contained 170 $\mu\text{g}/\text{m}^3$ of PCE. Table B-4 in Appendix B lists data from sub-slab samples.

IDNR requested additional investigation of the site under CERCLA in 2008. At the request of Sunshine Laundry, Barker Lemar Engineering Consultants (Barker Lemar) conducted a limited Site Assessment in 2010 (Barker Lemar 2010). Six borings were drilled and completed as permanent MWs (MW-1 through MW-6). MW-1 through MW-4, screened from 5 to 20 feet bgs (total depth of each well), were installed and sampled in January 2010. MW-5 and -6 were installed and sampled in April 2010. MW-5 was screened from 5 to 10 feet bgs, while MW-6 was screened from 4 to 14 feet bgs. Groundwater was encountered at depths between 5.4 and 9.25 feet bgs. Soil samples were collected from four of the borings, with highest concentrations detected near the northeast corner of the building where a sample collected at 9 feet bgs at MW-6 contained 43 $\mu\text{g}/\text{kg}$ of PCE and 63 $\mu\text{g}/\text{kg}$ of TCE. Figure 2 in Appendix A shows sampling locations, and Table B-1 in Appendix B lists results from soil samples. Tables B-2 and B-3 in Appendix B lists results from groundwater samples collected from these wells.

The highest PCE result from groundwater samples collected during January and April 2010 was 1,970 $\mu\text{g}/\text{L}$ in a sample collected from MW-3, about 40 feet east of the storm sewer inlet, or about 25 feet

northwest of the shed. Only MW-1, the farthest north well, contained less than 5 µg/L of PCE; however, it contained 7 µg/L of TCE.

In response to IDNR's request, additional temporary wells (TW) (WF-1 through WF-3) were advanced on the east neighboring property (Wells Fargo) in December 2010. WF-1, the farthest downgradient near the northeast corner of the bank property, contained 130 µg/L of PCE; WF-2 contained 400 µg/L of PCE; and WF-3, closest to the former dry cleaner, contained 1,000 µg/L of PCE. The MWs were also sampled in December 2010; however, MW-3 could not be located. MW-2, about 30 feet west of the stormwater inlet, contained the highest PCE concentration at 350 µg/L. Figure 2 in Appendix A shows these sample locations, and Table B-2 in Appendix B lists analytical results from those samples.

In May 2011, four additional TWs (PS-1 through PS-4) were advanced east of Wells Fargo, across South 25th Street, in the Long John Silver's parking lot (now Ninja Sushi Steak House). Only the northern two wells (PS-1 and PS-2) yielded groundwater, and neither contained detectable VOCs. Figure 2 in Appendix A shows these sampling locations, and Table B-2 in Appendix B lists results from those samples.

Additional rounds of groundwater sampling occurred in May and December 2011 as part of an Extended Site Screening (ESS). At the time of the ESS in 2011, the plume did not appear to extend east of South 25th Street; however, contaminated groundwater was known to extend off site onto the Wells Fargo property. In May 2011, MW-3 contained PCE at 4,000 µg/L, and in December 2011, it contained 3,700 µg/L of PCE. PCE was not detected in MW-1; however low levels of its degradation products TCE and 1,2-DCE were detected. MW-2 (west of the stormwater inlet) contained 690 µg/L of PCE in May 2011 and 790 µg/L in December 2011. VOCs were not detected in MW-4 in either May or December 2011. In MW-5 and -6, PCE concentrations between 67 and 190 µg/L were detected during May and December 2011. Table B-2 in Appendix B lists these data.

On August 28, 2014, the Contaminated Sites Section of IDNR collected another round of groundwater samples from the permanent on-site wells. Analytical results from this 2014 sampling event indicated remaining presence of groundwater contamination at the site. MW-1 and -4 did not contain PCE or TCE; however *cis*-1,2-DCE was detected at 11 µg/L in MW-1. MW-3 could not be found. Detected in MW-2 were 2,300 µg/L of PCE, 290 µg/L of TCE, and 760 µg/L of 1,2-DCE. MW-5 contained 170 µg/L of PCE, and MW-6 contained 97 µg/L PCE (similar to 2010-2011 results). Table B-2 in Appendix B lists these data.

In September 2014, IDNR sent a letter to the current property owners summarizing IDNR's position regarding the site, emphasizing that on-site conditions had not changed significantly within the previous 5 years. Additionally, under current site use and conditions, IDNR would suspend any further requirements for continued monitoring (IDNR 2021c).

In 2020, EPA performed a Pre-Comprehensive Environmental Response, Compensation, and Liability Act Screening (PCS) at Sunshine Laundry under the site name 2422 5th Avenue South Former Dry Cleaner site. The PCS determined that additional investigation was warranted (Tetra Tech 2020).

In 2021, the City requested that EPA investigate the site. The City was considering purchasing the site, razing the building, and installing a parking lot. The City purchased the property in June 2021 (Webster County, Iowa 2022) and is coordinating with EPA regarding demolition and redevelopment into a parking lot (Tetra Tech 2022).

4.0 SAMPLING ACTIVITIES

Section 4.0 discusses field sampling and associated quality assurance (QA)/quality control (QC) activities at the site during the ISA. General objectives of the project were to delineate approximate extents of site-related contamination in soil and groundwater, and to assess VI threats to nearby workers (no residential properties are within 0.25 mile of the site).

Field work for the ISA/RSE occurred during June 7-11, 2021, and December 15-16, 2021. The START Project Manager (PM) was Jenna Mead, and the EPA Project Managers were Region 7 Iowa Site Assessment Manager Todd Davis and On-Scene Coordinators (OSC) Megan Schuette and Sharon Kennedy. START members (SM) Tim Barbeau, Thomas Kaley, and Stephanie Caples conducted various VI, soil, and groundwater field samplings.

START PM Mead mobilized to site on June 6, 2019, and met the subcontracted direct-push technology (DPT) operator Plains Environmental Services (PES) on site at 08:00 hours on June 7, 2021, to begin electrical conductivity (EC) and membrane interface probe (MIP) logging. SMs Barbeau and Kaley and EPA OSC Schuette arrived later that day. In addition to EC/MIP logging at 15 locations, field activities included collection of 30 soil samples from 19 soil borings, 14 groundwater samples from TWs, three groundwater samples from existing MWs, two soil-gas samples, one ambient air sample, eight indoor air samples, and five sub-slab vapor samples. A copy of the field logbook is in Appendix C, site photographs are in Appendix D, and access agreements are in Appendix E.

SM Barbeau and Caples mobilized to the site on December 15, 2021, with PES to conduct additional sampling. Soil samples were collected from seven borings placed at the former Wells Fargo Bank property to the east in an effort to delineate soil contamination. A second round of indoor air and sub-slab sampling also occurred at that property.

Activities proceeded as specified in a site-specific Quality Assurance Project Plan (QAPP) for the ISA approved by EPA on May 27, 2021, unless otherwise noted in this report (Tetra Tech 2021). All soil and groundwater samples were stored in coolers maintained at or below a temperature of 4 degrees Celsius (°C) pending submittal for laboratory analysis. Sub-slab vapor, indoor air, crawlspace air, ambient air, and soil-gas samples collected in Summa[®] canisters were submitted at ambient temperature for laboratory analyses. The June 2021 samples were submitted to the EPA Region 7 laboratory under Analytical Services Request (ASR) Number 8924, and the December 2021 samples were submitted under ASR 9124.

4.1 MEMBRANE INTERFACE PROBE AND ELECTRICAL CONDUCTIVITY LOGGING

PES used a track-mounted DPT rig to advance a combination MIP/EC probe to investigate soils at the former dry cleaner. Figure 3 in Appendix A shows locations of the MIP borings at the site. Most locations were collocated with soil or groundwater sample locations; however, sequential numbers were assigned to each boring type among the collocated borings, which are shown on Figures 4 and 5.

The MIP/EC probe was driven into the ground by application of standard DPT techniques. As the probe advances, a shielded cable transmits data from the probe through the rod string to a field instrument at the surface. The field instrument displays depth of the probe, soil conductivity (or other data), and probe speed simultaneously and in real time. Generally, high soil conductivities (exceeding 50 milliSiemens/meter [mS/m]) indicate clays, moderate conductivities indicate silts, and low conductivities indicate sands. Clean quartz sands and silts may induce EC readings of about 1-2 mS/m; however, the EC readings in saturated sands reflect the EC of the formation water. As such, EC logging provides site-specific lithologic information, including vertical and lateral extents of aquitards, aquifers, and other hydrostratigraphic units; however, mineralogy of the formation or the aquifer can affect reliability of readings.

The MIP is a screening tool with semi-quantitative capabilities, acting as an interface between volatile contaminants at depth in the soil and gas phase detectors at the surface. The semi-permeable MIP membrane, composed of a thin film polymer and impregnated into a stainless-steel screen for support, is in a heated (100-120 °C) block attached to the probe as the probe advances into the soil. Heating the block accelerates diffusion of volatiles from the soil through the membrane while minimizing absorption of contaminants by the membrane. Diffusion through the membrane is also driven by the concentration gradient between the contaminated soil and the clean carrier gas behind the membrane. A constant gas flow (typically nitrogen) sweeps behind the membrane and carries the contaminants to the gas phase detectors at ground surface that are part of the MIP instrument system. The MIP consisted of a halogen (chlorine)-specific detector (XSD), a PID, and a flame ionization detector (FID) attached to a gas chromatograph. MIP logs were recorded at 15 on-site borings (MIP-01 through -15).

The downhole logging tools were advanced to a maximum of about 42 feet bgs, with most advanced to about 32 feet bgs. MIP logging commenced at the southwest corner of the site and generally proceeded along the edges of the known contamination before proceeding to the more contaminated area. Two MIP borings planned for the adjoining Wells Fargo Bank property were eliminated because access permission was not granted prior to field activities. Attachment 1 contains copies of the EC/MIP logs provided by PES.

MIP Logging Results

The EC logs indicate presence of clays and silty clays with occasional sandy layers to the total depth logged. Soils at the southern part of the site have relatively high resistivities, suggestive of higher clay content to about 6 feet, while farther north the higher resistivity clays continue to about 14 feet bgs. PID readings from the EC/MIP logs commonly show elevated PID readings without a corresponding XSD peak (typically indicative of non-chlorinated VOCs such as fuel contamination) at about 28 feet bgs.

The MIP XSD indicated presence of CVOCs (presumably PCE and breakdown products) at the former dry cleaner property. High XSD readings were detected at various depths from about 2 to 42 feet bgs at MIP-12 near the stormwater drain. At MIP-12, XSD readings were highest over the largest interval, with very high readings from about 13 to 20 feet bgs, decreasing below that to total depth at 42 feet bgs. At MIP-11, between the storm drain and the waste PCE storage shed, a high XSD reading occurred at 9 feet bgs, with indications of lesser contamination above and below that depth. At other locations, elevated XSD readings tended to occur at around 5 feet bgs or about 10-14 feet bgs—around top of groundwater. Figures 6, 7, and 8 are south to north MIP cross-sections at western, central, and eastern portions of the site, respectively, and illustrate the generally low XSD responses at the eastern and northern portions of the site, and the higher responses, indicative of contamination, near the stormwater drain north of the building. Because most of the site is flat—at approximate elevation of 1,111 feet amsl—the cross-sections show depth in feet bgs. MIP logs on these figures have been annotated with results from collocated soil and groundwater sample locations.

4.2 SOIL SAMPLING

Soil samples submitted to the EPA Region 7 laboratory for VOCs analysis were selected in part based on MIP logging results, with samples generally collected at depths where elevated XSD readings were indicated on the MIP logs. At other locations, soil samples were collected to delineate previously identified soil contamination. Soil cores were obtained at each location by use of 5-foot-long Geoprobe® Macro-Core soil samplers, each of which contained a disposable polyvinyl chloride (PVC) sleeve. START screened the cores for presence of VOCs using a handheld PID, and recorded the PID readings on the boring logs. Soils were logged from surface to a maximum of 21 feet bgs. Boring logs were prepared for selected borings due to their proximity to each other (see Appendix F). DPT soil sample locations are shown on Figure 4 in Appendix A, and are listed in Table 1 below.

TABLE 1
2021 SOIL SAMPLE SUMMARY
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Boring Number	Location	Depth (ft bgs)	Sample Number	Sample Date	Sample Time
June 2021 Sampling					
SB-1	Sunshine Laundry – northwest quadrant at lounge area inside building	1-2	8924-101	6/09/2021	07:58
		7-8	8924-102		08:15
SB-2	Sunshine Laundry – northeast quadrant inside building	5-6	8924-103		10:10
		11-12	8924-104		10:50
SB-3	Sunshine Laundry – southeast quadrant inside building	5-6	8924-105		13:05
SB-4	Sunshine Laundry – southwest quadrant inside building	2-3	8924-106		13:45
		10-12	8924-107		14:15
SB-5	City easement – at southwest entrance to Sunshine Laundry property; collocated with MIP-1 and TW-6	4-5	8924-108		15:25
		14-15	8924-109		15:35
SB-6	Sunshine Laundry – west property line and in line with northwest corner of Sunshine Laundry building; collocated with MIP-3 and TW-7	4-5	8924-110		15:50
SB-7	Sunshine Laundry – west property line about 80 feet northwest of building; collocated with MIP-4	4-5	8924-111		16:15
		9-10	8924-112		16:20
SB-8	Sunshine Laundry – near northeast corner of Sunshine Laundry property; collocated with MIP-7	9-10	8924-113		16:55
SB-9	Sunshine Laundry – east property line, about 30 feet north of shed; collocated with MIP-8 and TW-9	3-4	8924-114		07:25
		9-10	8924-115		07:30
SB-10	Sunshine Laundry – east property line between building and shed; collocated with MIP-10	9-10	8924-116		07:50
SB-11	Sunshine Laundry – about 40 feet north of center of building; collocated with MIP-11	9-10	8924-117	08:10	
SB-12	Sunshine Laundry – just northeast of stormwater drain, about 50 feet north of northwest corner of building; collocated with MIP-12 and TW-8	12-13	8924-118	08:45	
		4-5	8924-119	08:50	
SB-13	Sunshine Laundry – about 80 feet north of center of building; collocated with MIP-9	4-5	8924-120	09:10	
		10-11	8924-121	09:05	
SB-14	Sunshine Laundry – northwest corner of parking lot about 90 feet north of stormwater drain; collocated with TW-10	12-13	8924-122	09:25	
SB-15	Sunshine Laundry – about 10 feet west of the northwest corner of building	3-5	8924-123	09:45	
SB-16	Sunshine Laundry – grassy area just east of front walkway to building, about 10 feet north of City sidewalk; collocated with MIP-15 and TW-3	4-5	8924-124	10:20	
		7-8	8924-125	10:25	

TABLE 1 (Continued)

**2021 SOIL SAMPLE SUMMARY
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Boring Number	Location	Depth (ft bgs)	Sample Number	Sample Date	Sample Time
SB-17	City easement – near southeast corner of Sunshine Laundry property; collocated with TW-4	4-5	8924-126	6/10/2021	10:35
SB-18	Wells Fargo Bank property – grassy area near west property line, about 15 feet south of bank’s drive-through lane canopy; collocated with TW-5	3-4	8924-127		11:00
		14-15	8924-128		11:15
SB-19	Wells Fargo Bank property – about 15 feet east of west property line and in line with north edge of shed at Sunshine Laundry	4-5	8924-129		11:25
		9-10	8924-130	11:30	
December 2021 Sampling					
SB-20	Former Wells Fargo Bank property – west of drive-through lane, about 40 feet north of sidewalk	3-4	9124-101	12/15/2021	12:00
		17.5-18.5	9124-102		12:16
SB-21	Former Wells Fargo Bank property – east of drive-through lane, about 55 feet north of sidewalk	4-5	9124-103		12:26
		10-11	9124-104		12:35
SB-22	Former Wells Fargo Bank property – east edge of drive-through lane, just north of drive-through lane canopy	4-5	9124-105		13:02
		14-15	9124-106		13:12
SB-23	Former Wells Fargo Bank property – at northwest corner of parking area immediately north of building	5-5.5	9124-107		13:31
		9-10	9124-108		13:37
SB-24	Former Wells Fargo Bank property – about 15 feet east of west property line and 80 feet north of drive-through lane canopy	3.5-4.5	9124-109		14:32
		14-15	9124-110		14:42
SB-25	Former Wells Fargo Bank property – near southwest corner of automatic teller machine (ATM)	4-5	9124-111		14:50
		9-10	9124-112		14:57
SB-26	Former Wells Fargo Bank property – approximate center of parking area north of building	4-5	9124-113		15:08
		14-15	9124-114		15:14

Notes:

ft bgs Feet below ground surface
SB Soil boring

Each grab sample of subsurface soils for analysis for VOCs consisted of two 5-gram aliquots placed into two 40-milliliter (mL) vials preserved with sodium bisulfate, one 5-gram aliquot placed into a 40-mL vial preserved with methanol, and an unpreserved 2-ounce plastic bottle packed with soil for percent solids (moisture content) determination.

Analytical Data Summary

Table 2 below lists soil sample results, and Figure 9 presents the site-related VOC results (results for the common laboratory contaminants acetone and 2-butanone results are not shown on this figure). PCE was detected in 17 samples from 12 of the 19 June borings, and in six of the seven December borings. PCE concentrations ranged from 6 µg/kg, just above detection limits, to an estimated 31,000 µg/kg in the on-site borings in June, but at a maximum of 220 µg/kg in the off-site borings in December 2021. PCE was detected in seven of the 15 on-site samples collected above 6 feet bgs at concentrations between 6 and 180 µg/kg. PCE was detected in 10 of the 15 deeper on-site samples collected within 7-13 feet bgs. PCE concentrations ranged from 19 to an estimated 31,000 µg/kg, with six samples containing over 4,000 µg/kg. Highest concentrations were along the west side of the building, extending south from the storm sewer inlet north of the building. PCE was detected in three of the shallow off-site soil samples collected at the former Wells Fargo property, with the maximum detection of 51 µg/kg in SB-24, near previously identified PCE-contaminated soils. PCE was detected in three of the deeper off-site soil samples collected at the former Wells Fargo property, with the maximum detection of 220 µg/kg in SB-23, collected near the northwest parking space north of the building. Figure 10 is an isoconcentration map of the maximum PCE concentrations detected in soils at the site since 2008, and is a general depiction of areas having the highest levels of PCE contamination.

TCE was detected in samples from 11 borings, including one (SB-13) where PCE was not detected. The TCE-degradation products *cis*-1,2-DCE and *trans*-1,2-DCE were commonly detected with occurrence of TCE at the site, and PCE likely was present previously at SB-13 but had degraded to its daughter products. Fuel-related contaminants such as benzene, toluene, and xylenes were detected in samples from SB-13 (on site) and SB-21, -22, and -23 (off site). As previously mentioned, petroleum products enhance PCE degradation (EPA 1998). SB-26, the farthest downgradient soil boring off site, contained only *cis*-1,2-DCE.

No contaminant concentration exceeded either an EPA Removal Management Level (RML) or an ISS for soil. Chain-of-custody records and analytical data for ASRs 8924 and 9124 are in Appendix G.

TABLE 2
2021 SOIL SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Boring Number	Location	Depth (ft bgs)	Sample Number	Acetone	MEK	Benzene	Toluene	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE
				Concentration (µg/kg)							
Removal Management Level Industrial Soil (TR=10E-04; THQ = 1)				1.1E+09	1.9E+08	4.2E+05	4.7E+07	3.9E+05	1.9E+04	2.3E+06	3E+05
Iowa Statewide Standard for Soil				6.8E+07	4.6E+07	5.6E+04	6.1E+06	1.5E+06	6.7E+04	1.5E+05	1.5E+06
SB-1	Sunshine Laundry – northwest quadrant at lounge area inside building; collocated with TW-1	1-2	8924-101	9.2 U	9.2 U	4.6 U	4.6 U	6	4.6 U	4.6 U	4.6 U
		7-8	8924-102	9.5 U	9.5 U	4.7 U	4.7 U	14,000 J	35	18	4.7 U
SB-2	Sunshine Laundry – northeast quadrant inside building; dry at 30 feet bgs	5-6	8924-103	12 U	12 U	5.9 U	5.9 U	16	5.9 U	5.9 U	5.9 U
		11-12	8924-104	9.3 U	9.3 U	4.6 U	4.6 U	4,200	4.6 U	4.6 U	4.6 U
SB-3	Sunshine Laundry – southeast quadrant inside building	5-6	8924-105	12 U	12 U	5.8 U	5.8 U	180	5.8 U	5.8 U	5.8 U
SB-4	Sunshine Laundry – southwest quadrant inside building; collocated with TW-2	2-3	8924-106	120	12 U	5.9 U	5.9 U	140	5.9 U	5.9 U	5.9 U
		10-12	8924-107	10 U	10 U	5 UJ	5 UJ	9,800 J	5 UJ	5 U	5 U
SB-5	City easement – at southwest entrance to Sunshine Laundry property; collocated with MIP-1 and TW-6	4-5	8924-108	10 U	10 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U
		14-15	8924-109	9.7 U	9.7 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U
SB-6	Sunshine Laundry – west property line and in line with northwest corner of Sunshine Laundry building; collocated with MIP-3 and TW-7	4-5	8924-110	50 J	9.6 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
SB-7	Sunshine Laundry – west property line about 80 feet northwest of building; collocated with MIP-4	4-5	8924-111	10 U	10 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	13
		9-10	8924-112	10 U	10 U	5 U	5 U	19	5 U	5 U	5 U
SB-8	Sunshine Laundry – near northeast corner of Sunshine Laundry property; collocated with MIP-7	9-10	8924-113	23	11 U	5.4 U	5.4 U	5.4 U	6.8	5.4 U	5.4 U
SB-9	Sunshine Laundry – east property line, about 30 feet north of shed; collocated with MIP-8 and TW-9	3-4	8924-114	27	10 U	5.2 U	5.2 U	5.2 U	14	33	5.2 U
		9-10	8924-115	11 U	11 U	5.6 U	5.6 U	4,300	8	7.9	5.6 U
SB-10	Sunshine Laundry – east property line between building and shed; collocated with MIP-10	9-10	8924-116	9.5 U	9.5 U	4.8 U	4.8 U	4,200	4.8 U	4.8 U	4.8 U
SB-11	Sunshine Laundry – about 40 feet north of center of building; collocated with MIP-11	9-10	8924-117	11 U	11 U	5.3 U	5.3 U	200	21	79	16
SB-12	Sunshine Laundry – just northeast of stormwater drain, about 50 feet north of northwest corner of building; collocated with MIP-12 and TW-8	4-5	8924-119	19	9.6 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14
		12-13	8924-118	11 U	11 U	5.4 U	5.4 U	31,000 J	28	38	5.4 U
SB-13	Sunshine Laundry – about 80 feet north of center of building; collocated with MIP-9	4-5	8924-120	220	50	11	10	5.8 U	5.8 U	21	5.8 U
		10-11	8924-121	12 U	12 U	5.8 U	5.8 U	5.8 U	110	75	13
SB-14	Sunshine Laundry – northwest corner of parking lot about 90 feet north of stormwater drain; collocated with TW-10	12-13	8924-122	13 U	13 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
SB-15	Sunshine Laundry – about 10 feet west of the northwest corner of building	3-5	8924-123	9.8 U	9.8 U	4.9 UJ	4.9 UJ	23	4.9 UJ	4.9 U	4.9 U
SB-16	Sunshine Laundry – grassy area just east of front walkway to building, about 10 feet north of City sidewalk; collocated with MIP-15 and TW-3	4-5	8924-124	9.5 U	9.5 U	4.7 U	4.7 U	11	4.7 U	4.7 U	4.7 U
		7-8	8924-125	12 U	12 U	5.9 U	5.9 U	150	5.9 U	5.9 U	5.9 U
SB-17	City easement – near southeast corner of Sunshine Laundry property; collocated with TW-4	4-5	8924-126	57 J	9.1 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U
SB-18	Wells Fargo Bank property – grassy area near west property line, about 15 feet south of bank's drive-through lane canopy; collocated with TW-5	3-4	8924-127	8.8 U	8.8 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
		14-15	8924-128	8.8 U	8.8 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
SB-19	Wells Fargo Bank property – about 15 feet east of west property line and in line with north edge of shed at Sunshine Laundry	4-5	8924-129	77	18	5.3 U	5.3 U	58	41	120	7.4
		9-10	8924-130	12 U	12 U	5.9 U	5.9 U	39	5.9 U	5.9 U	5.9 U

TABLE 2 (Continued)

2021 SOIL SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Boring Number	Location	Depth (ft bgs)	Sample Number	Acetone	MEK	Benzene	Toluene	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE
				Concentration (µg/kg)							
Removal Management Level Industrial Soil (TR=10E-04; THQ = 1)				1.1E+09	1.9E+08	4.2E+05	4.7E+07	3.9E+05	1.9E+04	2.3E+06	3E+05
Iowa Statewide Standard for Soil				6.8E+07	4.6E+07	5.6E+04	6.1E+06	1.5E+06	6.7E+04	1.5E+05	1.5E+06
SB-20	Former Wells Fargo Bank property – west of drive-through lane, about 40 feet north of sidewalk	3-4	9124-101	18	11 U	5.7 U	5.7 U	9.4	5.7 U	5.7 U	5.7 U
		17.5-18.5	9124-102	47 J	8.7 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
SB-21	Former Wells Fargo Bank property – east of drive-through lane, about 55 feet north of sidewalk	4-5	9124-103 ^a	41 J	11 U	5.6 U	7	5.6 U	5.6 U	5.6 U	5.6 U
		10-11	9124-104	14 U	14 U	7 U	7 U	120	9.3	19	7 U
SB-22	Former Wells Fargo Bank property – east edge of drive-through lane, about 5 feet north of drive-through lane canopy	4-5	9124-105 ^b	11	7.6 U	3.8 U	3.8 U	8.8	3.8 U	3.8 U	3.8 U
		14-15	9124-106	15 U	15 U	7.5 U	8	7.5 U	7.5 U	7.5 U	7.5 U
SB-23	Former Wells Fargo Bank property – at northwest corner of parking area immediately north of building	5-5.5	9124-107	270 J	68 J	11	11	5 U	5 U	5 U	5 U
		9-10	9124-108	13 U	13 U	6.6 U	6.6 U	220	35	43	9.7
SB-24	Former Wells Fargo Bank property – about 15 feet east of west property line and 80 feet north of drive-through lane canopy	3.5-4.5	9124-109	32 J	12 U	5.8 U	5.8 U	51	11 J	5.8 U	5.8 U
		14-15	9124-110	19 J	8.7 U	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 U	4.3 U
SB-25	Former Wells Fargo Bank property – near southwest corner of automatic teller machine (ATM)	4-5	9124-111	85 J	20 J	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
		9-10	9124-112	15 U	15 U	7.7 U	7.7 U	11	16	16	7.7 U
SB-26	Former Wells Fargo Bank property – approximate center of parking area north of building	4-5	9124-113	88 J	20 J	8.5 U	8.5 U	8.5 U	8.5 U	9.6	8.5 U
		14-15	9124-114	10 U	10 U	5.1 U	5.1 U	5.1 U	5.1 U	19	5.1 U

Notes:

No exceedance of either a Removal Management Level (EPA 2021) or Iowa Statewide Standard (IDNR 2022) was detected.

^a Sample 9124-103 from SB-21 (4-5) also contained methylcyclohexane (16 J µg/kg), m- and/or p-xylenes (16 µg/kg), and o-xylenes.

^b Sample 9124-105 from SB-22 (4-5) also contained carbon disulfide (6.8 µg/kg).

DCE Dichloroethene
µg/kg Micrograms per kilogram
ft bgs Feet below ground surface
J Estimated value
MEK Methyl ethyl ketone (2-butanone)
MIP Membrane interface probe
PCE Tetrachloroethene

SB Soil boring
TCE Trichloroethene
THQ Target Hazard Quotient
TR Target Risk
TW Temporary well
U Analyte not detected at concentration at or above reporting limit at immediate left.
UJ Analyte not detected at concentration at or above estimated reporting limit at immediate left.

4.3 GROUNDWATER SAMPLING

To better delineate the known CVOC contamination in groundwater in the site area, START collected groundwater samples from three existing MWs and installed and sampled 14 DPT TWs during June 2021. START submitted the groundwater samples to EPA Region 7 laboratory in Kansas City, Kansas, for analysis for VOCs. Groundwater sample locations are shown on Figure 5 in Appendix A. Groundwater was not sampled during December 2021 because groundwater contamination had been sufficiently delineated.

4.3.1 Monitoring Well Sampling

Table 3 below lists the six MWs that were installed at the site in 2010. Five of the wells were located during field activities; however, only three of these were capped and sealed, and were sampled (see Photographs 4 through 9 in Appendix D). Flush-mount vault covers and J-Plug well caps were missing at MW-1 and MW-2, where open PVC pipe was at the approximate grade of the parking lot. No samples were collected because the wells had been compromised and would likely have been impacted by rainwater or other contaminants from the parking lot. The flanges holding the vault cover at MW-3 had broken, and the well could not be secured after sampling. MW-5, assumedly in the street or easement south of the site, was not found and likely had been demolished during road or utility work. MW-1, -2, and -5 locations are shown on Figure 2 in Appendix A; locations of sampled wells MW-3, -4, and -6 are shown on Figure 5.

Depth to groundwater and total depth were gauged in the three sampled MWs from below tops of casing (btoc). Tops of casing for the three secured wells were at about 0.2-0.4 feet bgs. Only at MW-4 was the measured total depth similar to the reported bottom of the screened interval. At MW-6, the water level probe could not be lowered past 8.15 feet btoc—almost 6 feet higher than the reported 14 feet bgs for the bottom of the screened interval. Electrical lines, shown as overhead on previous report maps, are now below ground, and utility markings show these lines immediately adjacent to the well vault, suggesting that MW-6 may have been damaged or broken during line installation. At MW-3, the shallower bottom (18.7 feet bgs) is likely due to siltation.

TABLE 3

**JUNE 2021 MONITORING WELL GROUNDWATER SAMPLE SUMMARY
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Monitoring Well	Original Screened Depth (ft bgs)	Depth to Water (ft btoc) ^a	Total Depth (ft btoc) ^a	Sample Number	Date Sample	Time Sampled
MW-1	9-20	Not sampled; open PVC pipe with no well cap or vault cover				
MW-2	5-20	Not sampled; open PVC pipe with no well cap or vault cover				
MW-3	5-20	4.45	18.7	8924-201	6/7/2021	17:10
MW-4	5-20	5.1	19.9	8924-203	6/7/2021	18:40
MW-5	5-10	No well found on easement or 5 th Avenue South; may have been demolished				
MW-6	4-14	6.3	8.15	8924-202	6/7/2021	18:00

Notes

^a Measured during June 2012 field activities

ft bgs Feet below ground surface
ft btoc Feet below top of casing

MW Monitoring well
PVC Polyvinyl chloride

Samples were collected by use of HydraSleeve™ samplers, a method that does not require well purging prior to sampling. Various studies have indicated that analytical results obtained from zero-purge sampling are comparable to those acquired from low-flow sampling or from purging three well volumes. Zero-purge sampling assumes horizontal flow through the well screen or formation, which sustains constant equilibrium between the water in the well and the surrounding aquifer. Under this condition, presence of stagnant well water is less likely, thus eliminating need for purging prior to sampling.

The HydraSleeve consists of a flexible polyethylene sample bag with a self-sealing, reed-type, flexible polyethylene check valve at the top of the sleeve. A weighted collar holds the top of the bag, and another weight is attached to the bottom of the bag so it can be suspended within the interval to be sampled. The sampler was left in place for about 15 minutes to allow any turbidity to settle and the well to re-equilibrate prior to sample collection. As the sampler is lifted from the well, the self-sealing check valve opens, allowing water to enter the sampler. As the sampler is brought to the surface, the check valve closes, preventing any stagnant water that may be present above the screened or uncased interval from entering the sampler. A rigid plastic straw is inserted into the sampler to transfer the groundwater sample to the appropriate containers. Each groundwater sample for analysis for VOCs was collected in three 40-mL vials, each preserved with hydrochloric acid (HCl). The weighted collar and bottom weight were decontaminated after sampling at each well.

Analytical Results

Table 4 lists VOCs detected in the MW samples, and these results are shown on Figure 11 in Appendix A. PCE was detected at 3,700 µg/L in the groundwater sample from MW-3, and at 23 µg/L in the sample from MW-6—both exceeding the 5 µg/L MCL. The sample collected from MW-3, north of the building, also contained an estimated 250 µg/L of TCE (estimated), 880 µg/L of *cis*-1,2-DCE, and 140 µg/L of *trans*-1,2-DCE, which also exceeded their respective MCLs. PCE, TCE, and *cis*-1,2-DCE concentrations in MW-3 also exceeded the ISS for a nonprotected groundwater source (the federal MCLs are used for the protected groundwater standards).

TABLE 4

**JUNE 2021 MONITORING WELL GROUNDWATER SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Monitoring Well	Sample Depth ^a (ft bgs)	Sample Number	Acetone	PCE	TCE	<i>cis</i> -1,2-DCE	<i>trans</i> -1,2-DCE
			Concentration (µg/L)				
Federal Maximum Contaminant Level			NE	5	5	70	100
Iowa Statewide Standards – Nonprotected			32,000	1,700	76	350	700
MW-3	4.45-18.7	8924-201	10 U	3,700	250 J	880	140
MW-4	5.1-19.9	8924-203	10 U	5 U	5 U	5 U	5 U
MW-6	6.3-8.15 ^b	8924-202	11	23	5 U	5.3	5 U

Notes

Bold font indicates a concentration that exceeds the Maximum Contaminant Level
Shading indicates a concentration that exceeds the Iowa Statewide Standard for a nonprotected groundwater source.

^a Sample depth is interval between the measured depths to groundwater and total depth.

^b Total depth of the well screen was reported to be at 14 feet bgs, indicating the well screen or riser likely had been damaged.

DCE	Dichloroethene
ft bgs	Feet below ground surface
J	Estimated value
µg/L	Micrograms per liter
MW	Monitoring well
NE	Not established
PCE	Tetrachloroethene
TCE	Trichloroethene
U	Analyte not detected at concentration at or above reporting limit at immediate left.

4.3.2 Temporary Well Sampling

To better delineate the known CVOC contamination in groundwater in the site area, START installed and sampled 14 DPT TWs. Samples were collected at top of groundwater in the silty clay strata.

TW locations are shown on Figure 5 in Appendix A, and Table 5 lists the groundwater samples collected.

Collection of groundwater samples from the TWs proceeded by use of a Geoprobe Screen Point 16 sampling apparatus containing a 4-foot-long, reusable, stainless-steel screen. At sampled intervals, approximately 1 gallon of groundwater was purged from the well by use of disposable polyethylene tubing with an attached foot valve. Then, a sample was collected through the tubing into three 40-mL vials preserved with HCl for analysis for VOCs. Decontamination of the groundwater sampler and rods occurred after sampling at each well location, and new tubing was used for each sample.

TABLE 5
JUNE 2021 DPT GROUNDWATER SAMPLE SUMMARY
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Temporary Well	Location	Sample Depth (ft bgs)	Sample Number	Sample Date	Sample Time
TW-1	Northwest quadrant inside Sunshine Laundry building; collocated with SB-1	~11-32 (open hole)	8924-204	6/10/2021	12:20
TW-2	Southwest quadrant inside Sunshine Laundry building; collocated with SB-4	~11-13.5	8924-205		14:15
TW-3	Sunshine Laundry – grassy area just east of front walkway to building, about 10 feet north of City sidewalk; collocated with MIP-15 and SB-16	9-13	8924-206		13:35
TW-4	City easement – near southeast corner of Sunshine Laundry property; collocated with SB-17	9-13	8924-207		13:55
TW-5	Wells Fargo Bank property – grassy area near west property line, about 15 feet south of bank’s drive-through lane canopy; collocated with SB-18	9-13	8924-208		14:10
TW-6	City easement – at southwest entrance to Sunshine Laundry property; collocated with MIP-1 and SB-5	9-13	8924-209		14:45
TW-7	Sunshine Laundry – west property line and in line with northwest corner of Sunshine Laundry building; collocated with MIP-3 and SB-6	11-15	8924-210		15:10
TW-8	Sunshine Laundry – just northeast of stormwater drain, about 50 feet north of northwest corner of building; collocated with MIP-12 and SB-12	8-12	8924-211		15:20
TW-9	Sunshine Laundry – east property line, about 30 feet north of shed; collocated with MIP-8 and SB-9	9-13	8924-212		15:35
TW-10	Sunshine Laundry – Northwest corner of parking lot about 90 feet north of stormwater drain; collocated with SB-14	9-13	8924-213		15:45

TABLE 5 (Continued)

**JUNE 2021 GROUNDWATER SAMPLE SUMMARY
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Temporary Well	Location	Sample Depth (ft bgs)	Sample Number	Sample Date	Sample Time
TW-11	City Easement – grassy area just south of former Wells Fargo Bank entrance from S. 25 th St.	11-15	8924-215	6/11/2021	07:00
TW-12	City easement – between Wells Fargo Bank automated teller machine entrance and alley	9-13	8924-216		08:00
TW-13	City easement – grassy area just south of north entrance to 407 S. 25 th St.	9-13	8924-217		07:25
TW-14	City easement – grassy area about 60 feet east of alley/entrance for 2419 5 th Ave. S.	15-16	8924-218		08:50
Quality Assurance Samples					
	Rinsate Blank		8924-214	6/10/2021	15:55
	Trip Blank (Field Blank)		8924-221FB	6/10/2021	16:10
	Trip Blank (Field Blank)		8924-222FB	6/10/2021	16:20
	Trip Blank (Field Blank)		8924-223FB	6/08/2021	08:10

Notes:

- FB Field blank or trip blank laboratory code
- ft bgs Feet below ground surface
- MIP Membrane interface probe
- SB Soil boring
- TW Temporary DPT well

Analytical Data Summary

Table 6 below lists the VOCs detected in the 14 groundwater samples, and Figure 11 indicates these results. Site-related VOCs were detected at seven locations. PCE was detected in six of the groundwater samples at concentrations between 28 and 2,500 µg/L. Because of the high concentrations previously detected at the site, a 5 µg/L detection limit (the MCL) was applied for this analysis; consequently, lower levels of VOCs may be present where indicated as “undetected” in Table 6. The 2 µg/L MCL for vinyl chloride was below the detection limit. Vinyl chloride detections at TW-11 (11 µg/L) and TW-12 (31 µg/L) exceeded the MCL.

TABLE 6

JUNE 2021 DPT GROUNDWATER SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Temporary Well	Location	Depth (ft bgs)	Sample Number	Acetone	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
				Concentration (µg/L)					
Maximum Contaminant Level				NE	5	5	70	100	2
Iowa Statewide Standards – Nonprotected				32,000	1,700	76	350	700	10
Commercial VISL – Shallow Groundwater (EPA Region 7)				1.15E+7	31	2.71 [1.9]	NE	55.3	28
TW-1	Northeast quadrant inside Sunshine Laundry building.	9-32	8924-204	10 U	5 U	5 U	5 U	5 U	5 U
TW-2	Southeast quadrant inside Sunshine Laundry building.	~11-13.5	8924-205	10 U	2,400	16	5	5 U	5 U
TW-3	Sunshine Laundry – grassy area just east of front walkway to building, about 10 feet north of City sidewalk; collocated with MIP-15 and SB-16.	9-13	8924-206	10 U	580	44	16	8.5	5 U
TW-4	City easement – near southeast corner of Sunshine Laundry property; collocated with SB-17.	9-13	8924-207	10 U	5 U	5 U	5 U	5 U	5 U
TW-5	Wells Fargo Bank property – grassy area near west property line, about 15 feet south of bank’s drive-through lane canopy; collocated with SB-18.	9-13	8924-208	10 U	30	5 UJ	5 U	5 U	5 U
TW-6	City easement – at southwest entrance to Sunshine Laundry property; collocated with MIP-1 and SB-5.	9-13	8924-209	10 U	5 U	5 UJ	5 U	5 U	5 U
TW-7	Sunshine Laundry – west property line and in line with northwest corner of Sunshine Laundry building; collocated with MIP-3 and SB-6.	11-15	8924-210	10 U	5 U	5 U	5 U	5 U	5 U
TW-8	Sunshine Laundry – just northeast of stormwater drain, about 50 feet north of northwest corner of building; collocated with MIP-12 and SB-12.	8-12	8924-211	10 U	2,500	66	56	47	5 U
TW-9	Sunshine Laundry – east property line, about 30 feet north of shed; collocated with MIP-8 and SB-9.	9-13	8924-212	10 U	300	60	170	50	5 U
TW-10	Sunshine Laundry – northwest corner of parking lot about 90 feet north of stormwater drain; collocated with SB-14.	9-13	8924-213	15	5 U	5 U	5 U	5 U	5 U
TW-11	City Easement – west side of S. 25 th St., just south of east entrance to former Wells Fargo Bank.	11-15	8924-215	10 U	5 U	5 U	380	52	11
TW-12	City easement – west side of S. 25 th St., between Wells Fargo Bank automated teller machine (ATM) driveway and alley.	9-13	8924-216	10 U	28	63	260	77	31
TW-13	City easement – east side of S. 25 th St., just south of north entrance to 407 S. 25 th St.	9-13	8924-217	10 U	5 U	5 U	5 U	5 U	5 U
TW-14	City easement – south side of 5 th Ave. S., about 60 feet east of alley/entrance for 2415 and 2419 5 th Ave. S.	15-16	8924-218	10 U	5 U	5 U	5 U	5 U	5 U
Quality Control Samples									
	Rinsate Blank		8924-214	10 U	5 U	5 U	5 U	5 U	5 U
	Trip Blank (Field Blank)		8924-223FB	10 U	5 U	5 U	5 U	5 U	5 U
	Trip Blank (Field Blank)		8921-221FB	10 U	5 U	5 U	5 U	5 U	5 U
	Trip Blank (Field Blank)		8921-222FB	10 U	5 U	5 U	5 U	5 U	5 U

Notes:

Bold font indicates concentration exceeds the Maximum Contaminant Level.

Red font indicates concentration exceeds the VISL for shallow groundwater.

Shading indicates concentration exceeds the Iowa Statewide Standard for a nonprotected groundwater source.

EPA U.S. Environmental Protection Agency
 FB Trip blank or field blank
 ft bgs Feet below ground surface
 µg/L Micrograms per liter
 NE Not established
 PCE Tetrachloroethene

TCE Trichloroethene
 DCE Dichloroethene
 TW Temporary direct-push technology well
 U Analyte not detected at concentration at or above reporting limit at immediate left.
 UJ Analyte not detected at concentration at or above estimated reporting limit at immediate left.
 VISL Vapor intrusion screening level

PCE concentrations in samples from TW-2 and TW-8 exceeded the ISS of 1,700 µg/L for a nonprotected groundwater source. No TCE concentration exceeded the 76 µg/L ISS. However, *cis*-1,2-DCE concentration in the sample from TW-11 (380 µg/L) exceeded the ISS of 350 µg/L, and vinyl chloride concentrations in the samples from TW-11 and -12 also exceeded the ISS of 10 µg/L. Concentrations of various analytes in samples from TW-2, -3, -8, -9, and -12 exceeded EPA VISLs for shallow groundwater. The common laboratory contaminant acetone was detected in one sample. No VOC was detected in the trip/field or rinsate blank samples. Groundwater sample results under ASR 8924 are in Appendix G.

PCE degradation products were identified at most locations. Only TW-18, south of the drive through canopy at the adjoining bank property, did not contain daughter products. At TW-11, near the distal end of the groundwater plume just south of the bank's east entrance, only the PCE and TCE degradation products *cis*-1,2-DCE (380 µg/L), *trans*-1,2-DCE (52 µg/L), and vinyl chloride (11 µg/L) were detected. Groundwater samples from six TWs contained VOC concentrations that exceeded either ISSs for a nonprotected groundwater source or EPA vapor intrusion screening levels (VISL) for commercial properties overlying a shallow groundwater plume.

Figures 12 and 13 are PCE and TCE isoconcentration maps for groundwater based on concentrations detected since 2008. Vinyl chloride was detected only in groundwater samples from TW-11 and -12 at the distal end of the groundwater plume, south and north, respectively, of the bank's east entrance.

4.4 VAPOR INTRUSION SAMPLING

During June 2021, START collected two soil-gas vapor samples, five sub-slab vapor samples, eight indoor air samples, and one ambient air sample to assess inhalation threats to occupants of commercial structures overlying soil or groundwater potentially or actually contaminated with site-related VOCs. Additional 24-hour indoor air and sub-slab vapor samples were collected at the former Wells Fargo Bank building in December 2021. At that time, the building was undergoing active remodeling for use as a jewelry store. Demolition, sawing, and reconfiguration processes were generating dust, and doors were left open. START placed the sample canisters away from the open doors and in areas of less activity. Figure 14 in Appendix A shows locations of the VI samples. Copies of signed access agreements are in Appendix E.

4.4.1 Soil-Gas Vapor Sampling

START collected two shallow soil-gas (SG) samples at the western edge of the site to assess potential VI at the adjoining NPPC facility. At each sampling location, DPT was used to drive steel rods to the sampling depth, and the rods were lifted to provide a void space of approximately 1 foot. Disposable polyethylene tubing was then secured to the bottom of the rod string, and ambient air in the tubing was purged by use of a vacuum pump. The upper end of the tubing was then connected to an evacuated Summa® canister, which was opened, allowing the canister to fill with soil-gas vapors. Table 7 summarizes SG sampling information.

TABLE 7
JUNE 2021 SOIL-GAS SAMPLE SUMMARY
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Sample	Location	Sample Depth (ft bgs)	Sample Number	Sample Date/Time
SG-1	Sunshine Laundry – west property line about 80 feet northwest of building; collocated with MIP-4 and SB-7	4-4.5	8924-15	6/10/21 @ 12:00
SG-2	Sunshine Laundry – west property line and in line with northwest corner of Sunshine Laundry building; collocated with MIP-3 SB-6, and TW-7	4-4.5	8924-16	6/10/21 @ 12:25

Notes:

ft bgs	Feet below ground surface	SG	Soil gas
MIP	Membrane interface probe	TW	Temporary well
SB	Soil boring		

These locations were collocated with MIP-3 and MIP-4, in the area where previous investigations had indicated CVOCs in groundwater closest to the NPPC facility. The first SG-1 sampling attempt at a depth of 6 feet bgs, drew water into the cannister. The second attempt resulted in collection of a sample at about 4-4.5 feet bgs. SG-2 was also collected within that depth.

Analytical Results

Site-related CVOCs detected in the two SG samples are listed in Table 8 below and shown on Figure 15 in Appendix A. Results are compared to VISLs and EPA Region 7 screening levels for exterior soil-gas. Because a utility corridor is immediately east of the NPPC facility building, SG samples were collected about 12 to 15 feet from the building rather than within 10 feet, as specified for comparison to these

VISLs. In addition, samples were collected at about 4-4.5 feet bgs—rather than the recommended depth of greater than 5 feet bgs—because an initial sample attempt at 6 feet bgs encountered groundwater.

TCE concentration of 59 $\mu\text{g}/\text{m}^3$ at SG-2 (collocated with MIP-3, SB-6, and TW-7) exceeded the VISL of 29.2 $\mu\text{g}/\text{m}^3$ and the Region 7 screening level of 20 $\mu\text{g}/\text{m}^3$ for TCE in exterior soil-gas. Based on these results, VI into the adjoining NPPC facility is a potential health concern.

4.4.2 Sub-slab Vapor, Indoor Air, and Ambient Air Sampling

Following receipt of access permission from property owners, START conducted sub-slab vapor, indoor air, and ambient air sampling at the site. For the June 2021 indoor air sampling at the commercial properties, evacuated 6-liter Summa canisters were fitted with 8-hour passive flow regulators. All buildings sampled were one-story slab-on-grade construction, and indoor air samples typically were placed in an out-of-the-way area at the business or vacant building. Collection of indoor air and ambient air samples accorded with EPA Region 7 Standard Operating Procedure (SOP) 4231.1704. In each building, indoor air samples were collected at roughly the same time as collection of sub-slab vapor grab samples. Indoor air and ambient air samples were analyzed for VOCs at the EPA Region 7 laboratory according to EPA Region 7 SOP 3230.04.

In June 2021, START received permission to collect sub-slab vapor samples at five of the eight properties where owners had granted indoor air sampling access. A hammer drill equipped with a 5/8-inch-diameter concrete bit was used to penetrate the concrete slab at each location. An approximately 4-inch-long, 5/8-inch-diameter stainless steel tube (vapor pin) with a silicon fitting was inserted through the drill hole into the sub-slab material. Vapor pin sample ports are easily removed after completion of sampling, and only the silicon fitting must be replaced for reuse. A removable plug on top of the vapor pin allows resealing of the port and retention of it in place for later sampling, if desired.

Collection of sub-slab vapor samples accorded with EPA SOP 2318.07. At each location, about 6 inches of disposable, 0.25-inch-diameter perfluoroalkoxy (PFA) tubing connected the top of the port to an evacuated Summa canister for collection of a sub-slab vapor sample. Sub-slab vapor was collected as grab samples with the Summa canister opened and then shut off as pressure dropped to about -2 to -4 inches of mercury (inHg). After sampling, the vapor pin was removed, and quick setting hydraulic cement was applied to patch the hole through the concrete slab.

TABLE 8

**JUNE 2021 SOIL-GAS SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Sample	Location	PCE	TCE	1,1-DCE	<i>cis</i> -1,2-DCE	<i>trans</i> -1,2-DCE	Vinyl chloride
		Concentration (µg/m ³)					
Commercial VISL – Sub-slab and Near Source Soil-Gas		584	29.2	2,920	NE	584	929
EPA Region 7 Exterior Soil Gas Screening Level		580	20	2,900	NE	NE	930
SG-1 8924-15	Sunshine Laundry – west property line about 80 feet northwest of building; collocated with MIP-4 and SB-7	8	1.5	0.2 U	7.1	180	0.13 U
SG-2 8924-16	Sunshine Laundry – west property line and in line with northwest corner of Sunshine Laundry building; collocated with MIP-3, SB-6, and TW-7	25	59	3.5	260	17	200

Notes:

Commercial VISL for SG is calculated using a Cancer Risk of 1E-05, a Hazard Quotient of 0.1, an attenuation factor of 0.03, and a temperature of 20 degrees Celsius.

Bold font indicates concentration exceeds Commercial VISL for SG and Region 7 SG Screening Level.

- DCE Dichloroethene
- EPA U.S. Environmental Protection Agency
- µg/m³ Micrograms per cubic meter
- MIP Membrane interface probe
- NE Not established
- PCE Tetrachloroethene
- SB Soil boring
- SG Soil gas
- TCE Trichloroethene
- TW Temporary well
- U Analyte not detected at concentration at or above reporting limit at immediate left.
- VISL Vapor intrusion screening level

An ambient air sample was collected behind the buildings north of the site. Table 9 below summarizes sample locations and indicates types of business. The vacant Wells Fargo bank (east) was the building closest to the former dry cleaning facility, about 90 feet away. Distances from the site of remaining buildings ranged from about 200 to 400 feet.

In December 2021, the evacuated 6-liter Summa canisters were fitted with 24-hour passive flow regulators, and samples were collected the following day. A permanent sub-slab vapor port was installed in the utility closet at the former bank east of the initial removed vapor pin location. The indoor air sample was collected south of the June location to be farther from open doors and ongoing construction activities.

TABLE 9
2021 AMBIENT AIR, INDOOR AIR AND SUB-SLAB VAPOR SAMPLES
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Sample	Address	Business Type	Start Sampling Date/Time	End Sampling Date/Time
Ambient Air Sample				
8924-10	330 S. 25 th St.	NA	6/9/21 @ 09:58	6/9/21 @ 17:58
Indoor Air Samples				
8924-1	326 S. 25 th St.	Vacant – Bowling Alley	6/8/21 @ 08:28	6/8/21 @ 16:14
8924-3	328 S. 25 th St.	Hearing Aid Store	6/8/21 @ 09:10	6/8/21 @ 16:16
8924-5	330 S. 25 th St.	Nail Salon	6/8/21 @ 09:38	6/8/21 @ 17:18
8924-6	2419 5 th Ave. S.	Cosmetology School	6/8/21 @ 10:20	6/8/21 @ 16:25
8924-7	2415 5 th Ave. S.	Clothing Boutique	6/8/21 @ 10:25	6/8/21 @ 16:52
8924-8	332 S. 25 th St.	Store/Taqueria	6/8/21 @ 11:48	6/8/21 @ 18:20
8924-11	325 S. 25 th St.	Drive-In Restaurant	6/9/21 @ 12:07	6/9/21 @ 20:00
8924-13	406 S. 25 th St.	Vacant – Wells Fargo Bank	6/10/21 @ 12:06	6/10/21 @ 20:04
9124-1	406 S. 25 th St.	Former Wells Fargo Bank – remodeling in progress	12/15/21 @ 10:42	12/16/21 @ 08:25
Sub-Slab Vapor Samples				
8924-2	326 S. 25 th St.	Vacant – Bowling Alley	6/8/21 @ 08:53	NA – Grab
8924-4	328 S. 25 th St.	Hearing Aid Store	6/8/21 @ 09:25	NA – Grab
8924-9	332 S. 25 th St.	Store/Taqueria	6/8/21 @ 12:05	NA – Grab
8924-12	325 S. 25 th St.	Drive-In Restaurant	6/9/21 @ 19:52	NA – Grab
8924-14	406 S. 25 th St.	Vacant – Wells Fargo Bank	6/10/21 @ 12:05	NA – Grab
9124-2	406 S. 25 th St.	Former Wells Fargo Bank – remodeling in progress	12/15/21 @ 10:50	12/16/21 @ 08:26

Notes:

NA Not applicable

Analytical Data Summary

Table 10 summarizes PCE, TCE, and 1,1-DCE results from indoor air, sub-slab, and ambient air sampling at the site. These three compounds were reported in several indoor air and sub-slab samples, but at

concentrations well below EPA Region 7 RMLs and VISLs for commercial structures. No *cis*- or *trans*-1,2-DCE or vinyl chloride was detected in these samples. Table B-5 in Appendix B lists results for all VOC analytes in these samples, as well as VISL sub-slab or indoor air benchmarks for those analytes. Only 2-propanol (isopropanol—used in rubbing alcohol) was detected at concentrations exceeding the commercial indoor air RML, with concentrations ranging from 1,900 to 4,900 µg/m³ at the adjoining buildings 328, 330, and 332 S. 25th Street. Addresses 328 (a hearing aid store) and 330 (a nail salon) are in a shared building, and either is likely to use this common product.

TABLE 10
2021 SITE-RELATED VOCS IN VAPOR INTRUSTION SAMPLES
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Sample Number	Address	Business Type	PCE	TCE	1,1-DCE
			Concentration (µg/m ³)		
EPA Region 7 RML – Commercial Indoor Air			180	6	880
EPA Region 7 VISL – Commercial Sub-slab			5,800	200	29,000
Ambient Air Sample					
8924-10	330 S. 25 th St.	NA	0.34 U	0.14 U	0.2 U
Indoor Air Samples					
8924-1	326 S. 25 th St.	Vacant – Bowling Alley	1.3	0.14 U	0.2 U
8924-3	328 S. 25 th St.	Hearing Aids	0.34 U	0.14 U	0.2 U
8924-5	330 S. 25 th St.	Nail Salon	0.34 U	0.14 U	0.2 U
8924-6	2419 5 th Ave. S.	Cosmetology School	0.34 U	0.14 U	0.2 U
8924-7	2415 5 th Ave. S.	Clothing Boutique	5.4	0.18	0.2 U
8924-8	332 S. 25 th St.	Store/Taqueria	0.34 U	0.14 U	0.2 U
8924-11	325 S. 25 th St.	Drive-In Restaurant	0.34 U	0.14 U	0.2 U
8924-13	406 S. 25 th St.	Vacant – Wells Fargo Bank	0.64	0.14 U	0.2 U
9124-1	406 S. 25 th St.	Former Wells Fargo Bank – remodeling in progress	1.5	0.14 U	0.2 U
Sub-Slab Vapor Samples					
8924-2	326 S. 25 th St.	Vacant – Bowling Alley	2.2	0.14 U	0.2 U
8924-4	328 S. 25 th St.	Hearing Aid Store	1.6	0.14 U	0.46
8924-9	332 S. 25 th St.	Store/Taqueria	0.51	0.14 U	0.2 U
8924-12	325 S. 25 th St.	Drive-In Restaurant	0.89	0.2	0.2 U
8924-14	406 S. 25 th St.	Vacant – Wells Fargo Bank	52	0.14	0.2 U
9124-2	406 S. 25 th St.	Former Wells Fargo Bank – remodeling in progress	33	0.24 U	0.2 U

Notes:

- DCE Dichloroethene
- EPA U.S. Environmental Protection Agency
- µg/m³ Micrograms per cubic meter
- PCE Tetrachloroethene
- RML Removal Management Level (Cancer Risk = 10E-04; Hazard Quotient =1)
- TCE Trichloroethene
- VISL Vapor intrusion screening level

4.5 QUALITY CONTROL SAMPLES

During this project, one rinsate blank, and three trip blanks were collected. The trip blanks prepared by the EPA Region 7 laboratory broke; consequently, replacement trip/field blanks were prepared in the field. The blank samples were submitted for laboratory analyses for VOCs.

Analytical Data Summary

No VOCs were detected in the blank samples submitted in June 2021. Data for these samples are included with groundwater results in Table 6. No additional QC samples were collected in December 2021.

DRAFT

5.0 HAZARD RANKING SYSTEM FACTORS

This section discusses the source(s) of contamination and contaminant migration pathways evaluated under the Hazard Ranking System (HRS). The air pathway was not evaluated for the site.

5.1 SOURCES OF CONTAMINATION

Contaminated soil associated with the former dry cleaner at 2422 5th Avenue S. has been identified as the source of PCE contamination in groundwater. PCE has been a common historical dry cleaning solvent, and a dry cleaner (Rainbow Cleaners) is known to have operated at the property from at least 1984 until 1992. PCE has been detected at concentrations exceeding 100 µg/kg in subsurface soil samples collected across a 100- by 200-foot area at the site, and exceeding 10,000 µg/kg in an area of approximately 125- by 25-feet along the western edge of the dry cleaner building. The highest concentration of PCE (estimated at 31,000 µg/kg) in soils was detected near the storm sewer inlet about 50 feet north of the northwest corner of the building at 4-5 feet bgs. PCE has also been detected in the shallow groundwater, as well as in soil gas, sub-slab vapor, and indoor air samples collected in the area.

Off-site soil sampling in December 2021 identified PCE concentrations exceeding 100 µg/kg at about 10 feet bgs at two borings about 45 feet east (downgradient) of the site.

5.2 GROUNDWATER PATHWAY

This section discusses the groundwater pathway.

5.2.1 Hydrogeological Setting

Near the site, glacial till consisting of clays and silts with occasional sandy zones are present down to Mississippian-aged bedrock at approximately 80-100 feet bgs. Groundwater occurs in glacial till between 5 and 15 feet bgs (typically about 11 feet bgs) at the site. Based on the orientation of the PCE plume, groundwater flow direction in the shallow aquifer appears to be northeast. However, surveyed water table elevations would be required to verify flow direction.

5.2.2 Groundwater Targets

Fort Dodge's 2010 population was reported as 25,206 and had decreased to 24,871 according to the 2020 Census. Census data from 2015-2019 indicate approximately 2.2 persons per household in Webster County, Iowa (U.S. Census Bureau 2021). Breaking down the available 2010 census results indicates that 1,115 people live within 0.5 mile of the site and 7,494 people live between 0.5 and 1 mile of the site. Population is 11,344 between 1 and 2 miles, 5,523 between 2 and 3 miles, and 1,345 between 3 and 4 miles of the site for a total 4-mile radius population of 26,821 (Missouri Census Data Center 2021).

Groundwater samples were collected at top of groundwater at 14 temporary DPT wells during the ISA/RSE. Three secured MWs remaining at the site were also sampled and a concentration of 3,700 $\mu\text{g/L}$ was detected in the sample from MW-3. PCE concentrations as high as 2,500 $\mu\text{g/L}$ were detected in the DPT samples. The PCE-degradation products TCE, 1,2-DCE, and vinyl chloride were also detected in groundwater at the site and at the adjoining property at concentrations exceeding the MCL and ISS for a nonprotected source. Concentrations of various analytes in samples from TW-2, -3, -8, -9, and -12 exceeded EPA's VISLs for shallow groundwater. PCE, TCE, and vinyl chloride concentrations detected at this site also exceeded their EPA Superfund Chemical Data Matrix (SCDM) cancer risk benchmarks; however, shallow groundwater in the glacial till is not used as a drinking water source in the area.

Potential targets for the groundwater migration pathway include public water supply wells and private domestic wells within 4 miles of the site (see Appendix A, Figure 16). According to IDNR, six PWS wells are within 1.0 to 2.0 miles of the site, and two PWS wells are within 2.0 to 3.0 miles of the site (IDNR 2021b). About seven private or water use permit wells listed with the State appear to be within 1 mile of the site. IGS well records indicate that the well shown on Figure 16 about 0.5 mile northeast of the site is a 285-foot well for Fort Dodge Memorial Park—a cemetery actually about 0.75 mile east of the site. The well's geographic coordinates were entered into the IGS database as the center of the section in which the well is located (IGS 2021).

5.2.3 Groundwater Pathway Conclusions

Based on results of previous sampling efforts, a release of PCE to groundwater in clayey glacial till has been established at the site. About 80-100 feet of glacial till overlies the Mississippian Aquifer that supplies drinking water to three of eight municipal wells, and to domestic and commercial wells not served by the City PWS. No drinking water wells are known within the immediate area; consequently, no samples have been collected to evaluate whether any targets have been impacted by the contamination identified in groundwater at the site. PCE has been detected at concentrations up to 3,700 $\mu\text{g/L}$ in on-site

monitoring or DPT temporary wells; however, the shallow groundwater in the glacial till is not used as a drinking water source.

5.3 SURFACE WATER PATHWAY

This section discusses the surface water pathway. Because no release to surface water from the source associated with this site is suspected, no surface water sampling occurred as part of the ISA/RSE investigation.

5.3.1 Hydrological Setting

Surface water runoff at the site and in the vicinity flows into storm sewer drains in the parking lot or along adjoining city streets. The stormwater sewer system directs runoff in the site vicinity to tributaries of the Des Moines River. The stormwater discharge to Gypsum Creek is about 0.9 mile east of the site, and Deer Creek is about 0.6 mile to the southwest.

5.3.2 Surface Water Targets

Surface water targets were not evaluated for this RSE/SI. No surface water intakes for drinking water are on the Des Moines River within 15 miles downstream of the site. The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory identifies about 2.3 acres of freshwater forest/shrub and emergent wetland areas within the rail spur area at NPPC, about 1,000 feet northwest of the site (USFWS 2021). Part of this area seems to have been paved in about 2019 as parking for a nearby building. Other wetlands are present in a previously quarried area about 1.25 miles southeast of the site and along the Des Moines River and its tributaries.

5.3.3 Surface Water Pathway Conclusions

A release of PCE to soils has been confirmed at a former dry cleaner at 12422 5th Avenue S. in an eastern Fort Dodge commercial area. The normal annual rainfall in Webster County is 34.4 inches (USDA 2008). Any surface water at the site would likely flow to storm sewers and then to tributaries of the Des Moines River. Given the hydrologic setting of the site and non-use of surface water for drinking water in this area, the threat via the surface water pathway is minimal.

5.4 SOIL EXPOSURE AND SUBSURFACE INTRUSION PATHWAY

Section 5.4 discusses the soil exposure and subsurface intrusion pathway. VI exposure risks and associated sampling data are also discussed.

5.4.1 Physical Conditions

Most ground surfaces within the vicinity of the site are covered by structures (mostly businesses) and pavement (streets, parking lots, sidewalks, etc.). Surface soils are classified as urban land (USDA 2008). Glacial till consisting of clays, silty clays, and some sands underlie surface soils to about 80-100 feet bgs.

5.4.2 Soil and Subsurface Intrusion Targets

The property is covered by a building and an asphalt parking lot, and is within a commercial/industrial area. The soil exposure component of this pathway does not appear to be of concern.

No residents have been identified within 200 feet of the property. The closest residential areas are a mobile home park about 1,000 feet southeast of the site, single-family homes about 1,300 feet west, and apartments about 0.4 mile to the east. According to 2010 Census data, the residential population within 0.5 mile of the site is 1,115 (Missouri Census Data Center 2021). The laundromat manager worked at the building during field activities; however, he indicated that the facility was scheduled to close on June 18, 2021. The NPPC facility to the west has approximately 225 employees (Nestlé Purina 2021). Nearby commercial buildings visited during sampling were vacant or had few employees. No known terrestrial sensitive environments are at the site. Also, no school or day care facility is within 200 feet of the former dry cleaner property. The area is undergoing redevelopment; consequently, potential exposure via subsurface VI is a risk at current or future buildings.

During the ISA/RSE, PCE was detected in indoor air at three commercial buildings at concentrations ranging from 0.64 to 5.4 $\mu\text{g}/\text{m}^3$ —well below the Region 7 RML for commercial indoor air. PCE was detected in all five sub-slab vapor samples collected at the commercial buildings at concentrations between 0.51 and 52 $\mu\text{g}/\text{m}^3$. The highest PCE concentration (52 $\mu\text{g}/\text{m}^3$) was in a sample collected beneath the former bank just east of the site. TCE was detected in one indoor air sample at 0.18 $\mu\text{g}/\text{m}^3$ and in a separate sub-slab vapor sample at 0.2 $\mu\text{g}/\text{m}^3$, well below any benchmark for TCE—including the 0.478 $\mu\text{g}/\text{m}^3$ indoor air cancer risk SCDM benchmark. December 2021 VI samples collected at the former bank building confirmed presence of PCE in sub-slab vapors; however, the PCE concentration detected was only 33 $\mu\text{g}/\text{m}^3$.

Two soil gas samples were collected near the NPPC facility west of the site. A TCE concentration of 59 $\mu\text{g}/\text{m}^3$ at one location exceeded the VISL level of 29.2 and the Region 7 screening level of 20 $\mu\text{g}/\text{m}^3$ for TCE in exterior soil gas. Based on these results, VI is a potential concern at the NPPC facility.

5.4.3 Soil Exposure and Subsurface Intrusion Pathway Conclusions

The surface is covered with buildings and pavement with small, landscaped areas or grassy street easements. Only one surface soil sample was collected (SB-1 from 1-2 feet bgs). MIP/EC logs generally indicated elevated XSD responses (indicative of CVOCs) at about 4-5 feet bgs or between about 9 to 15 feet bgs, near top of groundwater.

Subsurface intrusion of PCE into occupied structures overlying contaminated soil and/or groundwater could present a threat to workers in those structures. Previous sub-slab sampling at the former dry cleaning building detected PCE at 630,000 $\mu\text{g}/\text{m}^3$, establishing that sub-slab concentrations exceeded the EPA Region 7 RML of 5,800 $\mu\text{g}/\text{m}^3$. The next closest building to the site is the former Wells Fargo Bank, where PCE was detected in sub-slab vapor at 52 $\mu\text{g}/\text{m}^3$, below the commercial RML. TCE concentration detected in the soil gas sample collected near the NPPC facility west of the site exceeded the VISL, suggesting the possibility of VI at that facility.

Current plans are for demolition of the existing building onsite and development of the property as a parking lot. Construction workers could be exposed to contaminated soil and vapors during site activities that expose contaminated soil beneath the building.

5.5 AIR MIGRATION PATHWAY

An ambient air sample was collected north of the site during the June sampling event. Neither PCE nor its degradation products were detected in the sample. Other than small, landscaped areas or grassy easements, the area is largely covered by asphalt, concrete, or buildings—rendering documentation of an observed release to air unlikely. The air migration pathway is not considered a viable exposure pathway at the site and was not scored.

6.0 EMERGENCY RESPONSE AND REMOVAL ACTION CONSIDERATIONS

The National Contingency Plan [40 *Code of Federal Regulations* [CFR] 300.415(b) (2)] authorizes EPA to consider emergency response actions at facilities that pose an imminent threat to human health or the environment. Elevated PCE concentrations in sub-slab vapors have been detected beneath the former dry cleaning building; however, plans reportedly are for future demolition of this building. If the building remains on site for future use, a vapor mitigation system may be warranted. PCE was not detected in sub-slab vapors at concentrations of concern at other buildings in the area.

Although minimal soil is exposed at the surface within the immediate site area, excavation or in situ treatment of contaminated soil may be warranted to help address the source of groundwater contamination and alleviate potential VI threats that might arise with future redevelopment. Demolition of the on-site building could expose underlying contaminated soils.

PCE was detected at levels as high as 3,700 µg/L in groundwater samples from existing MWs and temporary DPT wells—significantly above the MCL and ISS for nonprotected groundwater. No drinking water wells are known to exist close to the former dry cleaner property, and the shallow groundwater in the glacial till is not used for drinking water. Injection of treatment fluids may be considered to remediate the groundwater plume under a removal action.

A Superfund Removal Site Evaluation and Removal Preliminary Assessment Form is in Appendix H.

7.0 SUMMARY

EPA Region 7, under authority of CERCLA and SARA, tasked Tetra Tech START to conduct a combined ISA and RSE at the Sunshine Laundry site in Fort Dodge, Iowa. Since 1994, the site has hosted a laundromat. Previously, Rainbow Cleaners operated at the site from 1984-1992, and had a dry cleaning machine as well as laundry services. A 1992 Letter of Warning stated that an inspection had revealed significant evidence (reportedly spills and odors) suggesting storage of PCE wastes and/or spent filters and still bottoms in a shed behind the building, and disposal of these materials in a trash dumpster in the same area (IDNR 2021c). Dry cleaning operations had reportedly ceased by the time of the inspection, and the machine had been moved to a facility in Des Moines.

A 2008 Phase II ESA indicated that soils collected within 14-15 feet bgs (just above the water table) at DP-9 (near a storm drain behind the building) contained PCE at 22,100 $\mu\text{g}/\text{kg}$. A groundwater sample collected within the interval of 22-26 feet bgs at DP-9 contained 2,130 $\mu\text{g}/\text{L}$ of PCE and 4.2 $\mu\text{g}/\text{L}$ of TCE. The VI sub-slab sample collected near the northwest corner inside the laundromat contained 630,000 $\mu\text{g}/\text{m}^3$ of PCE.

IDNR requested additional investigation, and in 2010, six permanent MWs were installed and sampled. The highest PCE result from groundwater samples collected during January and April 2010 was 1,970 $\mu\text{g}/\text{L}$ in a sample from MW-3. Only MW-1, the farthest north well, contained less than 5 $\mu\text{g}/\text{L}$ of PCE; however, it contained 7 $\mu\text{g}/\text{L}$ of TCE. In December 2010, three TWs were sampled on the east neighboring property (Wells Fargo). The groundwater sample closest to the former dry cleaner contained 1,000 $\mu\text{g}/\text{L}$ of PCE, while the sample collected farthest downgradient, near the northeast corner of the bank property, contained 130 $\mu\text{g}/\text{L}$ of PCE.

In 2011, four additional TWs were placed across South 25th Street from Wells Fargo. Only the northern two wells produced groundwater, and neither contained detectable VOCs. The MWs were sampled semi-annually in 2010-2011, and MW-2 and -3 continued to contain high PCE and TCE concentrations.

In 2014, IDNR collected samples from the on-site wells, with results indicating continuing presence of groundwater contamination at the site. IDNR concluded that on-site conditions had not changed significantly within the previous 5 years, and suspended requirements for continued monitoring.

In 2020, START conducted a PCS of the site and determined that additional investigation was warranted. In 2021, the City requested that EPA investigate the site, which was under consideration for purchase to provide additional parking for NPPC.

START conducted sampling activities for the ISA/RSE during June 6-11, 2021. Those field activities included MIP/EC logging at 15 borings and collection of 30 soil samples, 14 DPT groundwater samples from TWs, three groundwater samples from MWs, two shallow soil-gas samples, eight indoor air samples, five sub-slab vapor samples, and one ambient air sample.

PCE was detected in 17 samples at concentrations as high as an estimated 31,000 $\mu\text{g}/\text{kg}$ in a sample collected at 12-13 feet bgs near a stormwater drain about 50 feet north of the former dry cleaner building. TCE and other PCE degradation compounds were detected in 11 soil samples, generally in the north central portion of the site. The fuel-related VOCs benzene and toluene were also detected in one sample collected in this area. Fuel-related VOCs are known to enhance PCE and TCE degradation (EPA 1998).

PCE, TCE, and related degradation products were detected at concentrations exceeding ISSs for nonprotected groundwater, federal MCLs, and EPA Region 7 shallow groundwater VISLs. The shallow groundwater in the glacial till is not used for drinking. The former dry cleaning facility at the site overlying this contaminated groundwater may be demolished for a parking lot. If the building is retained for future use, occupants could be exposed to VI contamination.

Two SG samples were collected near the NPPC facility west of the site. A TCE concentration of $59 \mu\text{g}/\text{m}^3$ at one location exceeded the VISL level of 29.2 and the Region 7 screening level of $20 \mu\text{g}/\text{m}^3$ for TCE in exterior soil gas. Based on these results, VI into the NPPC facility is a potential concern.

Elevated concentrations of PCE in sub-slab vapors have been detected beneath the former dry cleaning building; however, plans reportedly call for future demolition of the building. If the building remains on site for future use, a vapor mitigation system may be warranted. PCE concentrations in sub-slab vapors at other buildings in the area did not exceed EPA Region 7 RMLs (commercial or residential). The highest sub-slab PCE concentration ($52 \mu\text{g}/\text{m}^3$) was detected in a grab sub-slab sample, collected from beneath the former bank just east of the site in June 2021. A December 2021, 24-hour sub-slab vapor sample collected from a different location at the former bank contained PCE at $33 \mu\text{g}/\text{m}^3$.

Based on data obtained during the ISA/RSE and from historical investigations at the site, soil and groundwater contamination associated with a release of PCE at the former dry cleaner could pose risks to human health via subsurface intrusion. Although minimal soil is exposed at the surface within the immediate site area, excavation or in situ treatment of contaminated soil may be warranted to help address the source of groundwater contamination and alleviate potential VI threats that might arise with future redevelopment. Demolition of the on-site building could expose underlying contaminated soils.

Excavation or in situ treatment of contaminated soil may be warranted to help address the source of groundwater contamination and alleviate VI threats. Also, injection of treatment fluids under a removal action may be considered to remediate the groundwater plume.

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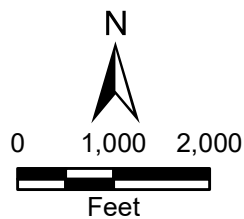
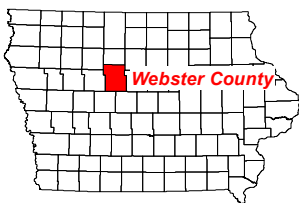
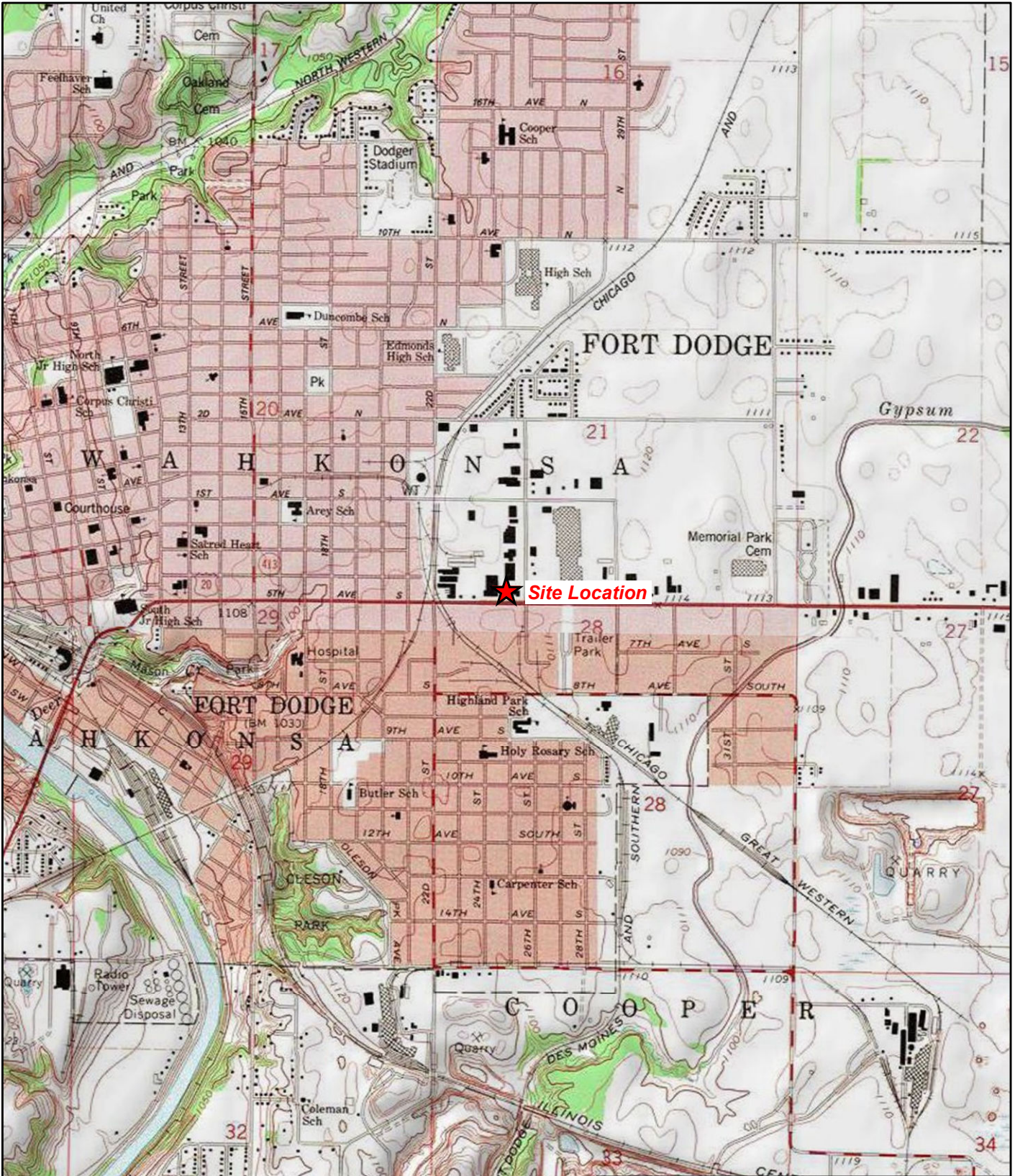
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APPENDIX A
FIGURES

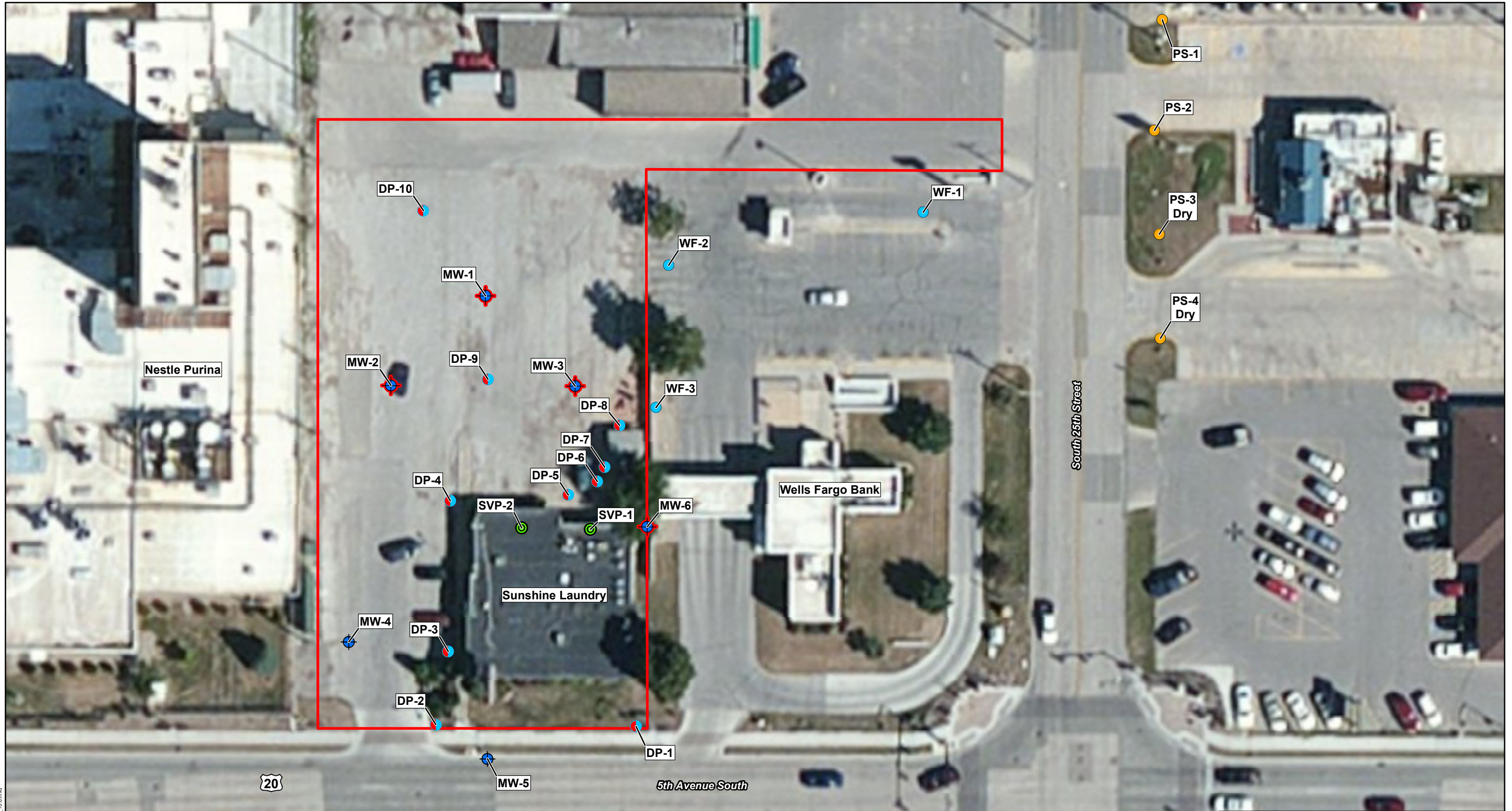


Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 1
 Site Location Map

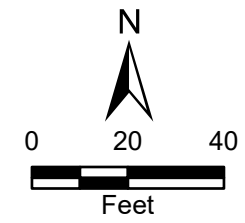


Source: Fort Dodge North, Iowa USGS 7.5 Minute Topo Quad, 1979;
 Fort Dodge South, Iowa USGS 7.5 Minute Topo Quad, 1965



Legend

- 2008 DPT soil and groundwater sample location
 - 2008 Sub-slab vapor sample location
 - 2010 Monitoring well sample location
 - ⊕ 2010 Monitoring well / soil sample location
 - 2010 DPT Groundwater sample location
 - 2011 DPT Groundwater sample location
 - Former dry cleaner facility
- DPT Direct-push technology



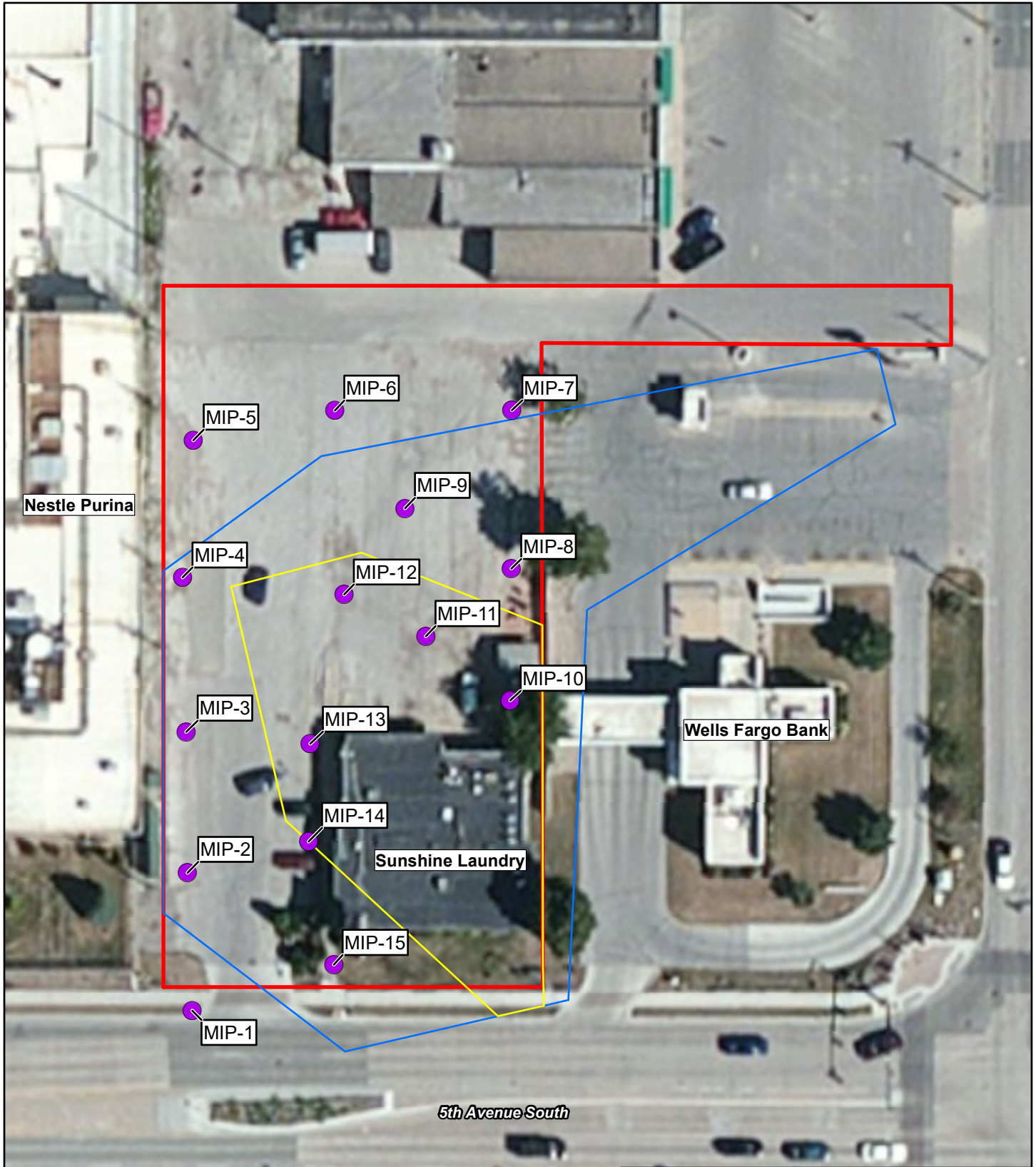
Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Figure 2
Historical Sample Location Map



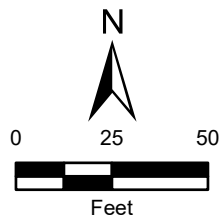
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Source: Esri, ArcGIS Online, World Imagery (Clarity)



Legend

- MIP Boring Location
- 2014 area of known groundwater contamination
- 2014 area of known soil contamination
- Former dry cleaner facility



Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 3
 Membrane Interface Probe/Electrical
 Conductivity (MIP/EC) Location Map

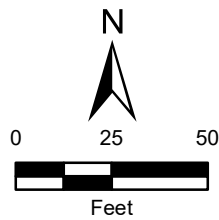


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Legend

- Soil sample location
- 2014 area of known groundwater contamination
- 2014 area of known soil contamination
- Former dry cleaner facility

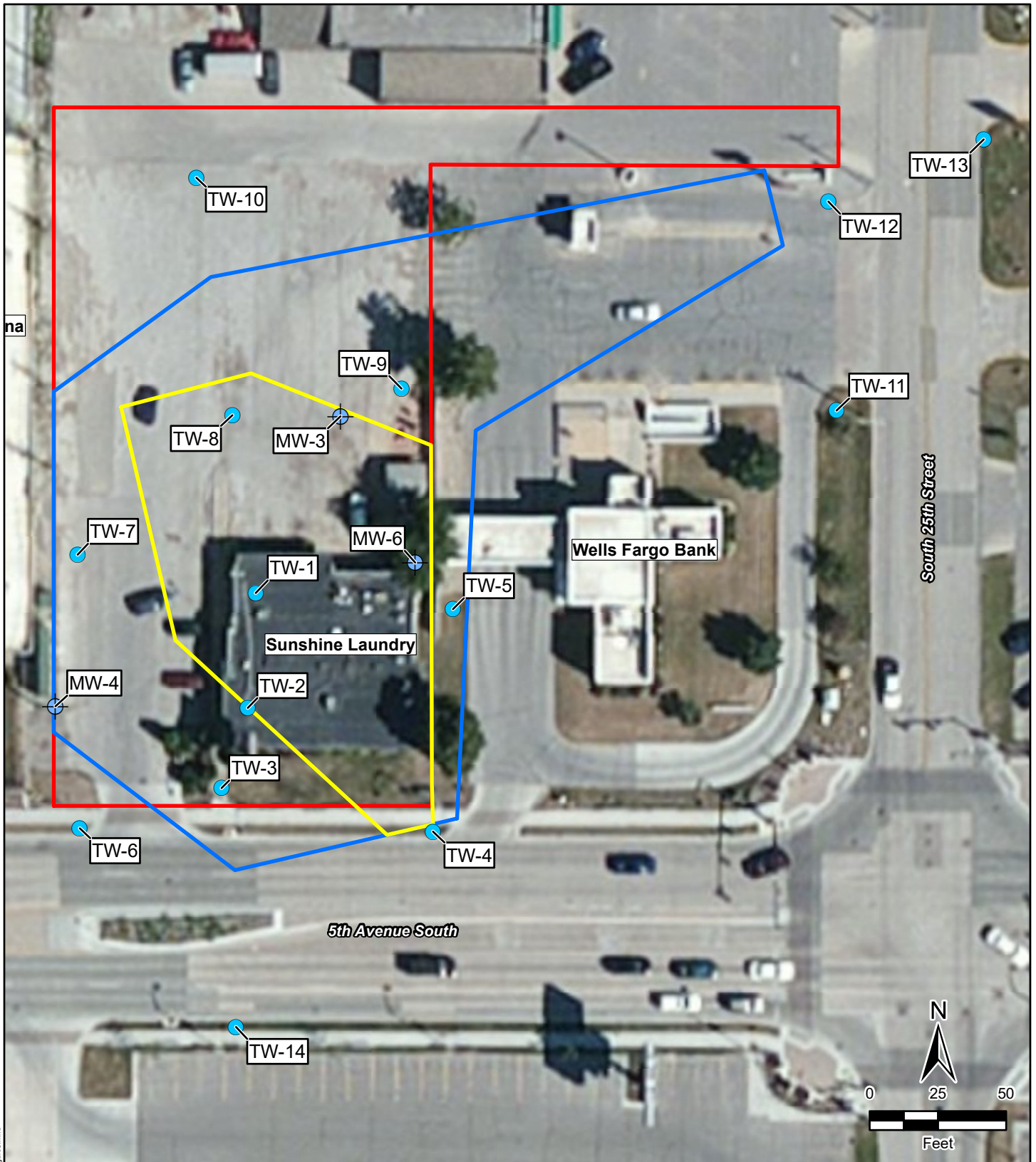


Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa






Figure 4
 Soil Sample Locations



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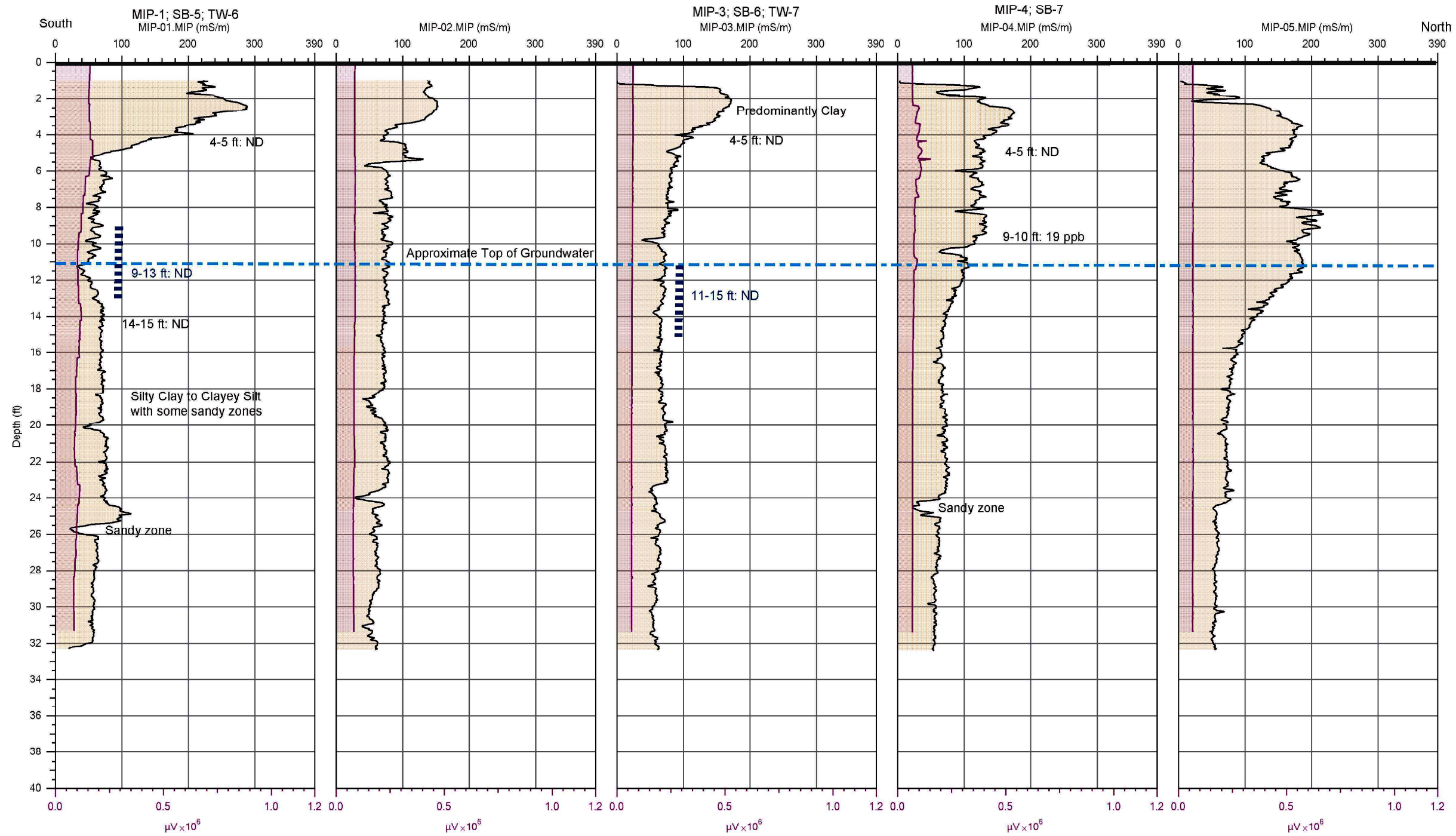
Legend

-  Monitoring well location
 -  Temporary well groundwater boring location
 -  2014 area of known groundwater contamination
 -  2014 area of known soil contamination
 -  Former dry cleaner facility
- TW Temporary well

Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 5
 Groundwater Sample Locations





West Site EC / XSD Max

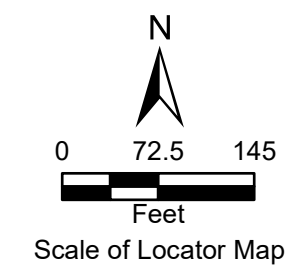
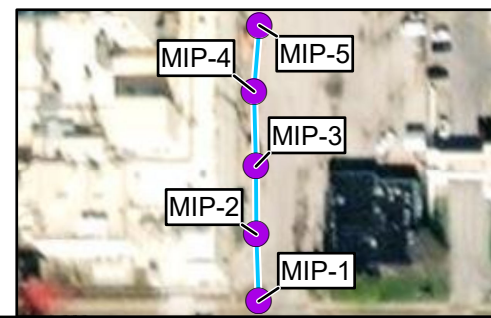
Company:	Plains Environmental Services	Operator:	Jason A.
Project ID:	Sunshine Cleaners	Client:	Tetra Tech

MIP-01.MIP	6/7/2021
MIP-02.MIP	6/7/2021
MIP-03.MIP	6/7/2021
MIP-04.MIP	6/7/2021
MIP-05.MIP	6/7/2021

- Legend**
- MIP Boring Location
 - Cross-section locator
 - ~ EC Response (mS/m)
 - ~ XSD microvolts (μV)

- EC Electric conductivity
- ft Feet
- MIP Membrane interface probe
- mS/m Millisiemens per meter
- μV microvolts
- ND Non detect
- ppb Parts per billion

- SB Soil boring
 - TW Temporary well
 - XSD Halogen specific detector
- Note:**
Results indicated are for tetrachloroethene in soil or groundwater



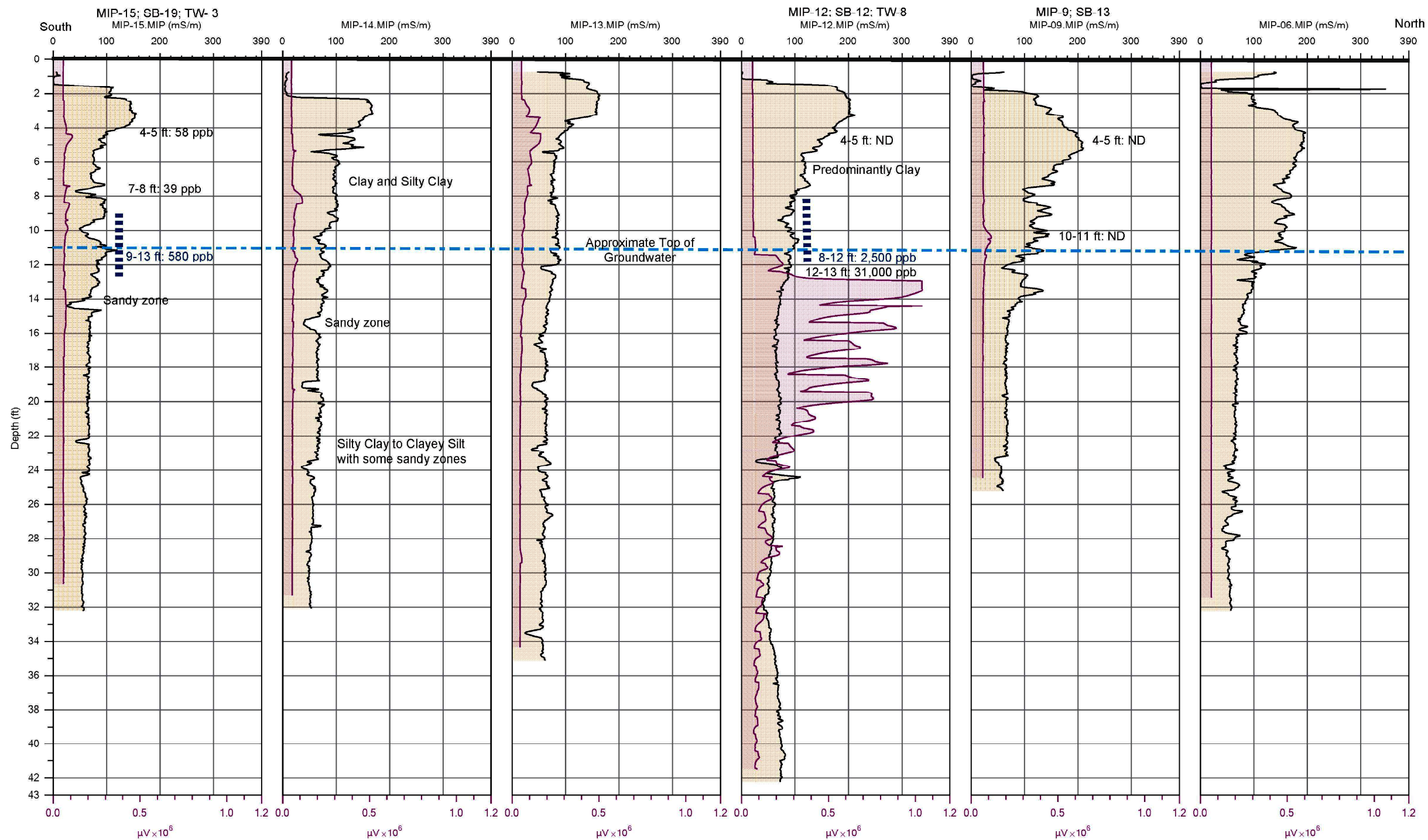
Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Figure 6
Cross-Section at Western Site Area

TETRA TECH

Date: 8/31/2021 Drawn By: Rose Micke Project No: X903019F0086.008

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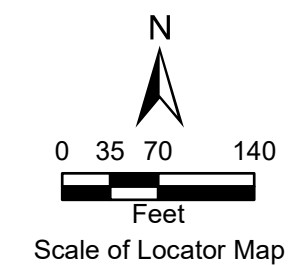
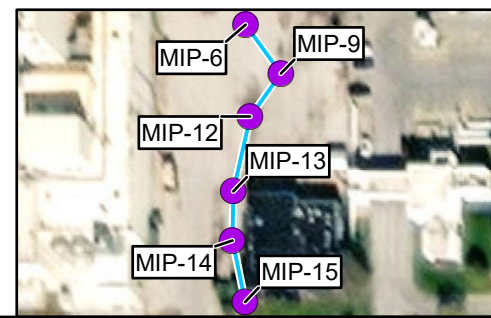
Central Site EC / XSD Max

Company:	Plains Environmental Services	Operator:	Jason A.	MIP-15.MIP	6/8/2021	MIP-12.MIP	6/8/2021
Project ID:	Sunshine Cleaners	Client:	Tetra Tech	MIP-14.MIP	6/8/2021	MIP-09.MIP	6/8/2021
				MIP-13.MIP	6/8/2021	MIP-06.MIP	6/7/2021

- Legend**
- MIP Boring Location
 - Cross-section locator
 - ~ EC Response (mS/m)
 - ~ XSD microvolts (µV)

- EC Electric conductivity
- ft Feet
- MIP Membrane interface probe
- mS/m Millisiemens per meter
- µV microvolts
- ND Non detect
- ppb Parts per billion

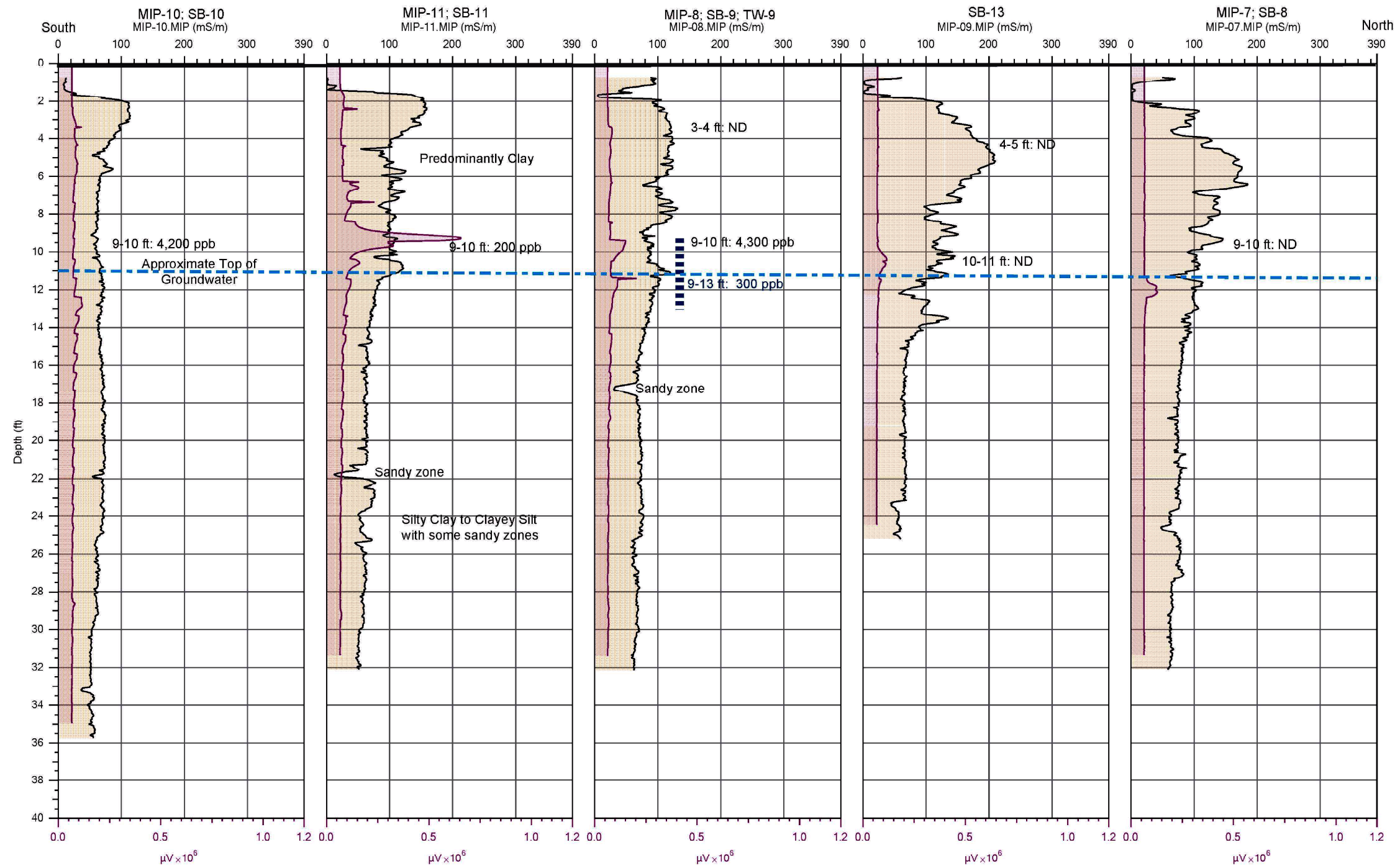
- SB Soil boring
 - TW Temporary well
 - XSD Halogen specific detector
- Note:
Results indicated are for tetrachloroethene in soil or groundwater



Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Figure 7
Cross-Section at Center Site Area

Date: 8/31/2021
Drawn By: Rose Micke
Project No: X903019F0086.008



East Site EC / XSD Max

Company:	Plains Environmental Services	Operator:	Jason A.
Project ID:	Sunshine Cleaners	Client:	Tetra Tech

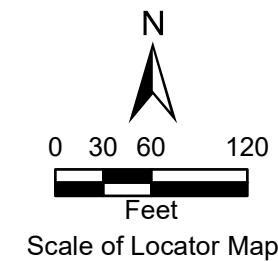
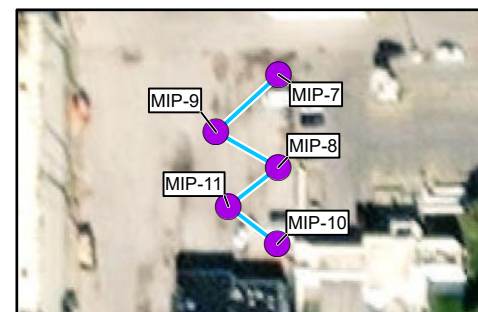
MIP-10.MIP	6/8/2021
MIP-11.MIP	6/8/2021
MIP-08.MIP	6/7/2021
MIP-09.MIP	6/8/2021
MIP-07.MIP	6/7/2021

- Legend**
- MIP Boring Location
 - Cross-section locator
 - ~ EC Response (mS/m)
 - ~ XSD microvolts (μV)

- EC Electric conductivity
- ft Feet
- MIP Membrane interface probe
- mS/m Millisiemens per meter
- μV microvolts
- ND Non detect
- ppb Parts per billion

- SB Soil boring
- TW Temporary well
- XSD Halogen specific detector

Note:
Results indicated are for
tetrachloroethene in soil or groundwater



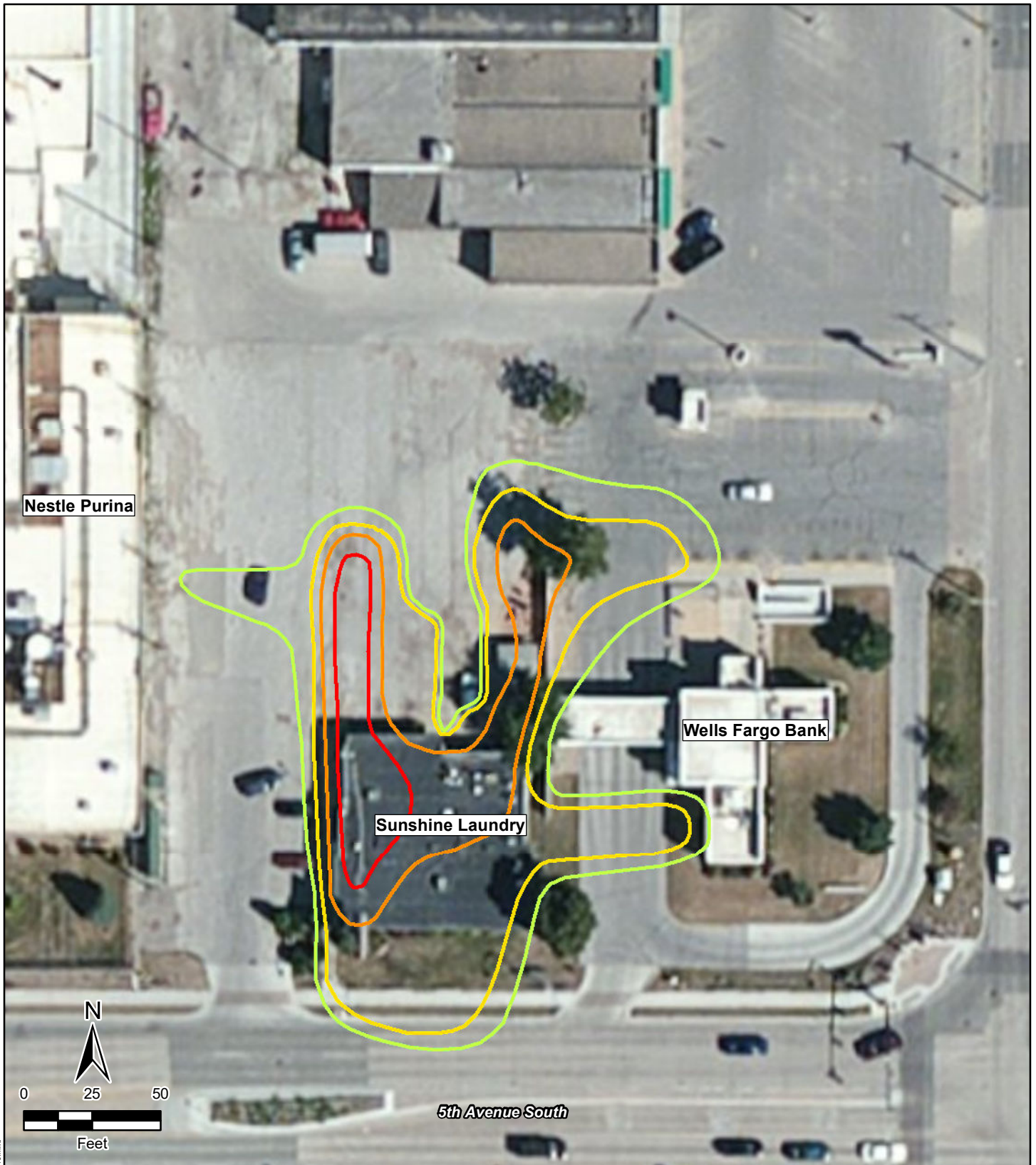
Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Figure 8
Cross-Section at Eastern Site Area

TETRA TECH

Date: 8/31/2021 Drawn By: Rose Micke Project No: X903019F0086.008

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Legend

Isoconcentration of PCE (0 - 15 ft bgs)

- █ 20 µg/kg
- █ 100 µg/kg
- █ 1,000 µg/kg
- █ 10,000 µg/kg

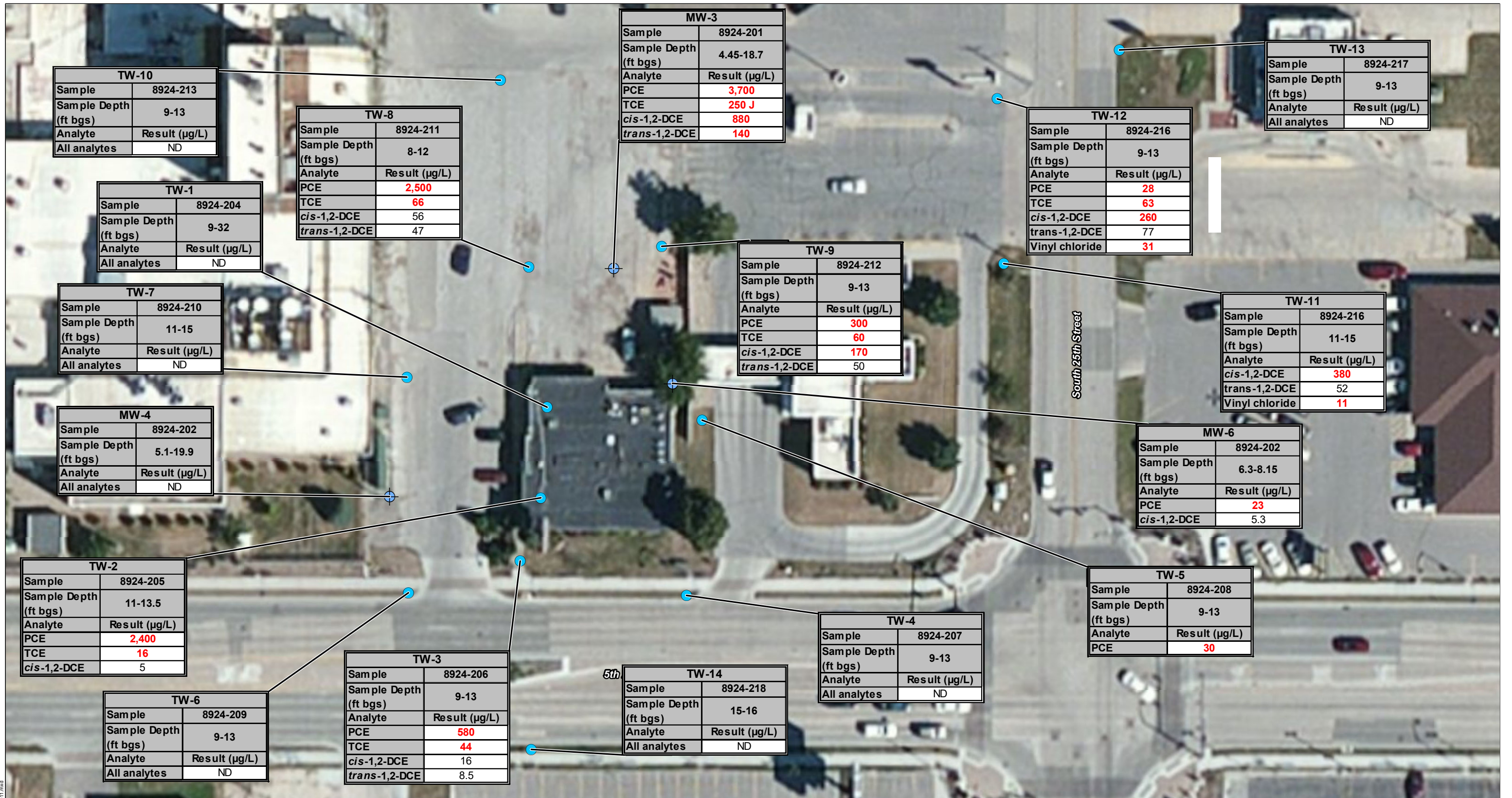
ft bgs Feet below ground surface
 µg/kg Micrograms per kilogram
 PCE Tetrachloroethene

Source: Esri, ArcGIS Online, World Imagery (Clarity)

Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 10
 Soil Isoconcentration Map





TW-10	
Sample	8924-213
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
All analytes	ND

TW-8	
Sample	8924-211
Sample Depth (ft bgs)	8-12
Analyte	Result (µg/L)
PCE	2,500
TCE	66
cis-1,2-DCE	56
trans-1,2-DCE	47

MW-3	
Sample	8924-201
Sample Depth (ft bgs)	4.45-18.7
Analyte	Result (µg/L)
PCE	3,700
TCE	250 J
cis-1,2-DCE	880
trans-1,2-DCE	140

TW-13	
Sample	8924-217
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
All analytes	ND

TW-12	
Sample	8924-216
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
PCE	28
TCE	63
cis-1,2-DCE	260
trans-1,2-DCE	77
Vinyl chloride	31

TW-1	
Sample	8924-204
Sample Depth (ft bgs)	9-32
Analyte	Result (µg/L)
All analytes	ND

TW-9	
Sample	8924-212
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
PCE	300
TCE	60
cis-1,2-DCE	170
trans-1,2-DCE	50

TW-11	
Sample	8924-216
Sample Depth (ft bgs)	11-15
Analyte	Result (µg/L)
cis-1,2-DCE	380
trans-1,2-DCE	52
Vinyl chloride	11

TW-7	
Sample	8924-210
Sample Depth (ft bgs)	11-15
Analyte	Result (µg/L)
All analytes	ND

MW-6	
Sample	8924-202
Sample Depth (ft bgs)	6.3-8.15
Analyte	Result (µg/L)
PCE	23
cis-1,2-DCE	5.3

MW-4	
Sample	8924-202
Sample Depth (ft bgs)	5.1-19.9
Analyte	Result (µg/L)
All analytes	ND

TW-5	
Sample	8924-208
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
PCE	30

TW-2	
Sample	8924-205
Sample Depth (ft bgs)	11-13.5
Analyte	Result (µg/L)
PCE	2,400
TCE	16
cis-1,2-DCE	5

TW-3	
Sample	8924-206
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
PCE	580
TCE	44
cis-1,2-DCE	16
trans-1,2-DCE	8.5

TW-14	
Sample	8924-218
Sample Depth (ft bgs)	15-16
Analyte	Result (µg/L)
All analytes	ND

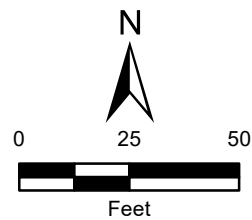
TW-4	
Sample	8924-207
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
All analytes	ND

TW-6	
Sample	8924-209
Sample Depth (ft bgs)	9-13
Analyte	Result (µg/L)
All analytes	ND

- Legend
- Monitoring well location
 - Temporary well groundwater boring location

bgs Below ground surface
 DCE Dichloroethene
 ft Feet
 MW Monitoring well
 NA Not available
 ND Non detect
 PCE Tetrachloroethene
 TCE Trichloroethene
 TW Temporary well

µg/L Micrograms per liter
 Note:
 Red values exceed the maximum contaminant level



Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 11
 Groundwater Results Map





Legend

- | | | |
|---|------|----------------------|
| PCE isoconcentration plume | µg/L | Micrograms per liter |
| 5 µg/L | PCE | Tetrachloroethene |
| 100 µg/L | | |
| 1,000 µg/L | | |

Source: Esri, ArcGIS Online, World Imagery (Clarity)

Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 12
 2008-2021 PCE Isoconcentration Map



Date: 8/31/2021

Drawn By: Rose Micke

Project No: X903019F0086.008

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Legend	
TCE isoconcentration plume	
5 µg/L	100 µg/L
50 µg/L	200 µg/L
	300 µg/L
	µg/L Micrograms per liter
	TCE Trichloroethene

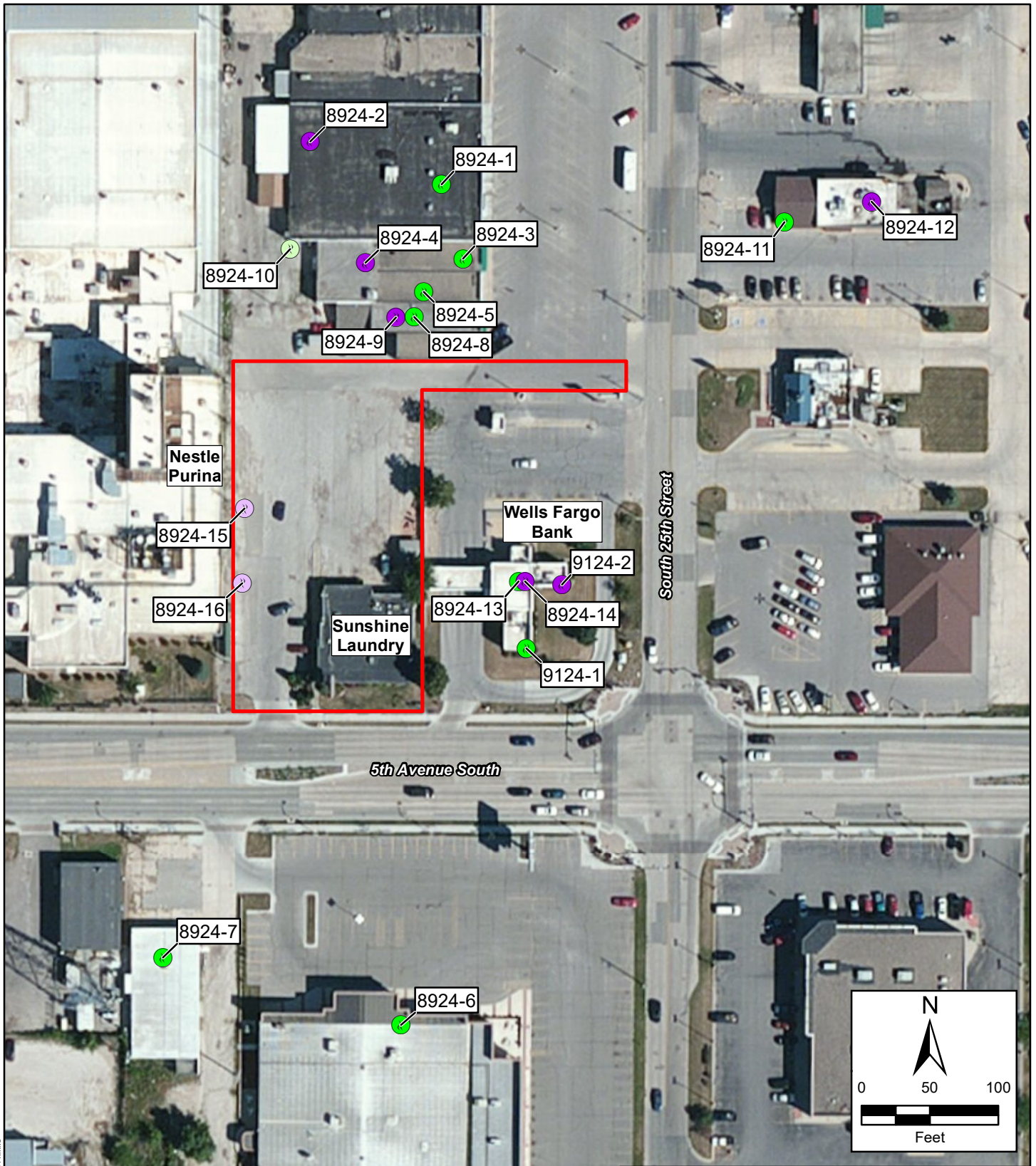
Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 13
 2008-2021 TCE Isoconcentration Map



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Source: Esri, ArcGIS Online, World Imagery (Clarity)



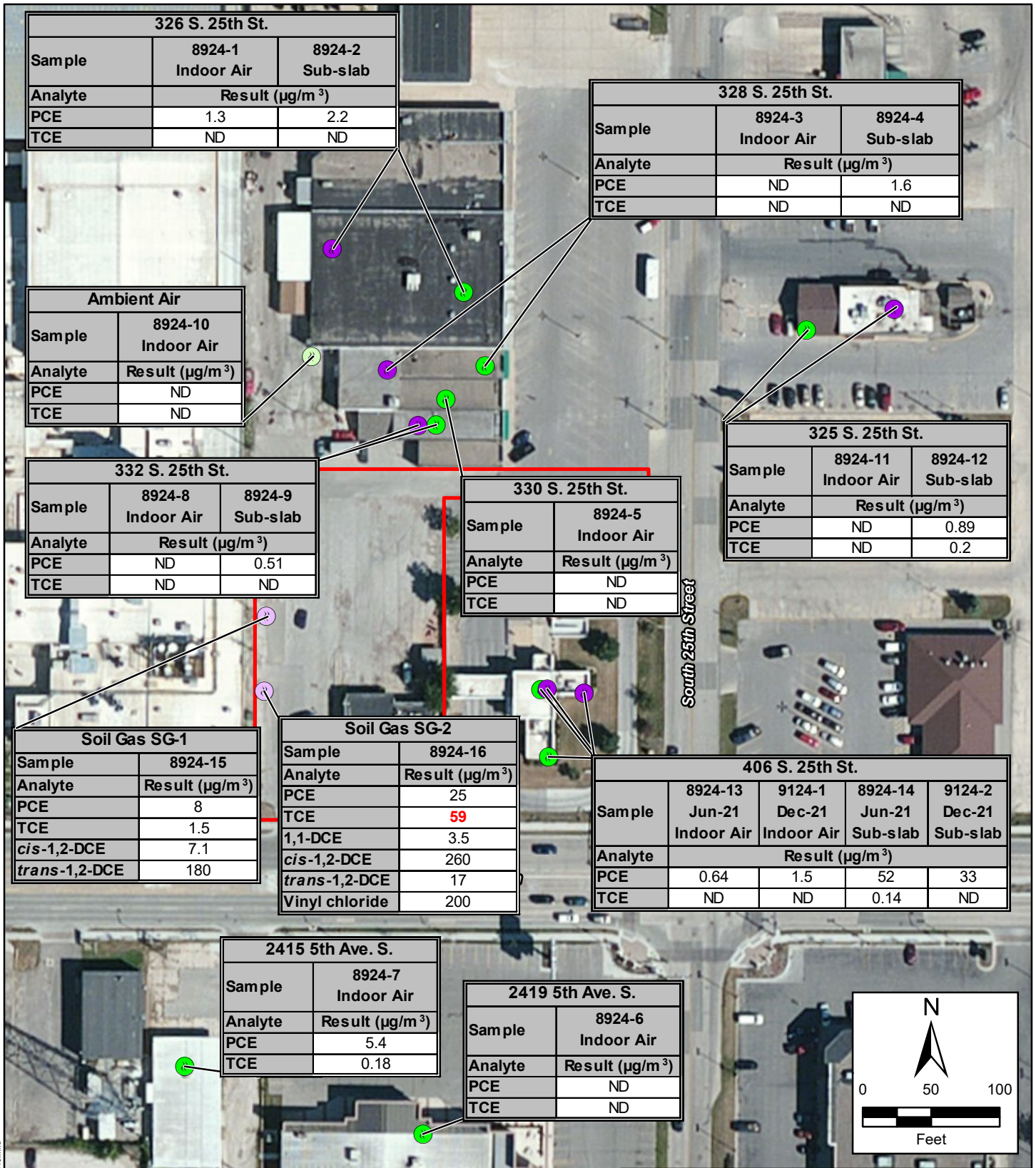
Legend

- Ambient air sample location
- Indoor air sample location
- Soil gas sample location
- Sub-slab sample location
- Former dry cleaner facility

Sunshine Laundry
 2422 5th Avenue South
 Fort Dodge, Iowa

Figure 14
 Vapor Intrusion Sample Locations





326 S. 25th St.		
Sample	8924-1 Indoor Air	8924-2 Sub-slab
Analyte	Result ($\mu\text{g}/\text{m}^3$)	
PCE	1.3	2.2
TCE	ND	ND

328 S. 25th St.		
Sample	8924-3 Indoor Air	8924-4 Sub-slab
Analyte	Result ($\mu\text{g}/\text{m}^3$)	
PCE	ND	1.6
TCE	ND	ND

Ambient Air	
Sample	8924-10 Indoor Air
Analyte	Result ($\mu\text{g}/\text{m}^3$)
PCE	ND
TCE	ND

325 S. 25th St.		
Sample	8924-11 Indoor Air	8924-12 Sub-slab
Analyte	Result ($\mu\text{g}/\text{m}^3$)	
PCE	ND	0.89
TCE	ND	0.2

332 S. 25th St.		
Sample	8924-8 Indoor Air	8924-9 Sub-slab
Analyte	Result ($\mu\text{g}/\text{m}^3$)	
PCE	ND	0.51
TCE	ND	ND

330 S. 25th St.	
Sample	8924-5 Indoor Air
Analyte	Result ($\mu\text{g}/\text{m}^3$)
PCE	ND
TCE	ND

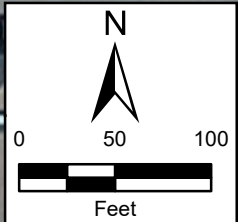
Soil Gas SG-1	
Sample	8924-15
Analyte	Result ($\mu\text{g}/\text{m}^3$)
PCE	8
TCE	1.5
<i>cis</i> -1,2-DCE	7.1
<i>trans</i> -1,2-DCE	180

Soil Gas SG-2	
Sample	8924-16
Analyte	Result ($\mu\text{g}/\text{m}^3$)
PCE	25
TCE	59
1,1-DCE	3.5
<i>cis</i> -1,2-DCE	260
<i>trans</i> -1,2-DCE	17
Vinyl chloride	200

406 S. 25th St.				
Sample	8924-13 Jun-21 Indoor Air	9124-1 Dec-21 Indoor Air	8924-14 Jun-21 Sub-slab	9124-2 Dec-21 Sub-slab
Analyte	Result ($\mu\text{g}/\text{m}^3$)			
PCE	0.64	1.5	52	33
TCE	ND	ND	0.14	ND

2415 5th Ave. S.	
Sample	8924-7 Indoor Air
Analyte	Result ($\mu\text{g}/\text{m}^3$)
PCE	5.4
TCE	0.18

2419 5th Ave. S.	
Sample	8924-6 Indoor Air
Analyte	Result ($\mu\text{g}/\text{m}^3$)
PCE	ND
TCE	ND



Legend

- Ambient air sample location
- Indoor air sample location
- Soil gas sample location
- Sub-slab sample location
- Former dry cleaner facility

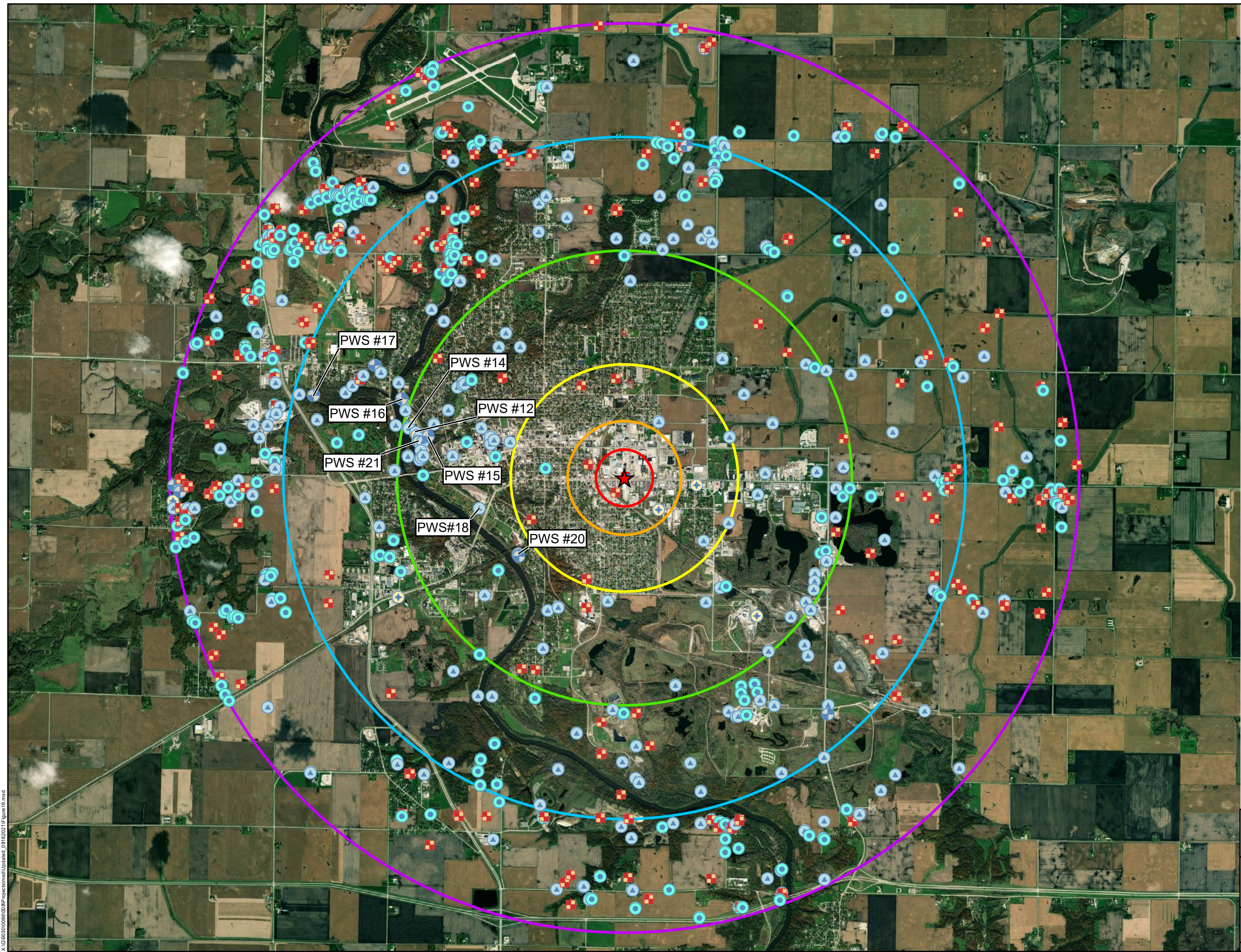
- DCE Dichloroethene
- ND Non detect
- SG Soil Gas
- PCE Tetrachloroethene
- TCE Trichloroethene
- $\mu\text{g}/\text{m}^3$ Micrograms per cubic meter

Note:
Red values exceed the vapor intrusion screening level for commercial soil gas

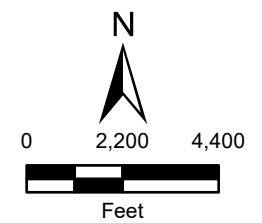
Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Figure 15
Vapor Intrusion Results Map





- Legend**
- IGS Database well
 - Private well
 - Public water supply well
 - Water use permit well
 - Registered testing well
 - Site location
 - 4 mile buffer
 - 3 mile buffer
 - 2 mile buffer
 - Mile buffer
 - 1/2 mile buffer
 - 1/4 mile buffer
 - IGS Iowa Geological Survey
 - PWS Public water supply



Source: Esri, ArcGIS Online, World Imagery (Clarity);
Iowa Department of Natural Resources Source Water Protection,
All Registered Wells in the State of Iowa, Downloaded July 17th, 2021

Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Figure 16
4-Mile Radius Map



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DRAFT

APPENDIX B
DATA TABLES

**TABLE B-1: HISTORICAL SOIL RESULTS
SUNSHINE LAUNDRY - FORT DODGE, IOWA**

Location	Depth (ft bgs)	Date	PCE	TCE	<i>cis</i> -1,2-DCE	<i>trans</i> -1,2-DCE	VC	Depths of elevated PID readings
			Concentration (µg/kg)					
RSL - Commercial			100,000	6,000	2.30E+06	3.00E+05	1,700	
RML - Commercial			390,000	19,000	2.30E+06	3.00E+05	17,000	
Iowa Statewide Standards Soil			1,500,000	67,000	150,000	1,500,000	2,100	
2008 Phase II Environmental Site Assessment								
DP-1/SB01	3-4	3/4/2008	18.4	<6.3	<6.3	<6.3	<6.3	None
DP-2/SB02	6-7	3/4/2008	<6.1	<6.1	<6.1	<6.1	<6.1	None
DP-3/SB03	12-13	3/4/2008	<5.8	<5.8	<5.8	<5.8	<5.8	None
DP-4/SB01	2-3	3/4/2008	1,850	<6.7	<6.7	<6.7	<6.7	2-3; 11-13 ft bgs
DP-5/SB01	1-2	3/4/2008	16.7	<5.7	<5.7	<5.7	<5.7	2.5 ft bgs
DP-6/SB02	4-6	3/4/2008	291	<6	<6	<6	<6	None
DP-7/SB03	14-15	3/4/2008	<5.8	<5.8	<5.8	<5.8	<5.8	None
DP-8/SB02	6-7	3/4/2008	262	10.5	14.8	4.6 ^a	<6.2	None
DP-9/SB03	14-15	3/4/2008	22,100	52	<5.9	<5.9	<5.9	15-17 ft bgs
DP-10/SB03	14-15	3/4/2008	<6.1	<6.1	<6.1	<6.1	<6.1	None
Dup-1/SB-02	NA	3/4/2008	319	8	10.6	2.9 ^a	<5.9	None
2010 Site Assessment & Remedial Action Plan								
MW-1	9	1/18/2010	<2	<2	<2	<2	<2	None
MW-2	11	1/19/2010	28	3	6	<2	<2	3-12 ft bgs
MW-3	3	1/19/2010	<2	<2	10	10	<2	2-16 ft bgs
MW-6	9	4/22/2010	43	63	18	27	<2	1-5; 8-11 ft bgs

Notes:

^a Calculated as the difference between the total 1,2-DCE and *cis* -1,2-DCE concentrations

ft bgs	Feet below ground surface	RML	Remedial Management Level
DCE	Dichloroethene	SB	Soil boring core designation (SB01 = 0-5 ft bgs)
Dup	Duplicate	PCE	Tetrachloroethene
<	Less than the detection limit at the immediate right	PID	Photoionization detector
NA	Not available; likely DP-8/SB02 (6-7 ft bgs)	TCE	Trichloroethene
µg/kg	Micrograms per kilogram	VC	Vinyl chloride
RSL	Regional Screening Level		




**TABLE B-2: HISTORICAL GROUNDWATER RESULTS
SUNSHINE LAUNDRY - FORT DODGE, IOWA**

Sample Name	Depth (ft bgs) ^a	Date	PCE	TCE	cis -1,2-DCE	trans -1,2-DCE	VC	Other detections (µg/L [ISS])
			Concentration (µg/L)					
VISL - Shallow Groundwater (Worker)			31	1.9	NE	NE	28	
Federal Drinking Water MCL and ISS - Protected Groundwater Source			5	5	70	100	2	
ISS - Non-Protected Groundwater Source			1,700	76	350	700	10	
2008 Phase II Environmental Site Assessment								
DP-1/GW01	16-25	3/4/2008	12	<5	<5	<5	<5	
DP-2/GW01	16-25	3/4/2008	34	<5	<5	<5	<5	
DP-3/GW01	16-28	3/4/2008	66.4	<1	<1	<1	<1	
DP-4/GW01	21-25	3/4/2008	190	<5	24.3	2.1 J	<5	
DP-5/GW01	15-20	3/4/2008	248 ^b	<5	<5	<5	<5	
DP-6/GW01	15-20	3/4/2008	1,040	37.9	7	<5	<5	
DP-7/GW01	21.25	3/4/2008	511	<5	<5	<5	<5	
DP-8/GW01	15-20	3/4/2008	178	103	302	139	2.3	Chloroethane (1.4 [14,000])
DP-9/GW01	22-26	3/4/2008	2,130	4.2	5.8	2.6	<1	1,2,4-TMB (1.2 [350])
DP-9/Dup-1		3/4/2008	2,140	4.8	6.9	3	<1	1,2,4-TMB (1.3 [350])
DP-10/GW01	22.5-29	3/4/2008	<1	<1	<1	<1	<1	
2010 Site Assessment								
MW-1	9-20	1/29/2010	2.8	6	20.1	3.7	<1	
MW-2	5-20	1/29/2010	57.8	10.8	46.8	13.7	<1	
MW-3	5-20	1/29/2010	1,970	281	1,110	518	6.2	
MW-4	5-20	1/29/2010	7.3	1.1	2.9	1.4	<1	
MW-5	5-10	4/22/2010	111	4.5	<2	<2	<2	
MW-6	4-14	4/22/2010	75.3	5.1	3.5	2.5	<2	
December 2010 Direct-Push Groundwater Sampling at Wells Fargo Property (406 S. 25th St.)								
WF-1	15-19	12/6/2010	130	270	1,100	170	<5	
WF-2	15-19	12/6/2010	400	210	430	180	<25	
WF-3	15-19	12/6/2010	1,000	310	1,300	650	<25	
May 2011 Direct-Push Groundwater Sampling at Long John Silver's Property (407 S. 25th St.)								
PS-1	15-19	5/18/2011	<5	<5	<5	<5	<5	
PS-2	15-19	5/18/2011	<5	<5	<5	<5	<5	
December 2010 - December 2011 Extended Site Screening Monitoring Well Sampling								
MW-1	9-20	12/6/2010	<5	7	18	<5	<5	
		5/18/2011	<5	<5	8	<5	<5	
		12/19/2011	ND	5	Total: 9		ND	
MW-2	5-20	12/6/2010	350	89	400	85	<25	
		5/18/2011	690	230	500	120	26	
		12/19/2011	790	200	Total: 640		67	
MW-3	5-20	12/6/2010	Not Sampled					
		5/18/2011	4,000	360	1100	590	11	
		12/19/2011	3,700	420	Total: 1,500		11	
MW-4	5-20	12/6/2010	22	<5	<5	<5	<5	
		5/18/2011	<5	<5	<5	<5	<5	
		12/19/2011	ND	ND	Total: ND		ND	
MW-5	5-10	12/6/2010	160	14	<5	<5	<5	
		5/18/2011	160	20	8	<5	<5	
		12/19/2011	190	13	Total: ND		ND	
MW-6	4-14	12/6/2010	100	17	10	33	ND	
		5/18/2011	67	6	8	<5	<5	
		12/19/2011	110	15	Total: 11		ND	

**TABLE B-2: HISTORICAL GROUNDWATER RESULTS
SUNSHINE LAUNDRY - FORT DODGE, IOWA**

Sample Name	Depth (ft bgs) ^a	Date	PCE	TCE	cis -1,2-DCE	trans -1,2-DCE	VC	Other detections (µg/L [ISS])	
			Concentration (µg/L)						
VISL - Shallow Groundwater (Worker)			31	1.9	NE	NE	28		
Federal Drinking Water MCL and ISS - Protected Groundwater Source			5	5	70	100	2		
ISS - Non-Protected Groundwater Source			1,700	76	350	700	10		
2014 Iowa Department of Natural Resources Sampling									
MW-1	9-20	8/28/2014	<5	<5	Total: 11		<5		
MW-2	5-20	8/28/2014	2,300	290	Total: 760		26		
MW-3	5-20	8/28/2014	Not Sampled						
MW-4	5-20	8/28/2014	<5	<5	Total: <5		<5		
MW-5	5-10	8/28/2014	170	9	Total: 7		<5		
MW-6	4-14	8/28/2014	97	8	Total: 9		<5		

Notes:

	Concentration exceeds one benchmark value provided in table
	Concentration exceeds two benchmark values provided in table
	Concentration exceeds all three benchmark levels provided in table

^a Sample depth is considered the interval between static water level and total depth, unless otherwise indicated.

^b Incorrectly listed as 0.0248 mg/L on some historical data tables; however, analytical data indicated value was 248 µg/L (0.248 mg/L).

DCE	Dichloroethene
Dup	Duplicate
ISS	Iowa Statewide Standard
<	Less than the detection limit at the immediate right
µg/L	Micrograms per liter
mg/L	Milligrams per liter
MCL	Maximum Contaminant Level
MW	Monitoring well
ND	Not detected (detection limits unknown)
NE	Not established
PCE	Tetrachloroethene
TCE	Trichloroethene
TMB	Trimethyl benzene
VISL	Vapor Intrusion Screening Level
VC	Vinyl chloride

**TABLE B-3: VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER FROM MONITORING WELLS
SUNSHINE LAUNDRY – FORT DODGE, IOWA**

Sample Name	Depth (ft bgs)	Date	PCE	TCE	<i>cis</i> -1,2-DCE	<i>trans</i> -1,2-DCE	VC
			Concentration (µg/L)				
VISL - Shallow Groundwater (Worker)			31	1.9	NE	NE	28
Federal Drinking Water MCL and ISS - Protected Groundwater Source			5	5	70	100	2
ISS - Non-Protected Groundwater Source			1,700	76	350	700	10
MW-1	9-20	1/29/2010	2.8	6	20.1	3.7	<1
		12/6/2010	<5	7	18	<5	<5
		5/18/2011	<5	<5	8	<5	<5
		12/19/2011	ND	5	Total: 9		ND
		8/28/2014	<5	<5	Total: 11		<5
MW-2	5-20	1/29/2010	57.8	10.8	46.8	13.7	<1
		12/6/2010	350	89	400	85	<25
		5/18/2011	690	230	500	120	26
		12/19/2011	790	200	Total: 640		67
		8/28/2014	2,300	290	Total: 760		26
MW-3	5-20	1/29/2010	1,970	281	1,110	518	6.2
		12/6/2010	Not Sampled				
		5/18/2011	4,000	360	1,100	590	11
		12/19/2011	3,700	420	Total: 1,500		11
		8/28/2014	Not Sampled				
MW-4	5-20	1/29/2010	7.3	1.1	2.9	1.4	<1
	5-20	12/6/2010	22	<5	<5	<5	<5
		5/18/2011	<5	<5	<5	<5	<5
		12/19/2011	ND	ND	Total: ND		ND
	5-20	8/28/2014	<5	<5	Total: <5		<5
MW-5	5-10	4/22/2010	111	4.5	<2	<2	<2
		12/6/2010	160	14	<5	<5	<5
		5/18/2011	160	20	8	<5	<5
		12/19/2011	190	13	Total: ND		ND
		8/28/2014	170	9	Total: 7		<5

**TABLE B-3: VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER FROM MONITORING WELLS
SUNSHINE LAUNDRY – FORT DODGE, IOWA**

Sample Name	Depth (ft bgs)	Date	PCE	TCE	<i>cis</i> -1,2-DCE	<i>trans</i> -1,2-DCE	VC
			Concentration (µg/L)				
VISL - Shallow Groundwater (Worker)			31	1.9	NE	NE	28
Federal Drinking Water MCL and ISS - Protected Groundwater Source			5	5	70	100	2
ISS - Non-Protected Groundwater Source			1,700	76	350	700	10
MW-6	4-14	4/22/2010	75.3	5.1	3.5	2.5	<2
		12/6/2010	100	17	10	33	ND
		5/18/2011	67	6	8	<5	<5
		12/19/2011	110	15	Total: 11		ND
		8/28/2014	97	8	Total: 9		<5

Notes:

	Concentration exceeds one benchmark value provided in table
	Concentration exceeds two benchmark values provided in table
	Concentration exceeds all three benchmark levels provided in table

DCE	Dichloroethene
ISS	Iowa Statewide Standard
<	Less than the detection limit at the immediate right
µg/L	Micrograms per liter
MCL	Maximum Contaminant Level
MW	Monitoring well
ND	Not detected (detection limits unknown)
NE	Not established
PCE	Tetrachloroethene
TCE	Trichloroethene
VISL	Vapor Intrusion Screening Level
VC	Vinyl chloride

**TABLE B-4: HISTORICAL SUB-SLAB SOIL GAS SAMPLE RESULTS
SUNSHINE LAUNDRY - FORT DODGE, IOWA**

Sub-slab	Location	Date	PCE	m,p-Xylenes
			Concentration ($\mu\text{g}/\text{m}^3$)	
Vapor Intrusion Screening Level – Commercial Sub-slab Soil Gas			5,800	1,460
SVP-1	Sunshine – Northeast Port	3/4/2008	170	4.9
SVP-2	Sunshine – Northwest Port	3/4/2008	630,000	<7800

Notes:

Bold font indicates a concentration that exceeds the VISL

- < Less than the detection limit at the immediate right
- $\mu\text{g}/\text{m}^3$ Micrograms per cubic meter
- NE Not established
- PCE Tetrachloroethene
- SVP Soil vapor port

TABLE B-5: VAPOR INTRUSION SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA

Analyte	VISL Sub-slab and Near-source Soil Gas ¹ [EPA Region 7 Sub-slab RML] ²	RML Commercial Indoor Air CR = 1E-4; HQ = 1 [EPA Region 7 Indoor Air RML]	326 S. 25th St. Indoor Air 8924-1	326 S. 25th St. Sub-slab 8924-2	328 S. 25th St. Indoor Air 8924-3	328 S. 25th St. Sub-slab 8924-4	330 S. 25th St. Indoor Air 8924-5	2419 5th Ave. S. Indoor Air 8924-6	2415 5th Ave. S. Indoor Air 8924-7	332 S. 25th St. Indoor Air 8924-8	332 S. 25th St. Sub-slab 8924-9
	Volatile Organic Compounds (µg/m3) Method TO-15										
1,1-Dichloroethene	29,200 [29,000]	880 [880]	0.20 U	0.20 U	0.20 U	0.46	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,2,4-Trimethylbenzene	8,760	260	7.1 J	4.8	5.2	4.2	4.9	0.99 U	20	1.8	1.6
1,2-Dichloroethane	1,020 [1,000]	31 [31]	0.18	0.11	0.18	0.10 U	0.20	0.55	2.5	0.10 U	0.10 U
1,2-Dichloropropane	584	18	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	4.2	0.93 U	0.93 U
1,3,5-Trimethylbenzene	8,760	260	2.3 J	1.5	1.4	1.1	2.1	0.99 U	4.7	0.99 U	0.99 U
1,3-Butadiene	292	8.8	0.45 U	0.83	0.45 U	1.7	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,4-Dichlorobenzene	3,720	110	2.9 J	1.4	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
2,2,4-Trimethylpentane	NE	NE	1.6	2.2	0.94 U	0.94 U	0.94 U	0.94 U	63	0.94 U	0.94 U
2-Propanol (Isopropanol)	29,200	880	34 J	0.50 UJ	3800 J	340 J	4900 J	24 J	13 J	1900 J	27 J
4-Ethyltoluene (ethyl methyl benzene)	NE	NE	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.9	4.0 U	4.0 U
2-Hexanone	4,380	130	1.7 UJ	1.7 U	38 J	3.0	1.7 UJ	1.7 UJ	3.0 J	3.1 J	1.7 U
Acetone	4.51E+05	1.40E+05	96 J	14	330 J	250 J	3500	190 J	250 J	2000 J	160 J
Benzene	4,380 [4,400]	130 [130]	0.71	2.5	0.49	8.8	0.38	0.27	9.8	0.35	1.8
Carbon disulfide	1.02E+05	3,100	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.65	0.63 U	0.63 U
Carbon tetrachloride	6,810 [6,800]	200 [200]	0.68	0.54	0.60	0.32 U	0.57	0.54	0.54	0.54	0.32 U
Chloroethane (ethyl chloride)	1.46E+06	44,000	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
Chloroform	1,780 [1,800]	53 [53]	0.61	0.45	0.67	0.12 U	0.78	0.12	2.2	1.1	1.2
Chloromethane	13,100	390	1.7 J	1.4	1.1 J	0.42 U	1.4 J	1.4 J	1.1 J	1.6 J	0.42 U
cis-1,2-Dichloroethene	NE	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Cyclohexane	NE	26,000	0.70 U	0.70 U	0.70 U	3.4	0.70 U	0.70 U	4.5	0.70 U	0.70 U
Dichlorodifluoromethane	14,600	440	8.4 J	7.7	2.1	3.1	2.2	2.6	35	2.3	1.5
Ethylbenzene	16,400 [16,000]	490 [490]	0.89	3.3	8.7	16	3.6	0.88 U	15	1.1	1.5
Ethyl acetate	10,200	310	2.0	0.73 U	60	3.9	190	2.5	5.0	56	0.73 U
Heptane	58,400	1,800	0.86 J	1.4	7.3	5.3	0.83 U	0.83 U	8.1	1.9	0.83 U
Hexane	87,600	3,100	0.71 U	1.9	0.78	10	0.75	0.77	20	0.74	0.76
Methyl ethyl ketone (2-butanone)	7.30E+05	22,000	19	1.2 U	620 J	160	130	5.8	14	41	4.0
Methyl isobutyl ketone (4-methyl-2-pentanone)	4.38E+05	13,000	10 J	3.4 J	9.9 J	2.7 J	4.6 J	1.7 U	1.8 J	1.9 J	1.7 UJ
Methylene Chloride (dichloromethane)	87,600	2,600	1.3 J	0.70 U	2.7 J	0.70 U	0.70 U	0.70 U	1.9 J	0.70 U	0.70 U
Propylene (propene)	4.38E+05	13,000	1.6	5.9	0.59	10	0.67	2.9	0.65	0.44	1.1
Styrene	1.46E+05	4,400	4.2 J	3.0	3.0	0.86 U	1.6	0.86 U	3.1	0.86 U	0.86 U
Tetrachloroethene	5,840 [5,800]	180 [180]	1.3	2.2	0.34 U	1.6	0.34 U	0.34 U	5.4	0.34 U	0.51
Tetrahydrofuran	2.92E+05	8,800	8.2 J	5.5	15	2.0	4.0	12	1.2	1.1	0.60 U
Toluene	14,600	22,000	6.2 J	9.1	680 J	55	170 J	1.6 J	270 J	59 J	3.7
trans-1,2-Dichloroethene	5,840	180	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Trichloroethene	292 [200]	8.8 [6]	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.18	0.14 U	0.14 U
Trichlorofluoromethane	NE	NE	32 J	26	2.8 J	5.3	2.4 J	1.8 J	180 J	1.7 J	3.5
Vinyl acetate	29,400	880	8.3 J	0.71 UJ	1.6 J	0.71 UJ	3.4 J	1.5 J	20 J	2.7 J	0.71 UJ
Vinyl chloride	9,290 [9,300]	280 [280]	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U
Xylenes, Total	14,600	440	7.10	8.50	31.90	11.10	14.10	ND	74	4.35	ND
m and/or p-Xylene	14,600	440	4.3	5.7	26	7.5	11	1.8 U	53	3.4	1.8 U
o-Xylene	14,600	440	2.8 J	2.8	5.9	3.6	3.1	0.88 U	21	0.95	0.88 U

**TABLE B-5: VAPOR INTRUSION SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Analyte	VISL Sub-slab and Near-source Soil Gas ¹ [EPA Region 7 Sub-slab RML] ²	RML Commercial Indoor Air CR = 1E-4; HQ = 1 [EPA Region 7 Indoor Air RML]	Ambient Air 8924-10	325 S. 25th St. Indoor Air 8924-11	325 S. 25th St. Sub-slab 8924-12	406 S. 25th St. Indoor Air 8924-13	406 S. 25th St. Sub-slab 8924-14	SG-1 Soil-gas 8924-15	SG-2 Soil-gas 8924-16
	Volatile Organic Compounds (µg/m3) Method TO-15								
1,1-Dichloroethene	29,200 [29,000]	880 [880]	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	3.5
1,2,4-Trimethylbenzene	8,760	260	0.99 U	1.3	0.99 U	0.99 U	1.4	6.7	9.9 U
1,2-Dichloroethane	1,020 [1,000]	31 [31]	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U
1,2-Dichloropropane	584	18	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	9.3 U
1,3,5-Trimethylbenzene	8,760	260	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	1.5	9.9 U
1,3-Butadiene	292	8.8	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	4.5 U
1,4-Dichlorobenzene	3,720	110	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	12 U
2,2,4-Trimethylpentane	NE	NE	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	9.4 U
2-Propanol (Isopropanol)	29,200	880	8.9 J	34 J	0.97 J	10 J	21 J	0.50 UJ	5.0 UJ
4-Ethyltoluene (ethyl methyl benzene)	NE	NE	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	40 U
2-Hexanone	4,380	130	1.7 UJ	1.7 UJ	1.7 U	1.7 UJ	1.7 U	1.7 U	17 U
Acetone	4.51E+05	1.40E+05	13	31	5.9	27	42	69	65
Benzene	4,380 [4,400]	130 [130]	0.22	0.95	0.53	0.27	0.67	1.6	7.6
Carbon disulfide	1.02E+05	3,100	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	7.7
Carbon tetrachloride	6,810 [6,800]	200 [200]	0.51	0.52	0.43	0.52	0.48	0.54	3.2 U
Chloroethane (ethyl chloride)	1.46E+06	44,000	0.53 U	0.58	0.53 U	0.53 U	0.53 U	0.53 U	5.3 U
Chloroform	1,780 [1,800]	53 [53]	0.12 U	1.3	0.90	0.12 U	0.12 U	0.12 U	1.2 U
Chloromethane	13,100	390	0.99 J	1.0 J	0.42 U	1.4 J	0.79	0.42 U	4.2 U
cis -1,2-Dichloroethene	NE	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	7.1	260
Cyclohexane	NE	26,000	0.70 U	0.70 U	0.70 U	0.70 U	0.70 U	0.70 U	11
Dichlorodifluoromethane	14,600	440	2.1	1.8	2.7	2.7	2.3	1.0 U	10 U
Ethylbenzene	16,400 [16,000]	490 [490]	0.88 U	0.88 U	0.88 U	0.88 U	2.0	1.8	8.8 U
Ethyl acetate	10,200	310	0.73 U	7.6	0.73 U	0.73 U	0.73 U	0.73 U	7.3 U
Heptane	58,400	1,800	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	1.1	8.3 U
Hexane	87,600	3,100	0.71 U	1.8	0.71 U	0.71 U	0.71 U	0.71 U	7.1 U
Methyl ethyl ketone (2-butanone)	7.30E+05	22,000	1.2 U	2.3	1.2 U	2.8	4.5	24	13
Methyl isobutyl ketone (4-methyl-2-pentanone)	4.38E+05	13,000	1.7 U	1.7 U	1.7 UJ	1.7 U	1.7 UJ	1.7 UJ	17 UJ
Methylene Chloride (dichloromethane)	87,600	2,600	0.70 U	0.70 U	0.70 U	0.70 U	0.70 U	0.70 U	7.0 U
Propylene (propene)	4.38E+05	13,000	0.35 U	0.71	0.35	0.41	1.2	0.35 U	3.5 U
Styrene	1.46E+05	4,400	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	0.86 U	8.6 U
Tetrachloroethene	5,840 [5,800]	180 [180]	0.34 U	0.34 U	0.89	0.64	52	8.0	25
Tetrahydrofuran	2.92E+05	8,800	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	6.0 U
Toluene	14,600	22,000	0.76 U	8.1 J	1.2	0.76 U	2.3	5.9	19
trans -1,2-Dichloroethene	5,840	180	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	180	17
Trichloroethene	292 [200]	8.8 [6]	0.14 U	0.14 U	0.20	0.14 U	0.14	1.5	59
Trichlorofluoromethane	NE	NE	1.4 J	1.3 J	1.5	3.1 J	3.4	1.1 U	11 U
Vinyl acetate	29,400	880	0.89 J	5.8 J	0.94 J	1.9 J	0.88 J	0.71 UJ	7.1 UJ
Vinyl chloride	9,290 [9,300]	280 [280]	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	200
Xylenes, Total	14,600	440	ND	ND	ND	ND	3.30	11.10	ND
m and/or p-Xylene	14,600	440	1.8 U	1.8 U	1.8 U	1.8 U	2.3	7.6	18 U
o-Xylene	14,600	440	0.88 U	0.88 U	0.88 U	0.88 U	1.0	3.5	8.8 U

**TABLE B-5: VAPOR INTRUSION SAMPLE RESULTS
SUNSHINE LAUNDRY SITE – FORT DODGE, IOWA**

Notes:

¹ CR=1E-04; HQ=1; sub-slab attenuation = 0.03

² CR = 1E-04; HQ=1; Attenuation Factor 0.03 (Region 7 RMLs for Exterior soil gas are not included in this table.)

Bold font indicates a concentration that exceeds an indoor air RML or a VISL sub-slab value

EPA = U. S. Environmental Protection Agency

CR = Target Cancer Risk

HQ = Hazard Quotient

J = Estimated value

NE = Not Established

RML = Removal Management Level

U = Analyte was not detected at concentration at or above reporting limit at immediate left

UJ = Analyte was not detected at concentration at or above estimated reporting limit at immediate left

VISL = Vapor intrusion screening level

DRAFT

APPENDIX C
LOGBOOK

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Sunshine Laundry
Fort Dodge, IA

2 6/7/21

Sunshine Laundry

0715 STM Barbeau at Tetra Tech Kansas

City to pack up vehicle and gather vapor intrusion equipment.

1235 STMs Barbeau and Kaley arrive at the site. STM ^{Meach} ~~Jenna~~ will be around for the MIP Survey. STMs Barbeau and Kaley attempt access.

1430 Return to the site with STM Meach.

1500 Leave for access and gathering supplies.

1545 Return and starting to gauge and sample monitoring wells.

1600 Gauge MW-3. Total depth 18.7'
Top of Water 4.45'

1615 Deploy hydrosteeve samples into the well.

1710 Collect MW-3 sample. 8924-201

1725 Measure MW-6 (total) depth 9.15'

1742 Top of Water - 6.3'

^{TB} ~~1742~~ Gauge MW-4. Total depth 19.9'
Depth to Water - 5.1'

1800 Collect MW-6 8924-202

1810 ^{TB} Deploy sample MW-4.

1840 ~~1869~~ ^{TB} Collect MW-4 8924-203. MW1 + MW2 were unsamplable and MW5

6/7/21

Sunshine Laundry

3

was not visible.

1850 Done for the day.

TB 6/7/21

4 6/8/21 Sunshine Laundry

0710 STMS Mead and Barbeau at five sites

Drillers continue working on the MEP.

MW-3: 42.501713 -94.163874

MW-4: 42.501416 -94.164258

MW-6: 42.501564 -94.163776

0810 Create trip plans samples **8924-223-PB**

0820 At 326 South 25th to collect indoor and sub-slab.

8924-1: Indoor air

Start: -29.5 mmHg @ 0828

End: -3 mmHg @ 1614

Canister ID: 4556 Reg ID: 149

8924-2: Sub-slab at 0853

Start: -30 mmHg

End: -4 mmHg

Canister ID: ~~682~~ 45207

8924-3: Indoor air at 328 S 25th

Start: -26.5 mmHg @ 0910

End: -5.5 mmHg @ 1616

Canister ID: 30375 Reg ID: 147

8924-4: Sub-slab at 328 S 25th

Start: -28.5 mmHg at 0925

End: ~~6.5~~ ^{TB} -1 mmHg

Canister ID: 661

8924-5: Indoor Air at 330 S 25th St

Start: -29 mmHg @ 0932

6/8/21 Sunshine Laundry

5

End: -5 mmHg @ 1718

Canister ID: 717 Reg ID 141

1015 Verbal access ^{TB} from to collect

indoor air at 2419 5th Ave S

and 2515 5th Ave S

8924-6: Indoor Air at 2419 5th

Ave South

Start: -28.5 mmHg @ 1020

End: 0 mmHg @ 1625

Canister ID: 3012 Reg ID: 19

8924-7: Indoor Air at 2515 5th

Ave South.

Start: -13 mmHg @ 1025

End: -7 mmHg @ 1652 store closes at 5.

Canister ID: 816 Reg ID: 16

1055 STM Haley will attempt property owner access and STM Barbeau will check on MEP Survey with STM Mead. Access granted verbally.

1145 At 332 S 25th St.

8924-8: Indoor Air

Start: -29.5 @ 1118

End: -7 @ ~~16~~ ^{TB} 1820

Canister ID: 7001 Reg ID: →

8924-9: Sub-slab

Start: -30 mmHg at 1205 ^{return in 20 min}

6 6/8/21 Sunshine Laundry

End: -2

Canister ID: 612

1215 Crew takes lunch

1245 Drillers are at location 13.

1350 Drillers are at location 14.

1438 Drillers are at location 15.

1608 Leave to pick up indoor air

30[±] canisters.

8⁴⁵ Done with work for the day.

~~TB 6/8/21~~

6/9/21 Sunshine Laundry 7

0650 Pick up ice for the samples

0700 At the site. The drillers will

^{TB} start sampling inside the laundry building.

0730 At SB-1/TW-1

0758 Collect SB-1 (¹4'-5') (²5'-6'). 8924-101

0815 Collect SB-1 (7'-8') 8924-102

0924 Drillers stop at 205' bgs. Will come back later to collect water.

8924-10 Ambient air at 330 S 25th St.

Start: -30 mmHg @ 0958

End: -35 mmHg @ 1758

Canister ID: 17007 Reg ID: 156

1010 Collect ^{TB} SB-2 (5'-6') 8924-103

1050 Collect SB-2 (11'-12') 8924-104

Well was dry to 30 feet bgs at SB-2 location. Drillers will move to SB-1 to attempt sampling groundwater.

1205 At 325 S 25th St start indoor air sample. 8924-11

Start: -30 mmHg @ 1207

End: ^{TB} -4.5 mmHg @ 2000

Canister ID: R2226 Reg ID: 155

1220 Collect TW-1 at 32' ~~feet~~ bgs.

8 6/9/21 Sunshine Cleaners

8924-204, Air bubbles were visible due to reaction with HCl acid.

1305 Collect SB-3-(5'-6') 8924-105
No recovery passed 13.5 feet in SB-3.

1345 Collect SB-4-(2'-3') 8924-106

1415 Collect SB-4(10'-12') 8924-107 ^{MS/MSA}

+TB Collect TW-2 8924-205

1515 ^{TB} Crews Drillers are at MIP 1/SB-5

~~1535~~ ¹⁵²⁵ _{TB} Collect SB-5(4'-5') 8924-108

1535 Collect SB-5(14'-15') 8924-109

1550 Collect SB-6(4'-5') 8924-110

1600 Drillers at SB-7.

1615 Collect SB-7(4'-5') 8924-111

GW at 10 feet.

1620 Collect SB-7(9'-10') 8924-112

1634 Drillers at SB-8/MIP-7

1655 Collect SB-8(9'-10') 8924-113

GW at 11 feet.

1705 Drillers leave site for the day.

Pack away supplies. Wait around for the ambient air at 330 S 5th St.

⁵
~~1718~~ _{TB} Collect ambient air and wait on indoor air at 325 S 25th.

6/9/21 Sunshine Cleaners

9

1952 Collect sub-slab at 325 S 25th
Start: -30 mmHg @ 1952. 8924-12
End: -3 mmHg
Canister ID: 606

2005 End work for the day.

TB 6/9/21

10 6/16/21 Sunshine Laundry

0700 All crews on site. Start drilling at MIP-8/SB-4.

0725 Collect SB-9 (3'-4') [8924-114]

0730 Collect SB-10 (9'-10') [8924-115]

0740 At MIP-10/SB-10

0750 Collect SB-10 (9'-10') [8924-116]

0810 Collect SB-11 (9'-10') [8924-117]

0830 Crews moves to MIP-12/SB-12

0840 4-5 ppm at 12'-13' bgs in SB-12.

Drillers will go another 5' if possible.

0845 Collect SB-12 (12'-13') [8924-118]

~~0850~~ Collect SB-12 (4'-5') [8924-119]

~~0855~~ Collect SB-13 (7'-11') [8924-120] TB

0910 Collect SB-13 (4'-5') [8924-121]

0915 Drillers at SB-14 (42.501958,

-94.164042)

0925 Collect SB-14 (12'-13') [8924-122]

0938 Drillers MIP-15/SB-15.

0945 Collect SB-15 (3'-5') [8924-123]

ME/MSB

1015 Drillers at MIP-15/SB-15

1020 Collect SB-16 (4'-5') [8924-124]

1025 Collect SB-16 (7'-8') [8924-125]

1030 Drillers at SB-17 (42.501291,

-94.163742). No recovery past

6/16/21 Sunshine Laundry

11

5' bgs.

1025 Collect SB-17 (4'-5') [8924-126]

1055 At 406 S 25th to collect

indoor air. [8924-13]

Start: -27 mmHg @ 1057

1100 Collect SB-18 (3'-4') [8924-127]

1105 Collect SB-18 (14'-15') [8924-128]

1120 Drillers at SB-18 (42.501660,

-94.163691). SB-18 coordinates

are 42.501523, -94.163720.

1125 Collect SB-19 (4'-5') [8924-129]

1130 Collect SB-19 (9'-10') [8924-130]

1145 At MIP-4/SB-1

Canister ID 818 filled with water

at 6' bgs.

~~8924-13~~ ^{Yum} 6-30-21

End: 0 at 1135 (VOID sample)

Canister ID: 4968 Reg ID: 150

1200 Collect SB-1 [8924-15]

Canister ID: 737

Start: -30 mmHg End: -5 mmHg

1206 Collect indoor air [8924-13]

at 278 406 S 25th.

Start: -26.5 mmHg @ 1206

End: -4.5 mmHg @ 1204 127

Canister ID: 3243 Reg ID: 150

- 6/10/21 Sunshine Laundry.
- 1205 Collect 5G-2 at MIP-3 location
- 1225 Start: -30 mmHg End: -5 mmHg
Canister ID: 727 [8924-16] ^{FB} 1225 ~~1205-125~~
- Collect sub-slab at 406 S 25th.
- 1225 [8924-14]
Start: 30 mmHg @ 1225 End: -2 mmHg
Canister ID: 4562
- 1320 Drillers at TW-3 at MIP-15.
- 1335 Collect ~~843~~ ^{FB} [8924-206] at 13' bgs.
- 1345 Move to TW-4/SB-17.
- 1355 Collect TW-4 at 13 feet bgs
[8924-207] Air bubbles from
reaction to HCl.
- 1400 At TW-5/SB-18
- 1410 Collect TW-5 at 13' bgs [8924-208]
MC/MSD.
- 1430 At TW-6/SB-5
- 1445 Collect TW-6 at 13' bgs [8924-209]
- 1450 At TW-7/SB-6
- 1510 Collect TW-~~7~~ ^{FB} at 15' bgs [8924-210]
- 1515 At TW-8/SB-12
- 1520 Collect TW-8 at 12' bgs [8924-211]
- 1525 At TW-9/SB-9
- 1535 Collect TW-9 at 13' bgs [8924-212]
- 1540 At TW-10/SB-14
- 1545 Collect TW-10 at 13' bgs [8924-213]

- 1555 Collect rinsate blank of the
screen [8924-214].
- 1610 Collect trip blank [8924-221-FB]
- 1620 Collect field blank [8924-222-FB]
- Drillers are patching up holes
and STM Barbeau takes photos of
the patches.
- 1645 Leave the site to wait on
indoor air sample.
- 2004 Collect indoor air from 406 S 25th.
End day. Work on lab field
sheets and COC.

FB 6/10/21

14 6/11/21 Sunshine Laundry

0630 At the site with the drillers.

0635 At TW-11 at 42.501918, -94.163214

0700 Collect TW-11 at 15' bgs 8924-215

0706 At TW-12 (42.501895, -94.163224)

Well was dry at 15'. Drillers will come back later.

0715 At TW-13 (42.502000, -94.163006) 217

0700 Collect TW-13 at 13' bgs 8924-201

0730 Drillers return to TW-12. Still dry

at that location. Will attempt at new location (42.501948, -94.163205).

0800 Collect TW-12 at 13' bgs 8924-216

0810 At TW-14 (42.501088, -94.164016).

Well is dry to 19'. Attempt at new location (42.501089,

-94.163931). ¹⁸Original location collected water so collected sample

from there.

0850 Collect TW-14 at 19' bgs 8924-218

Take photos and finish packing supplies.

0905 Leave the site.

1330 At Tetra Tech Kansas City. Put supplies away and finish office work.

12/15/21 Sunshine Laundry

15

0800 SM Barbean leaves Ankeny, IA for the site.

TB
12/15/21

Jenna Mead, PM
 Notes added to
 log book

6/6/21
 1330 Depart KC for site
 1800 Arrive Ft. Dodge
 Sunday to be here
 8:00 Monday to meet
 Plains Env. Service
 (Jason + Henry)

~~Jenna Mead
 6-6-21~~

6-7-21

0750 J Mead on site. start
looking @ utility markings
Laundromat manager for
18 yrs (Dana) here, they
will close 6/18/21 per
owner telling him

0800 Jason & Henry w/ PES arrive
Go over utilities, want to
stay away from electrical
along west side of site (ease-
ment) power/cable. PES
start setting up for MIP.
JRM starts marking planned
boring/MIP locations. Identify
3 existing MUs but only one
has vault cover/cap, others
have been ripped off & open
AC pipe.

0820 Tim Barbeau called, leaving
KC office.

0935 PES has equipment switched
from HPT to MIP & ready
to start @ SW corner.
by street; calibrate probe.

1000 Start MIP 1

6-7-21

1030 Finish MIP 1 @ 31'
v. slight response ~ 2-6'

1055 start on MIP 2, some
PID hits, but not chlorinated

1130 (no XSD hit); DTW ~ 6' on
beds in open hole after MIP.

1145 Breakfast lunch JRM staying on
site until drivers return to
keep eye on equipment.

1205-1235 JRM lunch. Tim
Barbeau & Thomas Kaley
arrive on site

1400 MIP 4 - 2-~~6~~ 6' high XSD;
Dopest MIP calibration &
Pit boring w/ bentonite

1413 Start MIP 5
- nothing

1603 Finish MIP 6 - Nothing
1645 MIP-7 HITS ~ 11-12'
GW ~ 5-6'

1705 Start MIP 8, hits ~ 8-12'

1755 Finish for day. JRM, EPA
(Megan Schuette arrive ~
1600) & drivers off site.
Tim & Thomas sampling MUs.

Jenna Mead 6/7/21 *Return the Rain*

6-8-21

- 0700 Meet drillers on site,
Tim B. arrives + will work
on getting GPS.
- 0750 Thomas on site. Megan Schuette
EPAOSC working @ hotel until
later. Plains working on
equipment air flow issue
+ calibration.
- 0810 @ MIP 9 hit old slab (?) ~
8-12' bgs. Drilled through it
since not supposed to be any
utilities here.
- 0832 stopped @ 24.5' nothing past
small response @ 10-12'.
- 0915 MIP 10 by shed hits ~2.5'
to 14' then decreasing. Slight
peak @ 29' so will go to 35'
to see if it increases.
OSC Schuette on site.
Tim + Thomas are setting
summas for V1 sampling
back now.
- 0955 JM + PES look @ interior
of building + discuss
sample locations @

6-8-21

- NW, NE, SE + SW
areas. Per Dana w/
landlordmate. Dry clean
had been @ NW corner
of lounge area, where
floor electrical connections
present, have to come
south of that to be safe.
- 1015 MIP 11 have peak ~10'
Biggest peak yet; contains
~6-11 w/ peak ~9'.
cleaning up (decreasing)
so stop @ 30'.
- 1120 MIP 12 ~4' NNE of
storm drain w/ parking
lot. Big hits ~12-24'
then decreasing.
- 1145 finished @ 41 ft @ MIP 12
No deeper hits! J. Mead
departs site for Sioux
City @ M sampling.

~~Journal Mead~~
6-8-21

12/15/21 Sunshine Laundry

- 0800 SM Barberan leaves Ankeny, IA for site. ———— SC
- 0940 Arrive to the site. Conduct site walk and mark proposed sampling locations. All proposed soil boring locations appear away from ^{to} utility utilities. Wait at the site for the rest of the crew. ———— SC
- 1000 Access from owner to prepare port installation in the building.
- 1037 Sub-slab port installed. Building is currently being renovated inside. Collect 9124-1 406 S 25th St
Indoor Air
Canister ID: 631 Reg ID: 163
Start: -27.5 at 1042 End: -6.5 at 0925
Collect 9124-2 406 S 25th St
Sub-slab
Canister ID: 696 Reg ID: 164
Start: -28 @ 1050 End: -4.5 at 0826
- 1143 Setting up on SB-20,
GPS: 42.50145 -94.16370
Weather: Sunny, 70°F
Winds are moderate & expected to increase later today. ———— SC
- 1200 Collected SB-20-(3-4).

12/15/21

- 9124-101 ———— SC
- 1216 Collected SB-20-(17.5-18.5)
9124-102 ———— SC
- 1218 Set up on SB-21, GPS:
N 42.50145 W -94.16360
- 1226 Collected sample
SB-21-(4-5) 9124-103
- 1235 Collected SB-21-(10-11) ———— SC
9124-104 ———— SC
- 1244 Setting up on SB-22, GPS:
N 42.50166 -94.16355
- 1302 Collected SB-22-(4-5)
9124-105 ———— SC
- 1312 Collected SB-22-(14-15)
9124-106 ———— SC
- Setting up on SB-23,
GPS: 42.50171 -94.16357
- 1331 Collected SB-22-(5-5.5)
9124-107 ———— SC
- 1337 Collected SB-23-(9-10)
9124-108 ———— SC
- 1341 Setting up on SB-24,
GPS: 42.50183 -94.16372
- 1347 Lightning strikes w/in 10 miles. Stop work for 30 min.
- 1350 More strikes. ———— ^{Return on site} SC

12/15/21

- 1420 no lightning strikes during last 30 min. Restarting work
- 1432 Collected SB-24-(35-4.5)
19124-109 + an MS/MSD
- 1442 Collected SB-24-(14-15)
19124-110 SC
- 1444 Setting up on SB-25,
GPS: 42.50183, -94.16357
- 1450 Collected SB-25-(4-5)
19124-111 SC
- 1457 Collected SB-25-(9-10)
19124-112 SC
- 1502 Setting up on SB-26,
GPS: 42.50184, -94.16348
- 1504 Collected SB-26-(7-5)
19124-113 SC
- 1514 Collected SB-26-(14-15)
19124-114 SC
- 1520 All borings filled w/
bentonite & patched w/
appropriate material
when applicable. SC
- 1545 Crew leaves site for the day.

TB 12/15/21

12/16/21

- 0800 SM Barbeau arrives at 406 South
25th St to close and pick up
VI samples. SC
- 0830 Samples are shut off and packed
Results to pressure and time on
Page 22 SC
- 0840 Leave site for Kansas City.
- 1417 End of day. SC

~~Run
12/16/21~~

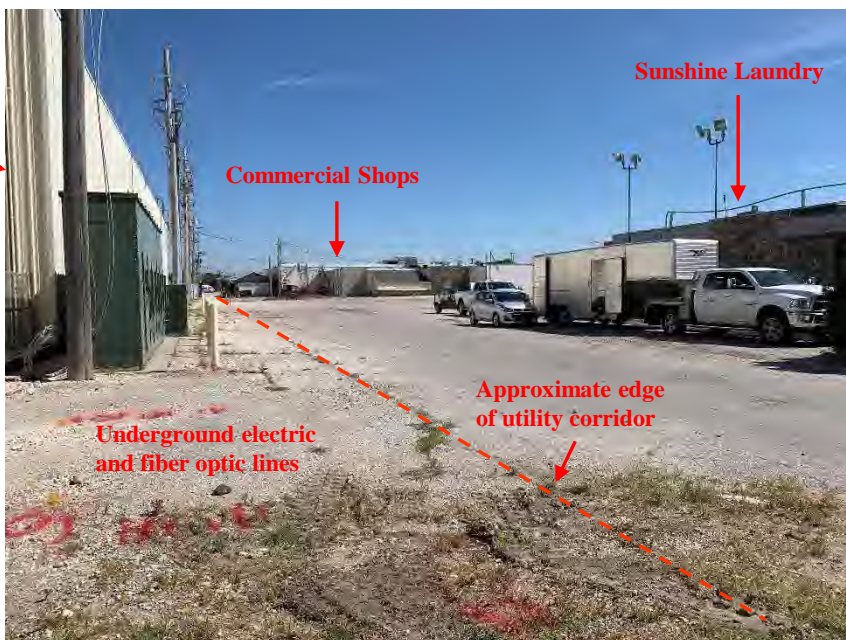
DRAFT

APPENDIX D
PHOTOGRAPHIC LOG

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows Membrane Interface Probe (MIP)-1 location; collocated with Soil Boring (SB)-5 and Temporary Well (TW)-6.	1
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	

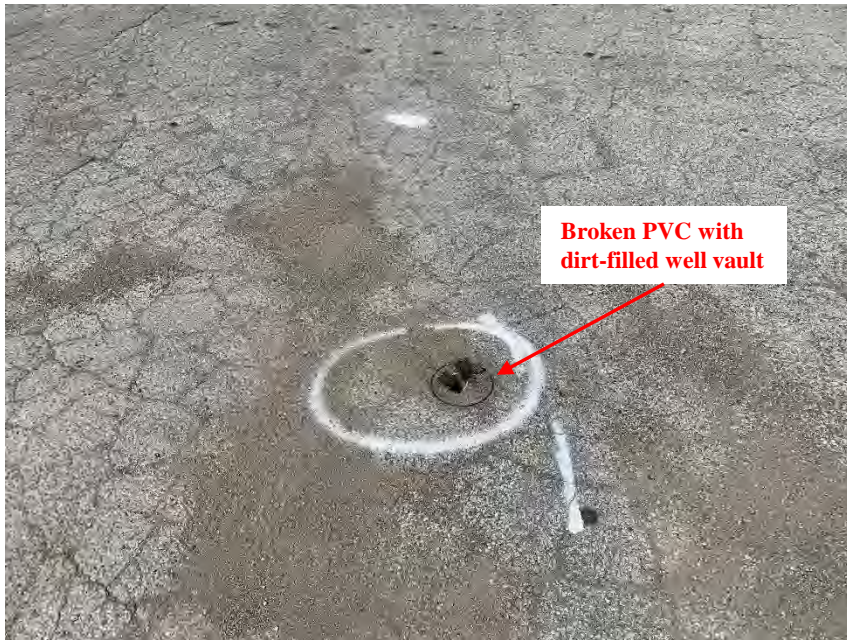


TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: North	DESCRIPTION	This photograph shows power and communications utility easement at west side of Sunshine Laundry.	2
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: South	DESCRIPTION	This photograph shows the storm sewer drain in parking lot north of Sunshine Laundry.	3
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows open polyvinyl chloride (PVC) riser with no well cap or vault cover at MW-1; not sampled.	4
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows open PVC with no well cap or vault cover at MW-2; not sampled.	5
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Jenna Mead	6/7/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: South	DESCRIPTION	This photograph shows MW-3 with vault cover in place, north of Sunshine Laundry building.	6
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Jenna Mead	6/7/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: North	DESCRIPTION	This photograph shows MW-4 with 4-inch vault cover in place.	7
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows MW-6 location just northeast of Sunshine Laundry building. Note underground electrical flag and markings.	8
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Southeast</p>	DESCRIPTION	This photograph shows water level measurement at MW-6. Note: the subsurface electrical post-dates installation of MW-6.	9
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Southwest</p>	DESCRIPTION	This photograph shows groundwater sample collected at MW-3 by use of a HydraSleeve™ sampling device.	10
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	

**Sunshine Laundry Site
Fort Dodge, Iowa**



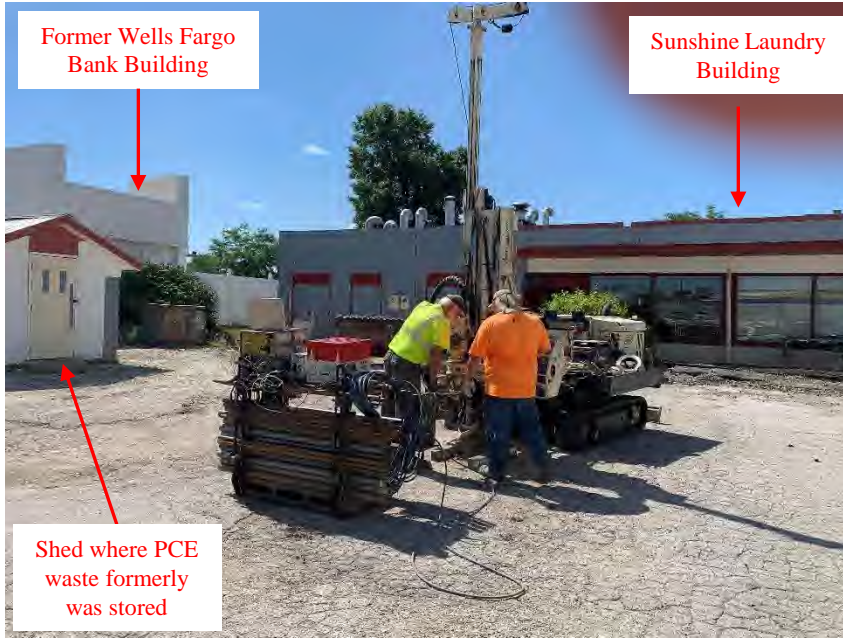
Approximate
location of
MIP-5

TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Northwest	DESCRIPTION	This photograph shows MIP-6 location.	11
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows MIP-8 location. Collocated with SB-9 and TW-9.	12
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/7/2021
	PHOTOGRAPHER	Jenna Mead	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Southeast	DESCRIPTION	This photograph shows MIP-11 location; collocated with SB-11.	13
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/8/2021
	PHOTOGRAPHER	Jenna Mead	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows MIP-13 near northwest corner of the Sunshine Laundry building; collocated with SB-15.	14
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/8/2021
	PHOTOGRAPHER	Jenna Mead	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows indoor air sample collection at 2419 5 th Avenue South.	15
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/8/2021
	PHOTOGRAPHER	Tim Barbeau	

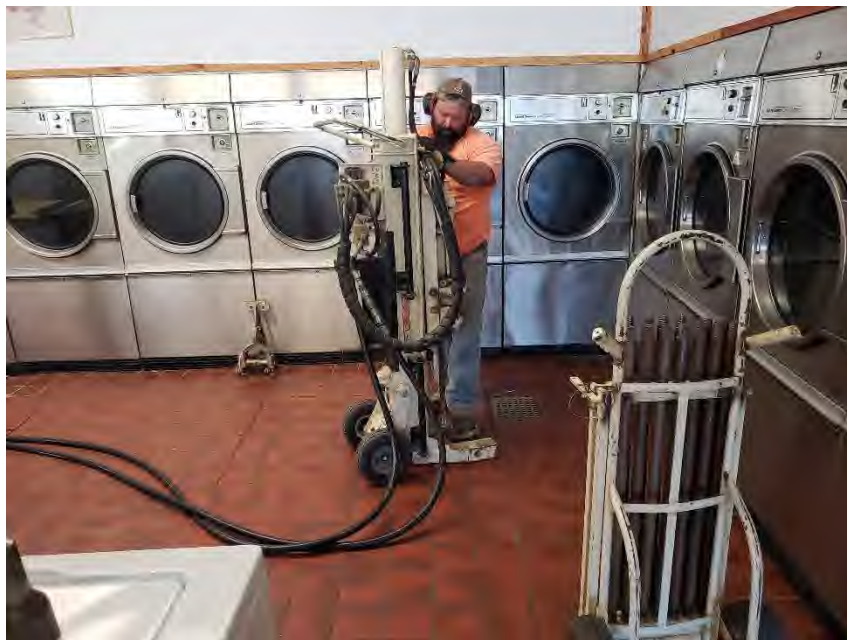


TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows indoor air sample location at vacant bowling alley at 326 S. 25 th Street.	16
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/8/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Northwest	DESCRIPTION	This photograph shows SB-1/TW-1 at northwest quadrant inside Sunshine Laundry near former dry cleaning machine's location.	17
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: North	DESCRIPTION	This photograph shows SB-2 location in northeast quadrant of the Sunshine Laundry building.	18
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p style="text-align: center;">TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Northeast</p>	DESCRIPTION	This photograph shows SB-3 location in southeastern quadrant within the Sunshine Laundry building.	19
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/9/2021



<p style="text-align: center;">TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: East</p>	DESCRIPTION	This photograph shows SB-4/TW-2 location inside west entrance at southwest quadrant of the Sunshine Laundry building.	20
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/9/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: NA</p>	DESCRIPTION	This photograph shows ambient air sample collection behind building at 330 S. 25 th Street, north of Sunshine Laundry.	21
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: NA</p>	DESCRIPTION	This photograph shows indoor air sample collection at 325 S. 25 th Street.	22
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: South</p>	DESCRIPTION	This photograph shows SB-5 near southwest corner of Sunshine Laundry property; collocated with MIP-1 and TW-6.	23
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: West</p>	DESCRIPTION	This photograph shows SB-6 location; collocated with MIP-3, TW-7, and Soil Gas (SG)-2.	24
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Northwest</p>	DESCRIPTION	This photograph shows SB-7 location; collocated with MIP-4 and SG-1.	25
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Northeast</p>	DESCRIPTION	This photograph shows SB-8 location near northeast corner of Sunshine Laundry property; collocated with MIP-7.	26
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/9/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: East</p>	DESCRIPTION	This photograph shows SB-10 location between Sunshine Laundry building and shed; collocated with MIP-10.	27
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/10/2021
	PHOTOGRAPHER	Tim Barbeau	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Northeast</p>	DESCRIPTION	This photograph shows SB-11 location west of shed; collocated with MIP-11.	28
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/10/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: North	DESCRIPTION	This photograph shows SB-12 location just northeast of stormwater drain; collocated with MIP-12 and TW-8.	29
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/10/2021
	PHOTOGRAPHER	Tim Barbeau	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: North	DESCRIPTION	This photograph shows SB-14 location by alley at north collocated with TW-10.	30
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/10/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: North	DESCRIPTION	This photograph shows SB-15 just northwest of Sunshine Laundry building; collocated with MIP-13.	31
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows SB-16 south of Sunshine Laundry; collocated with MIP-15 and TW-3.	32
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



Underground electric
and fiber optic lines

TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Southeast	DESCRIPTION	This photograph shows SB-17 at City easement near southeast corner of Sunshine Laundry property; collocated with TW-4.	33
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Northeast	DESCRIPTION	This photograph shows SB-18 southwest of former Wells Fargo Bank drive-through; collocated with TW-5.	34
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: West	DESCRIPTION	This photograph shows SB-19 location north of drive-through teller lanes for former Wells Fargo Bank.	35
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Southwest	DESCRIPTION	This photograph shows sample collection at SG-1 (MIP-4 location); re-sampled due to water drawn into canister.	36
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: NA	DESCRIPTION	This photograph shows indoor air sample collection inside former Wells Fargo Bank; sub-slab sample collected in a nearby closet.	37
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/10/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: East	DESCRIPTION	This photograph shows TW-13 location across S. 25 th Street, northeast of site.	38
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	6/11/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030..19F.0086.008 DIRECTION: Northeast</p>	DESCRIPTION	This photograph shows TW-12 location at S. 25 th Street easement at alley and bank's automated teller machine (ATM) drive-through.	39
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/11/2021
	PHOTOGRAPHER	Tim Barbeau	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: West</p>	DESCRIPTION	This photograph shows TW-14 location across 5 th Avenue South from Sunshine Laundry property.	40
	CLIENT	Environmental Protection Agency - Region 7	DATE 6/11/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Southeast</p>	DESCRIPTION	This photograph shows the indoor air sample collected at the former Wells Fargo Bank building at 406 South 25 th Street.	1
	CLIENT	Environmental Protection Agency - Region 7	DATE 12/15/2021
	PHOTOGRAPHER	Tim Barbeau	



<p>TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: South</p>	DESCRIPTION	This photograph shows the sub-slab sample collected at 406 South 25 th Street.	2
	CLIENT	Environmental Protection Agency - Region 7	DATE 12/15/2021
	PHOTOGRAPHER	Tim Barbeau	

**Sunshine Laundry Site
Fort Dodge, Iowa**



Sunshine
Laundry
(vacant)

TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: South	DESCRIPTION	This photograph shows soil boring (SB)-20 near the southwest corner of the former Wells Fargo Bank property.	3
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	12/15/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-20 in 5-foot intervals from 0-20 feet below ground surface (bgs).	4
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Stephanie Caples	12/15/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: South	DESCRIPTION	This photograph shows SB-21.	5
	CLIENT	Environmental Protection Agency - Region 7	DATE 12/15/2021
	PHOTOGRAPHER	Tim Barbeau	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-21 in 5-foot intervals from 0-20 feet bgs.	6
	CLIENT	Environmental Protection Agency - Region 7	DATE 12/15/2021
	PHOTOGRAPHER	Stephanie Caples	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: South	DESCRIPTION	This photograph shows SB-22 near the northwest corner of the former bank building at the canopy over drive-through lanes.	7
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	12/15/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-22 in 5-foot intervals from 0-20 feet bgs.	8
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Stephanie Caples	12/15/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Northwest	DESCRIPTION	This photograph shows SB-23.	9
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	12/15/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-23 in 5-foot intervals from 0-15 feet bgs.	10
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Stephanie Caples	12/15/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Southwest	DESCRIPTION	This photograph shows SB-24.	11
	CLIENT	Environmental Protection Agency - Region 7	DATE 12/15/2021
	PHOTOGRAPHER	Tim Barbeau	



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-24 in 5-foot intervals from 0-15 feet bgs.	12
	CLIENT	Environmental Protection Agency - Region 7	DATE 12/15/2021
	PHOTOGRAPHER	Stephanie Caples	

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Northeast	DESCRIPTION	This photograph shows SB-25.	13
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	12/15/2021

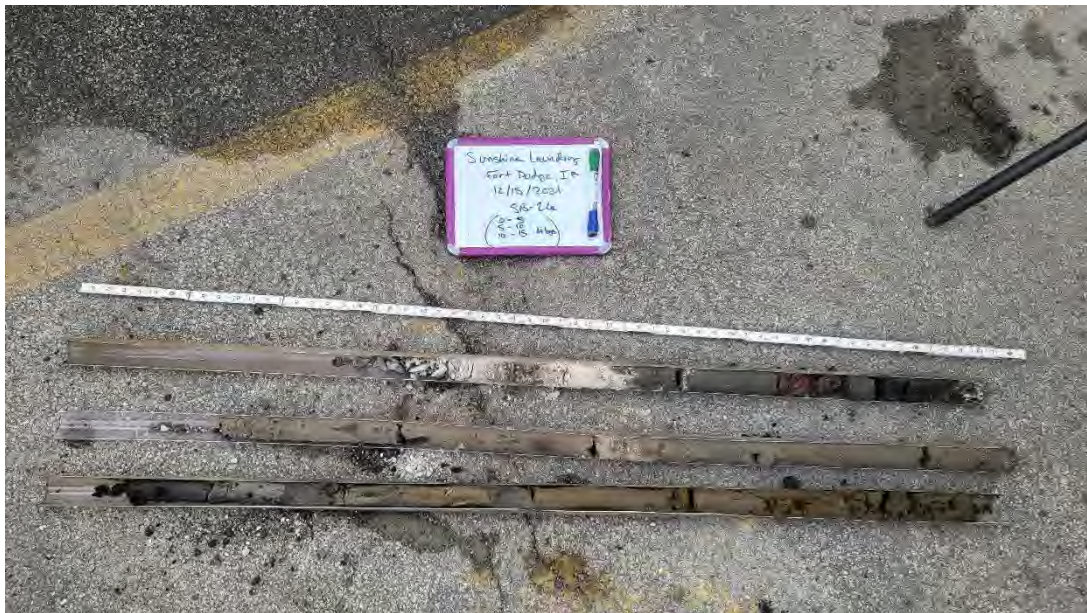


TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-25 in 5-foot intervals from 0-15 feet bgs.	14
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Stephanie Caples	12/15/2021

**Sunshine Laundry Site
Fort Dodge, Iowa**



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: Southeast	DESCRIPTION	This photograph shows SB-26.	15
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Tim Barbeau	12/15/2021



TETRA TECH PROJECT NO. X9030.19F.0086.008 DIRECTION: -	DESCRIPTION	This photograph shows the soil core from SB-26 in 5-foot intervals from 0-15 feet bgs.	16
	CLIENT	Environmental Protection Agency - Region 7	DATE
	PHOTOGRAPHER	Stephanie Caples	12/15/2021

DRAFT

APPENDIX E
ACCESS AGREEMENTS

CONSENT AGREEMENT

The United States Environmental Protection Agency (EPA) will conduct environmental sampling on and near the following site:

Evaluated Site/Facility: Sunshine Laundry

CERCLIS ID. No. IAN000706520

Task Order: 0086.008

EPA Site Assessment Manager: Todd Davis (913-551-7749);

EPA On-Scene Coordinator: Megan Schutte (913-551-7630)

EPA's Superfund Technical Assessment and Response Team (START) contractor Tetra Tech, Inc. will conduct sampling on the property identified below. The undersigned owner/operator/agent consents to allow START access to such property in order to perform sampling activities. The undersigned owner/operator/agent further consents to EPA releasing to the public all analytical results from any samples that EPA collects at the property identified below.

The undersigned owner/operator/agent understands that EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance covering bodily injury, death, and loss or damage to property or third persons arising from activities of its contractors.

Property Address/Description: 2422 5th Ave South

Access Requested During: Scheduled for the week of June 7, 2021 (Note that this date is subject to change.)

 Agent 6-1-2021
Property Owner / Operator / Agent Date

If you would like us to call before sampling, please provide a telephone number at which you can be reached: 515-570-0672

Return To: Tetra Tech, Inc.
Attn: Jenna Mead
415 Oak Street
Kansas City, Missouri 64106
Phone: 816-412-1771
jenna.mead@tetratech.com

10:00

CONSENT AGREEMENT

The United States Environmental Protection Agency (EPA) will conduct environmental sampling on and near the following site:

Evaluated Site/Facility: Sunshine Laundry

CERCLIS ID. No. IAN000706520 **Task Order:** 0086.008

EPA Site Assessment Manager: Todd Davis (913-551-7749)

EPA's Superfund Technical Assessment and Response Team (START) contractor Tetra Tech, Inc. will conduct sampling on the property identified below. The undersigned owner/operator/agent consents to allow START access to such property in order to perform sampling activities. The undersigned owner/operator/agent further consents to EPA releasing to the public all analytical results from any samples that EPA collects at the property identified below.

The undersigned owner/operator/agent understands that EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance covering bodily injury, death, and loss or damage to property or third persons arising from activities of its contractors.

Property Address/Description: ~~Conoco~~ - L9 LOMA 332 S 25TH ST. FORT
DORCEY
IA. 50371

Access Requested During: Week of June 7, 2021

Goutela W. Loria 6/7/21
Property Owner / Operator / Agent Date

If you would like us to call before sampling, please provide a telephone number at which you can be reached: 515-227-7144

Return To: Tetra Tech, Inc.
Attn: Jenna Mead
415 Oak Street
Kansas City, Missouri 64106
Phone: 816-412-1771
jenna.mead@tetrattech.com

10:30

CONSENT AGREEMENT

The United States Environmental Protection Agency (EPA) will conduct environmental sampling on and near the following site:

Evaluated Site/Facility: Sunshine Laundry

CERCLIS ID. No. IAN000706520

Task Order: 0086.008

EPA Site Assessment Manager: Todd Davis (913-551-7749)

EPA's Superfund Technical Assessment and Response Team (START) contractor Tetra Tech, Inc. will conduct sampling on the property identified below. The undersigned owner/operator/agent consents to allow START access to such property in order to perform sampling activities. The undersigned owner/operator/agent further consents to EPA releasing to the public all analytical results from any samples that EPA collects at the property identified below.

The undersigned owner/operator/agent understands that EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance covering bodily injury, death, and loss or damage to property or third persons arising from activities of its contractors.

Property Address/Description: 407 S 25th St Fore Dodge IA 50501

Access Requested During: Week of June 7, 2021

Kepply Yu 06/07/21
Property Owner / Operator / Agent Date

If you would like us to call before sampling, please provide a telephone number at which you can be reached: 626 493 6592

Return To: Tetra Tech, Inc.
Attn: Jenna Mead
415 Oak Street
Kansas City, Missouri 64106
Phone: 816-412-1771
jenna.mead@tetratech.com

CONSENT AGREEMENT

The United States Environmental Protection Agency (EPA) will conduct environmental sampling on and near the following site:

Evaluated Site/Facility: Sunshine Laundry

CERCLIS ID. No. IAN000706520

Task Order: 0086.008

EPA Site Assessment Manager: Todd Davis (913-551-7749):

EPA On-Scene Coordinator: Megan Schutte (913-551-7630)

EPA's Superfund Technical Assessment and Response Team (START) contractor Tetra Tech, Inc. will conduct sampling on the property identified below. The undersigned owner/operator/agent consents to allow START access to such property in order to perform sampling activities. The undersigned owner/operator/agent further consents to EPA releasing to the public all analytical results from any samples that EPA collects at the property identified below.

The undersigned owner/operator/agent understands that EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance covering bodily injury, death, and loss or damage to property or third persons arising from activities of its contractors.

Property Address/Description: 2422 5th Ave South

Access Requested During: Scheduled for the week of June 7, 2021 (Note that this date is subject to change.)

 6-1-2021
Property Owner / Operator / Agent Date

If you would like us to call before sampling, please provide a telephone number at which you can be reached: 515-570-0672

Return To: Tetra Tech, Inc.
Attn: Jenna Mead
415 Oak Street
Kansas City, Missouri 64106
Phone: 816-412-1771
jenna.mead@tetrattech.com



**CONSENT TO ACCESS FOR
ENVIRONMENTAL INVESTIGATION/RESPONSE**

Property Owner: Wells Fargo Bank, N.A.

Property Description: 406 North 25th Street (BE # 100733)

Fort Dodge, Iowa 50501

Intent. This Access Agreement (“Agreement”) is between the United States Environmental Protection Agency and its authorized employees, contractors, and agents (“EPA”) and Wells Fargo Bank, N.A. (“Wells Fargo”). The intent of this Agreement is to permit access to EPA for the collection of environmental samples to determine the source of tetrachloroethylene, or PCE, contamination detected in groundwater in the general locations identified in the sampling map, attached hereto as Exhibit 1 (“Property”). Specifically, EPA will construct and develop soil borings to obtain soil and groundwater samples for laboratory analysis, and EPA will close such borings by mixing the soil under the hole with bentonite clay or such other appropriate material up to a surface level with the existing ground (the “Work”).

Right of Entry. Wells Fargo hereby consents to the United States Environmental Protection Agency and its authorized employees, contractors, and agents entering, investigating, and/or sampling the Property to determine the presence of any release or threat of release of hazardous substances, pollutants, or contaminants at, on, and/or from, the property, in accordance with Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604. Any access needed to the Property to complete any remediation work shall be conducted pursuant to a separate access agreement.

Scope of Access. The investigation may include, but is not necessarily limited to, locating equipment and machinery on the property in preparation for, and in the course of, the investigation and collecting samples from the Property, but excluding access for any remediation work on the Property.

Utilities. EPA is responsible for contacting any applicable hotlines or utility locator services to confirm the location of underground utilities prior to the commencement of the Work.

Costs. The Work shall be conducted at the sole expense of EPA. EPA reserves the right to recover response costs from potentially responsible parties pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607.

Restoration of Property. Wells Fargo recognizes that the performance of such actions may require some disturbance of the Property. EPA will attempt to minimize such disturbance, and areas of disturbance will be restored as nearly as possible to prior condition by EPA, subject to the availability of appropriated funds. EPA will remove any and all equipment and/or materials, included, but not limited to, any investigation derived wastes related to the Work in a reasonable amount of time after completion of the Work.

Liability. EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance for bodily injury, death, and loss or damage to property or third persons arising from their activities. EPA’s liability for damages to the property or injuries to persons that result from or are caused by its activities on the property shall be to the extent permitted by the Federal Tort Claims Act (28 U.S.C. §§ 1346(b), 2671 - 2680) and the Federal Employee’s Compensation Act (5 U.S.C. §§ 8101 - 8151).

Term. The access rights granted pursuant to this Agreement will terminate upon the earliest of the following: (a) completion of the Work; or (b) Wells Fargo giving notice to EPA of its intent to terminate consent. EPA will give notice to Wells Fargo upon completion of the Work.

This written permission is given by me voluntarily and without threats or promises of any kind. By my signature I acknowledge that I am authorized to grant the access provided for herein.

WELLS FARGO BANK, N.A.

Date

Digitally signed
by John Cantrell,
Vice President
Date: 2021.06.10
10:33:16 -04'00'

~~John~~
Signature
Cantrell, Vice
Printed Name
President
Title

Date

Signature

Printed Name

Title

U.S. ENVIRONMENTAL PROTECTION AGENCY

**MEGAN
SCHUETTE**

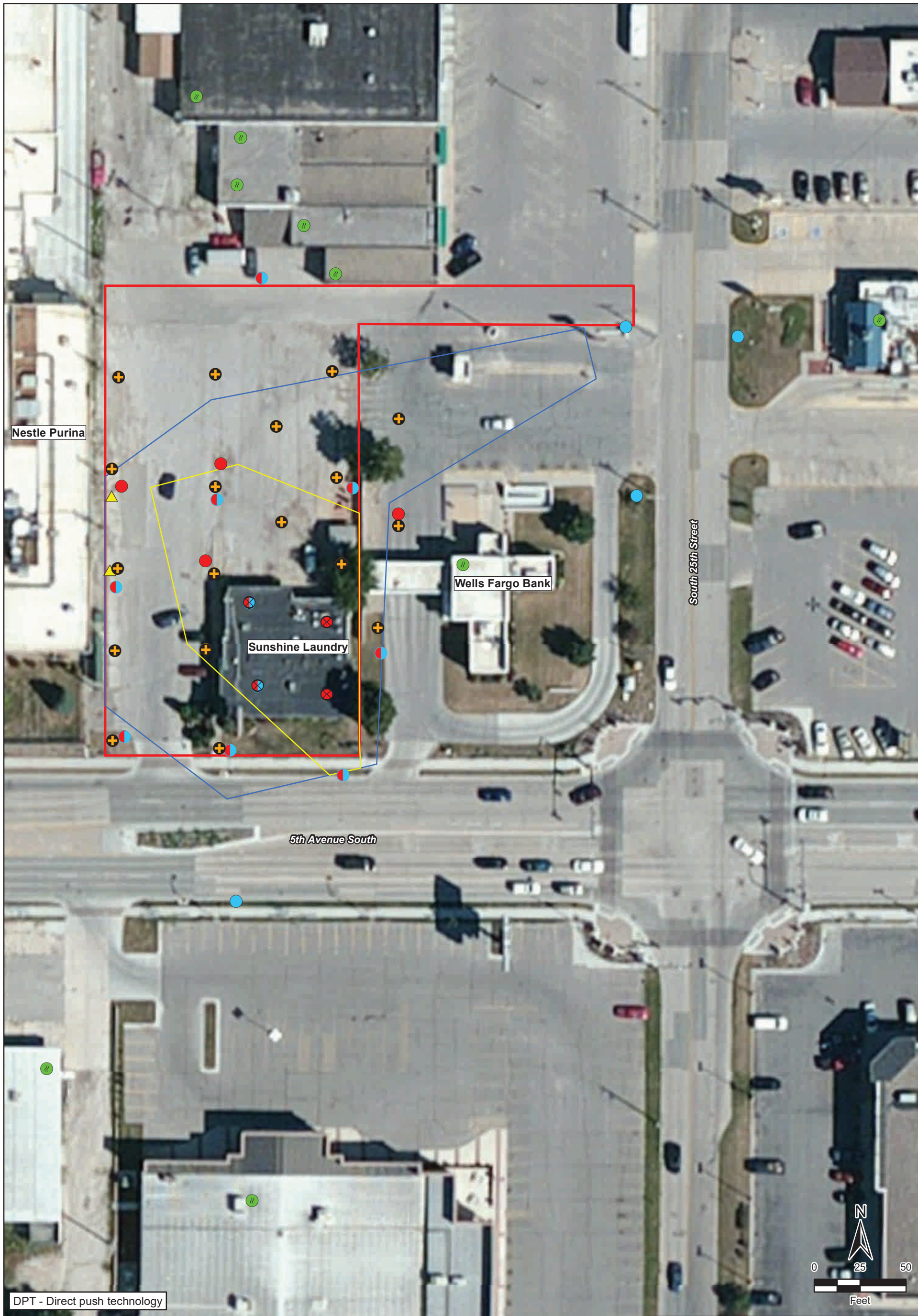
 Digitally signed by MEGAN
SCHUETTE
Date: 2021.06.10 10:41:31 -05'00'

Date

Signature

Printed Name

Title



DPT - Direct push technology

Legend			
● (Blue)	DPT groundwater boring	□ (Blue outline)	Area of known groundwater contamination
⊗ (Blue/Red)	DPT interior soil and groundwater boring	□ (Yellow outline)	Area of known soil contamination
⊗ (Red)	DPT interior soil boring	□ (Red outline)	Former dry cleaner facility
⊗ (Green)	Indoor air and sub-slab vapor		
⊕ (Yellow)	Membrane interface probe boring		
▲ (Yellow)	Soil gas		
⊗ (Blue/Red)	DPT soil and groundwater boring		
● (Red)	DPT soil boring		

Sunshine Laundry
2422 5th Avenue South
Fort Dodge, Iowa

Exhibit 1
Proposed Sample Location Map

X:\CE\9030\086\086\Projects\mxd\Figure3.mxd



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7**

11201 Renner Boulevard
Lenexa, Kansas 66219

CONSENT TO ACCESS FOR ENVIRONMENTAL INVESTIGATION

Property Owner(s)/Tenant(s): R & R Realty, LLC
Property Address /
Property Description: 406 S.25th Street
Ft. Dodge, Iowa

Right of Entry. I am the owner, representative of the owner, or tenant of the property described above. I hereby consent to the United States Environmental Protection Agency, or EPA, and its authorized representatives, entering and conducting indoor air and sub-slab vapor sampling at the described property to determine whether, and to what extent, the property may be contaminated by hazardous substances, pollutants, or contaminants, in accordance with Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604.

Scope of Investigation.

Indoor Air Sampling – This sampling involves the placement of one or more sampling devices within the property. Sample devices will collect air over a period of several hours or overnight. EPA will then retrieve the sampling device and analyze its contents to determine whether contaminants are present in the indoor air, and if so, at what levels. Due to variability of indoor air concentrations, more than one sampling event may be required.

Sub-Slab Sampling – This sampling involves the installation of small, flush-mounted sampling ports through the property's slab foundation. Through these ports EPA will collect vapor samples. This process may take several hours or overnight. EPA will then retrieve the sampling device and analyze its contents to determine whether contaminants are present, and if so, at what levels. Due to the variability of sub-slab vapor concentrations, more than one sampling event may be required. Once the sub-slab sampling is complete, EPA will grout and abandon the ports.

Sampling Results. Upon receipt by EPA of sampling results, EPA will send those results to the owner/tenant and EPA will be available to discuss those results with the owner/tenant. Section 104(e)(7) of CERCLA requires that sampling data be made available, upon request, to the public.

Restoration of Property. The performance of the actions described above may require some disturbance of the property. EPA will attempt to minimize such disturbance and areas of disturbance will be restored as nearly as possible to prior condition by EPA, subject to the availability of appropriated funds.

Agreement not to Interfere. Owner/tenant agrees not to interfere or tamper, or allow others to interfere or tamper, with any of the activities or work done, or equipment used, to conduct the sampling.

Liability. EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance for bodily injury, death, and loss or damage to property or third persons arising from their activities. I understand that EPA's liability for damages to the property or injuries to persons which result from or are caused by its activities on the property shall be to the extent permitted by the Federal Tort Claims Act (28 U.S.C. §§ 1346(b), 2671 - 2680) and the Federal Employee's Compensation Act (5 U.S.C. §§ 8101 - 8151).

Term. The consent granted hereby will terminate upon EPA's notifying me that the environmental investigation is complete.

This written permission is given by me voluntarily and without threats or promises of any kind. By my signature I acknowledge that I am authorized to grant the access provided for herein.

11-22-2021

Date



Signature

David Westergaard

Printed Name

CFO

Title

2707 Mt. Rushmore Road

Mailing Address (Street)

Rapid City, SD 57701

Mailing Address (City, State Zip)

605-716-8869

Telephone Number

davew@teamridco.com

E-Mail



CONSENT TO ACCESS FOR ENVIRONMENTAL INVESTIGATION/RESPONSE

Property Owner(s)/Tenant(s): R & R Realty, LLC

Property Description: 406 S. 25th Street

Ft. Dodge, IA 50501

Right of Entry. I am the owner, representative of the owner, or tenant of the property described above. I hereby consent to the U.S. Environmental Protection Agency (EPA) and its authorized employees, contractors, and agents to enter, investigate, and/or sample the described property, and conduct activities to respond to the release or threat of release of hazardous substances, pollutants, or contaminants at, on, and/or from, the property, in accordance with Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9604.

Scope of Access. The investigation and/or response may include, but is not necessarily limited to, locating equipment and machinery on the property in preparation for, and in the course of, the investigation/response, collecting samples from the property, and implementing the response action.

Restoration of Property. I recognize that the performance of such actions may require some disturbance of the property and that the EPA will attempt to minimize such disturbance, and that areas of disturbance will be restored as nearly as possible to prior condition by the EPA, subject to the availability of appropriated funds.

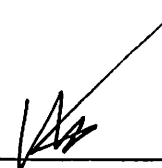
Liability. I understand that the EPA requires its contractors to maintain comprehensive vehicle liability insurance, and comprehensive general liability insurance for bodily injury, death, and loss or damage to property or third persons arising from their activities. I also understand that the EPA's liability for damages to the property or injuries to persons which result from or are caused by its activities on the property shall be to the extent permitted by the Federal Tort Claims Act (28 U.S.C. §§ 1346(b), 2671 - 2680) and the Federal Employee's Compensation Act (5 U.S.C. §§ 8101 - 8151).

Term. The consent granted hereby will terminate upon the EPA's notifying me that the environmental investigation/response is complete.

This written permission is given by me voluntarily and without threats or promises of any kind. By my signature I acknowledge that I am authorized to grant the access provided for herein.

11-12-2021

Date



Signature

David Westergaard

Printed Name

CFO

Title

DRAFT

APPENDIX F
BORING LOGS

Boring Log Form

Site Name: Sunshine Laundry

Boring Number: SB-20

Date Drilled (Start/Finish): 12/15/2021

Drilling Method: Direct Push Technology (DPT)

Drilling Company: Plains Environmental Services

Elevation:

Total Depth: 20 feet (ft) below ground surface (bgs)

Coordinates: N 42.50145 W -94.06370

Depth to Water: 18.5 ft bgs

Geologist: Stephanie Caples

Project Number: 103X903021F0086.008

Weather: Sunny, 63°F, Windy

Sample Interval	Interval	Soil Recv.	PID Reading (ppb)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
☒	0-5	95%	0	0				Topsoil to about 1 ft bgs.
			140	1				At 1 ft bgs: Clay and Silt: Black/dark-brown, dry to damp, hard, not plastic.
			0	2				At 3 ft bgs: Some asphalt and sand.
			0	3				At 3.5 ft bgs: No more asphalt or sand. Clay and silt grades to black, damp to moist, moderately stiff to hard, plastic.
	5-10	95%	0	5		CH		At 5 ft bgs: Clay and Silt: Medium-brown with some orange, moist, moderately stiff, slightly plastic grading to plastic with depth.
			0	6				
			0	7				
			0	8				
			0	9				
	10-15	100%	0	10				At 10 ft bgs: As above.
			0	11				
			0	12				
			0	13				
			0	14				
			0	15				At 15 ft bgs: Clay and Silt: gray, moist, moderately stiff, plastic.
☒	15-20	100%	0	16				At 18.5 ft bgs: Becomes wet.
			0	17				
			0	18				
			0	19				
			0	20				
			0	21				
			0	22				
			0	23				
			0	24				
			0	25				
			0	26				
			0	27				
			0	28				
			0	29				
			0	30				

Boring Log Form

Site Name: **Sunshine Laundry**

Boring Number: **SB-21**

Date Drilled (Start/Finish): **12/15/2021**

Drilling Method: **Direct Push Technology (DPT)**

Drilling Company: **Plains Environmental Services**

Elevation: _____

Total Depth: **20 feet (ft) below ground surface (bgs)**

Coordinates: **N 42.50145 W -94.16360**

Depth to Water: **11.5 ft bgs**

Geologist: **Stephanie Caples**

Project Number: **103X903021F0086.008**

Weather: **Sunny, 63°F, Windy**

Sample Interval	Interval	Soil Recv.	PID Reading (ppb)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
<input checked="" type="checkbox"/>	0-5	40%	0 0 0 0 0 0	5		CL/ ML		Topsoil with clay and silt to about 3 ft bgs. At 3 ft bgs: Some asphalt.
<input checked="" type="checkbox"/>	5-10	30%	0 0 0 0 0 0	10		CH		At 5 ft bgs: Clay and Silt: Medium-brown with some orange, moist, moderately stiff, plastic. At 10 ft bgs: As above. At 11.5 ft bgs: Sand, silt, and gravel: Brown with other mixed colors, saturated, soft to moderately stiff, plastic. Very coarse sand and small gravel.
	10-15	80%	0 0 0 0 0 0	15		GM		At 12 ft bgs: Clay and Silt: Brown, wet to moist, moderately stiff to stiff, very plastic.
	15-20	100%	0 0 0 0 0 0	20		CH		At 15 ft bgs: Clay and Silt: Brown, saturated, very soft. At 16 ft bgs: Becomes gray, wet to moist, moderately stiff to stiff, plastic to very plastic.
			0 0 0 0 0 0	25				
			0 0 0 0 0 0	30				

Boring Log Form

Site Name: Sunshine Laundry	Boring Number: SB-22
Date Drilled (Start/Finish): 12/15/2021	
Drilling Method: Direct Push Technology (DPT)	
Drilling Company: Plains Environmental Services	
Elevation:	Total Depth: 20 feet (ft) below ground surface (bgs)
Coordinates: N 42.50166 W -94.16355	
Depth to Water: 15 ft bgs	Geologist: Stephanie Caples
Project Number: 103X903021F0086.008	Weather: Sunny, 63°F, Windy

Sample Interval	Interval	Soil Recv.	PID Reading (ppb)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
X	0-5	20%	0 0 0 0 0 0	5		FILL		Asphalt, concrete, and fill material to 5 ft bgs.
X	5-10	90%	0 0 0 0 0 0	10		CH		At 5 ft bgs: Clay and Silt: Black/dark-brown grading to gray and orange with depth, moist, moderately stiff grading to soft with depth, plastic.
	10-15	100%	0 0 0 0 0 0	15		CH		At 10 ft bgs: Clay and Silt: Gray-brown with some orange, damp to moist, stiff to moderately stiff, plastic.
	15-20	100%	0 0 0 0 0 0	20				At 15 ft bgs: As above: Saturated.
			0 0 0 0 0 0	25				
			0 0 0 0 0 0	30				

Boring Log Form

Site Name: **Sunshine Laundry**

Boring Number: **SB-23**

Date Drilled (Start/Finish): **12/15/2021**

Drilling Method: **Direct Push Technology (DPT)**

Drilling Company: **Plains Environmental Services**

Elevation: _____

Total Depth: **15 feet (ft) below ground surface (bgs)**

Coordinates: **N 42.50141 W -94.16357**

Depth to Water: **10 ft bgs**

Geologist: **Stephanie Caples**

Project Number: **103X903021F0086.008**

Weather: **Overcast, 58°F, Windy**

Sample Interval	Interval	Soil Recv.	PID Reading (ppb)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
	0-5	50%	0 0 0 0 0	5		FILL		Asphalt, concrete, and fill material to 5 ft bgs.
X	5-10	60%	0 0 0 0 0	10		CH		At 5 ft bgs: Clay and Silt: Black grading to gray and orange with depth, moist to wet, soft, plastic.
X	10-15	40%	0 0 0 0 0	15		SC / SM		At 10 ft bgs: Clay, Silt, and Sand: Gray, saturated, soft/very loose, plastic.
			0 0 0 0 0	20				
				25				
				30				

Boring Log Form

Site Name: Sunshine Laundry

Boring Number: SB-24

Date Drilled (Start/Finish): 12/15/2021

Drilling Method: Direct Push Technology (DPT)

Drilling Company: Plains Environmental Services

Elevation:

Total Depth: 15 feet (ft) below ground surface (bgs)

Coordinates: N 42.50183 W -94.16372

Depth to Water: 15 ft bgs

Geologist: Stephanie Caples

Project Number: 103X903021F0086.008

Weather: Overcast, 58°F, Windy

Sample Interval	Interval	Soil Recv.	PID Reading (ppb)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
<input checked="" type="checkbox"/>	0-5	50%	0 0 0 0 0	5		FILL		Asphalt, concrete, and fill material to 5 ft bgs.
	5-10	70%	0 0 0 0 0	10		CH		At 5 ft bgs: Clay and Silt: Black grading to gray and orange with depth, moist, moderately stiff to soft, plastic.
<input checked="" type="checkbox"/>	10-15	100%	0 0 0 0 0	15		SC / SM		At 10 ft bgs: Clay, Silt, and Sand: Gray and orange, saturated, soft, very loose. Very coarse sand. At 12 ft bgs: Grades to medium/dark-brown and orange with depth, grades to moist with depth, grades to moderately stiff/stiff and dense with depth. At 15 ft bgs: Wet.
			0	20				
			0	25				
			0	30				

APPENDIX G
ANALYTICAL DATA AND CHAIN-OF-CUSTODY FORM FOR ANALYTICAL SERVICES
REQUEST 8924 AND 9124

**United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101**

Date: 07/21/2021

Subject: Transmittal of Sample Analysis Results for ASR #: 8924

Project ID: TDB7K8

Project Description: Sunshine Laundry, Fort Dodge

From: Margaret E.W. St. Germain, Chief
Laboratory Technology & Analysis Branch
Laboratory Services and Applied Sciences Division

To: Todd Davis
SEMD/AERR

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. These results are based on samples as received at the Science and Technology Center. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please ensure that you file this electronic (.pdf only) transmittal in your records management system. The Regional Laboratory will now retain all of the original hardcopy documentation (e.g. COC[s] and the R7LIMS field sheet[s], etc.) according to our LSASD records management system.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the Online ASR Sample/Data Disposition and Customer Survey for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Online ASR Sample/Data Disposition and Customer Survey. It is critical that we receive your response in accordance to RCRA and the laboratory accreditation.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Project Manager: Todd Davis**Org:** SEMD/AERR**Phone:** 913-551-7749**Project ID:** TDB7K8**Project Desc:** Sunshine Laundry, Fort Dodge**Location:** Fort Dodge**State:** Iowa**Program:** Superfund**Site Name:** SUNSHINE LAUNDRY, FORT DODGE - Site
Evaluation/Disposition**Site ID:** B7K8 **Site OU:** 00**GPRA PRC:** 000DC6**Purpose:** Site Characterization

Integrated site assessment sampling.

Submitted ASR from the EPA PM (TD)/Sampler dated 5/10/2021 noted that this ASR is not part of a litigation hold at this time.

GPRA/site code (+OU) check OK per ok per JE on 5/11/2021.

Explanation of Codes, Units and Qualifiers used on this report**Sample QC Codes:** QC Codes identify the type of sample for quality control purpose.**Units:** Specific units in which results are reported.

___ = Field Sample

FB = Field Blank

ug/kg = Micrograms per Kilogram

ug/m³ = Micrograms per Cubic Meter

ug/L = Micrograms per Liter

I.D. = Identification, Species or Other
ID

inHg = Inch of Mercury

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.

UJ = The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.

J = The identification of the analyte is acceptable; the reported value is an estimate.

U = The analyte was not detected at or above the reporting limit.

Project ID: TDB7K8

Project Desc: Sunshine Laundry, Fort Dodge

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 - ___		Air	326 S 25th St-Indoor Air		06/08/2021	08:28	06/08/2021	16:14	06/11/2021
2 - ___		Air	326 S 25th St - Sub-slab Air		06/08/2021	08:53			06/11/2021
3 - ___		Air	328 S 25th St - Indoor Air		06/08/2021	09:10	06/08/2021	16:16	06/11/2021
4 - ___		Air	328 S 25th St - Sub-slab Air		06/08/2021	09:25			06/11/2021
5 - ___		Air	330 S 25th St - Indoor Air		06/08/2021	09:38	06/08/2021	17:18	06/11/2021
6 - ___		Air	2419 5th Ave - Indoor Air		06/08/2021	10:20	06/08/2021	16:25	06/11/2021
7 - ___		Air	2515 5th Ave - Indoor Air		06/08/2021	10:25	06/08/2021	16:52	06/11/2021
8 - ___		Air	332 S 25th St - Indoor Air		06/08/2021	11:48	06/08/2021	18:20	06/11/2021
9 - ___		Air	332 S 25th St - Sub-slab Air		06/08/2021	12:05			06/11/2021
10 - ___		Air	330 S 25th St - Ambient Air		06/09/2021	09:58	06/09/2021	17:58	06/11/2021
11 - ___		Air	325 S 25th St - Indoor Air		06/09/2021	12:07	06/09/2021	20:00	06/11/2021
12 - ___		Air	325 S 25th St - Sub-slab Air		06/09/2021	19:52			06/11/2021
13 - ___		Air	406 S 25th Ave - Indoor Air		06/10/2021	12:06	06/10/2021	20:04	06/14/2021
14 - ___		Air	406 S 25th Ave - Sub-slab Air		06/10/2021	12:25			06/14/2021
15 - ___		Air	SG-1		06/10/2021	12:00			06/14/2021
16 - ___		Air	SG-2		06/10/2021	12:25			06/14/2021
101 - ___		Solid	SB-1(1-2)		06/09/2021	07:58			06/11/2021
102 - ___		Solid	SB-1(7-8)		06/09/2021	08:15			06/11/2021
103 - ___		Solid	SB-2(5-6)		06/09/2021	10:10			06/11/2021
104 - ___		Solid	SB-2(11-12)		06/09/2021	10:50			06/11/2021
105 - ___		Solid	SB-3(5-6)		06/09/2021	13:05			06/11/2021
106 - ___		Solid	SB-4(2-3)		06/09/2021	13:45			06/11/2021
107 - ___		Solid	SB-4(10-12)		06/09/2021	14:15			06/11/2021
108 - ___		Solid	SB-5(4-5)		06/09/2021	15:25			06/11/2021
109 - ___		Solid	SB-5(14-15)		06/09/2021	15:35			06/11/2021
110 - ___		Solid	SB-6(4-5)		06/09/2021	15:50			06/11/2021
111 - ___		Solid	SB-7(4-5)		06/09/2021	16:15			06/11/2021
112 - ___		Solid	SB-7(9-10)		06/09/2021	16:20			06/11/2021
113 - ___		Solid	SB-8(9-10)		06/09/2021	16:55			06/11/2021
114 - ___		Solid	SB-9(3-4)		06/10/2021	07:25			06/11/2021
115 - ___		Solid	SB-9(9-10)		06/10/2021	07:30			06/11/2021
116 - ___		Solid	SB-10(9-10)		06/10/2021	07:50			06/11/2021
117 - ___		Solid	SB-11(9-10)		06/10/2021	08:10			06/11/2021
118 - ___		Solid	SB-12(12-13)		06/10/2021	08:45			06/11/2021
119 - ___		Solid	SB-12(4-5)		06/10/2021	08:50			06/11/2021
120 - ___		Solid	SB-13(4-5)		06/10/2021	09:10			06/11/2021
121 - ___		Solid	SB-13(10-11)		06/10/2021	09:05			06/11/2021
122 - ___		Solid	SB-14(12-13)		06/10/2021	09:25			06/11/2021
123 - ___		Solid	SB-15(3-5)		06/10/2021	09:45			06/11/2021
124 - ___		Solid	SB-16(4-5)		06/10/2021	10:20			06/11/2021
125 - ___		Solid	SB-16(7-8)		06/10/2021	10:25			06/11/2021
126 - ___		Solid	SB-17(4-5)		06/10/2021	10:35			06/11/2021
127 - ___		Solid	SB-18(3-4)		06/10/2021	11:00			06/11/2021
128 - ___		Solid	SB-18(14-15)		06/10/2021	11:15			06/11/2021

ASR Number: 8924

Sample Information Summary

07/21/2021

Project ID: TDB7K8

Project Desc: Sunshine Laundry, Fort Dodge

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
129 - ___		Solid	SB-19(4-5)		06/10/2021	11:25			06/11/2021
130 - ___		Solid	SB-19(9-10)		06/10/2021	11:30			06/11/2021
201 - ___		Water	MW-3		06/07/2021	17:10			06/11/2021
202 - ___		Water	MW-6		06/07/2021	18:00			06/11/2021
203 - ___		Water	MW-4		06/07/2021	18:40			06/11/2021
204 - ___		Water	TW-1		06/09/2021	12:20			06/11/2021
205 - ___		Water	TW-2		06/09/2021	14:15			06/11/2021
206 - ___		Water	TW-3(9-13)		06/10/2021	13:35			06/14/2021
207 - ___		Water	TW-4(9-13)		06/10/2021	13:55			06/14/2021
208 - ___		Water	TW-5(9-13)		06/10/2021	14:10			06/14/2021
209 - ___		Water	TW-6(9-13)		06/10/2021	14:45			06/14/2021
210 - ___		Water	TW-7(11-15)		06/10/2021	15:10			06/14/2021
211 - ___		Water	TW-8(8-12)		06/10/2021	15:20			06/14/2021
212 - ___		Water	TW-9(9-13)		06/10/2021	15:35			06/14/2021
213 - ___		Water	TW-10(9-13)		06/10/2021	15:45			06/14/2021
214 - ___		Water	Rinsate blank		06/10/2021	15:55			06/14/2021
215 - ___		Water	TW-11(11-15)		06/11/2021	07:00			06/14/2021
216 - ___		Water	TW-12(9-13)		06/11/2021	08:00			06/14/2021
217 - ___		Water	TW-13(9-13)		06/11/2021	07:25			06/14/2021
218 - ___		Water	TW-14(15-16)		06/11/2021	08:50			06/14/2021
221 - FB		Water	VOA Trip Blank sample		06/10/2021	16:10			06/14/2021
222 - FB		Water	VOA Field Blank sample		06/10/2021	16:20			06/14/2021
223 - FB		Water	VOA Trip Blank sample		06/08/2021	08:10			06/11/2021

Analysis Comments About Results For This Analysis

1 Air VOA Field Parameters

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 1-__	2-__	3-__	4-__	5-__	6-__	7-__
8-__	9-__	10-__	11-__	12-__	13-__	14-__
15-__	16-__					

Comments:
(N/A)

1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.4I

Samples: 1-__	2-__	3-__	4-__	5-__	6-__	7-__
8-__	9-__	10-__	11-__	12-__	13-__	14-__
15-__	16-__					

Comments:

Vinyl Acetate (30.61% RSD, limit is 30%) was J-coded in samples 1, 3, 5, 6, 7, 8, 10, 11, and 13. Although the analyte in question has been positively identified in the samples, the quantitation is an estimate (J-coded) due to the initial instrument calibration curve not meeting linearity specifications.

2-Hexanone (66.96%, limit is 70%) was UJ-coded in samples 1, 5, 6, 10, 11, and 13. This analyte was not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to the second source calibration check not meeting accuracy specifications. The actual reporting limit for this analyte may be higher than the reported value.

2-Propanol (66.55%, limit is 70%) was J-coded in samples 1, 3, 4, 5, 6, 7, 8, 10, 11, and 13. 2-Hexanone (66.96%, limit is 70%) was J-coded in samples 3, 7, and 8. Although the analytes in question has been positively identified in the samples, the quantitations are estimated (J-coded) due to the second source calibration check not meeting accuracy specifications. The actual concentration for these analytes may be higher than the reported values.

2-Propanol (58.79%, limit is 70%) was UJ-coded in samples 2, 15, and 16. Vinyl Acetate (48.87%) was UJ-coded in samples 2, 4, 9, 15, and 16. 4-Methyl-2-Pentanone (63.58%) was UJ-coded in samples 9, 12, 14, 15, and 16. trans-1,3-Dichloropropene (54.93%) was UJ-coded in samples 2, 4, 9, 12, 14, 15, and 16. These analytes were not found in the samples at or above their reporting limits, however, the reporting limits are estimated (UJ-coded) due to the second source calibration check not meeting accuracy specifications. The actual reporting limits for these analytes may be higher than the reported values.

2-Propanol (58.79%, limit is 70%) was J-coded in samples 9,12, and 14. Vinyl Acetate (48.87%) was J-coded in samples 12 and 14. 4-Methyl-2-Pentanone (63.58%) was J-coded

Analysis Comments About Results For This Analysis

in samples 2 and 4. Although the analytes in question has been positively identified in the samples, the quantitations are estimated (J-coded) due to the second source calibration check not meeting accuracy specifications. The actual concentration for these analytes may be higher than the reported values.

Chloromethane (-38.6%,D limit is -30%D) was J-coded in samples 1, 3, 4, 5, 6, 7, 8, 10, 11, and 13. Trichlorofluoromethane (-37.4%D) was J-coded in samples 1, 3, 5, 6, 7, 8, 10, 11, and 13. 4-Methyl-2-Pentanone (-35.8%D) was J-coded in samples 1, 3, 5, 7, and 8. Although the analytes in question has been positively identified in the samples, the quantitations are estimated (J-coded) due to the continuing calibration check not meeting accuracy specifications. The actual concentration for these analytes may be higher than the reported values.

Acetone (127%, limit is 117%) was J-coded in samples 1, 3, 4, 6, 7, 8, and 9. Methylene Chloride (111%, limit is 110%) was J-coded in samples 1, 3, and 7. Toluene (118%, limit is 117%) was J-coded in samples 1, 3, 5, 6, 7, 8, and 11. Although the analytes in question has been positively identified in the samples, the quantitations are estimated (J-coded) due to high recovery of this analyte in the laboratory control sample. The actual concentration for these analytes may be lower than the reported values.

1,4-Dichlorobenzene (42%, limit is 13%), Dichlorodifluoromethane (20%, limit is 18%), Heptane (24%, limit is 15%), Methylene Chloride (32%, limit is 7.7%), Styrene (18%, limit is 14%), Tetrahydrofuran (38%, limit is 28%), Toluene (14%, limit is 12%), Trichlorofluoromethane (25%, limit is 16%), 1,2,4-Trimethylbenzene (39%, limit is 14%), 1,3,5-Trimethylbenzene (30%, limit is 14%), and o-Xylene (20%, limit is 13%) was J-coded in sample 1. Although the analytes in question have been positively identified in the sample, the quantitations are estimated (J-coded) due to poor precision obtained for these analytes in the laboratory duplicate sample.

2-Propanol was J-coded in samples 3, 5, and 8. 2-Butanone was J-coded in sample 3. Although the analytes in question has been positively identified in the sample, the quantitations are estimated (J-coded) due to the reported values exceeding the calibrated ranges of the instrument. Additional dilutions were analyzed for these analytes; however, there was poor agreement between the values from the on-scale dilutions. The 10x dilution was reported for these analytes as they were analyzed from the original sample canisters.

A dilution was necessary because of poor surrogate recovery caused by high background interference in sample 16 for this analysis. This increased the reporting limits by a factor of 10x for this sample.

1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap

Lab: Contract Lab Program (Out-Source)

Method: CLP Statement of Work

Basis: Dry

Samples:	101-__	102-__	103-__	104-__	105-__	106-__	107-__
	108-__	109-__	110-__	111-__	112-__	113-__	114-__
	115-__	116-__	117-__	118-__	119-__	120-__	121-__

Analysis Comments About Results For This Analysis

Samples: 122-__ 123-__ 124-__ 125-__ 126-__ 127-__ 128-__
129-__ 130-__

Comments:

Tetrachloroethene was J-coded in sample -102. Although the analyte in question has been positively identified in the sample, the quantitation is an estimate (J-coded) due to the reported value exceeding the calibrated range of the instrument.

Sample -107 (medium level analysis) was analyzed 1 day past the 14 day holding time. Tetrachloroethene was reported with a J-code indicating that it is an estimated value. The actual concentration of this analyte may have been higher than the reported result.

Bromochloromethane, Carbon Disulfide, Chloroethane, Chloromethane and Dichlorodifluoromethane were UJ-coded in sample -130. Carbon Tetrachloride, 1,2-Dibromoethane, 1,2-Dichloroethane, Methyl Acetate, Methylene Chloride, Methyl tert-butyl Ether, Trichlorofluoromethane and 1,1,2-Trichlorotrifluoroethane were UJ-coded in sample -122. These analytes were not found in the samples at or above the reporting limits; however, the reporting limits are an estimate (UJ-coded) due to low recovery of a surrogate analyte. The actual reporting limits for these analytes may be higher than the reported values.

Acetone was J-coded in samples -110 and -126. Tetrachloroethene was J-coded in sample -118. Although the analytes in question have been positively identified in the samples, the quantitation is an estimate (J-coded) due to high recoveries of surrogate analytes in these samples. The actual concentration for these analytes may be lower than the reported value.

Bromoform, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, Isopropylbenzene, 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene were UJ-coded in sample -118. These analytes were not found in the samples at or above the reporting limits; however, the reporting limits are an estimate (UJ-coded) due to low internal standard response. The actual reporting limits for these analytes may be higher than the reported values.

Benzene, Chlorobenzene, 1,1-Dichloroethene, Toluene and Trichloroethene were UJ-coded in samples -107 and -123. These analytes were not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recoveries of these analytes in the laboratory matrix spikes. The actual reporting limit for these analytes may be higher than the reported values.

1 VOCs in Water by GC/MS

Lab: Contract Lab Program (Out-Source)

Method: CLP Statement of Work

Samples: 201-__ 202-__ 203-__ 204-__ 205-__ 206-__ 207-__
208-__ 209-__ 210-__ 211-__ 212-__ 213-__ 214-__
215-__ 216-__ 217-__ 218-__ 221-FB 222-FB 223-FB

Comments:

Analysis Comments About Results For This Analysis

Bromoform was UJ-coded in samples -201 through -218, -221FB, -222FB and -223FB. This analyte was not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to the initial instrument calibration curve not meeting linearity specifications. The actual reporting limit may be higher than the reported value.

1,2-Dichloroethane was UJ-coded in samples -201 through -218, -221FB, -222FB and -223FB. This analyte was not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to the continuing calibration check not meeting accuracy specifications. The actual reporting limit for this analyte may be higher than the reported value.

Benzene, Chlorobenzene, 1,1-Dichloroethene, Toluene and Trichloroethene were UJ-coded in sample -208. These analytes were not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recoveries of these analytes in the laboratory matrix spikes. The actual reporting limit for these analytes may be higher than the reported values.

Analysis/ Analyte	Units	1-__	2-__	3-__	4-__
1 Air VOA Field Parameters					
Canister ID	I.D.	4556	L5207	30375	661
Regulator ID	I.D.	149	N/A	147	N/A
Starting Pressure	inHg	-29.5	-30	-26.5	-28.5
Ending Pressure	inHg	-3	-4	-5.5	-1
1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS					
Acetone	ug/m3	96 J	14	330 J	250 J
Allyl Chloride	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U
Benzene	ug/m3	0.71	2.5	0.49	8.8
Benzyl Chloride	ug/m3	4.2 U	4.2 U	4.2 U	4.2 U
Bromodichloromethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
Bromoform	ug/m3	2.1 U	2.1 U	2.1 U	2.1 U
Bromomethane	ug/m3	0.78 U	0.78 U	0.78 U	0.78 U
1,3-Butadiene	ug/m3	0.45 U	0.83	0.45 U	1.7
2-Butanone	ug/m3	19	1.2 U	620 J	160
Carbon Disulfide	ug/m3	0.63 U	0.63 U	0.63 U	0.63 U
Carbon Tetrachloride	ug/m3	0.68	0.54	0.60	0.32 U
Chlorobenzene	ug/m3	0.93 U	0.93 U	0.93 U	0.93 U
Chloroethane	ug/m3	0.53 U	0.53 U	0.53 U	0.53 U
Chloroform	ug/m3	0.61	0.45	0.67	0.12 U
Chloromethane	ug/m3	1.7 J	1.4	1.1 J	0.42 U
Cyclohexane	ug/m3	0.70 U	0.70 U	0.70 U	3.4
Dibromochloromethane	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U
1,2-Dibromoethane	ug/m3	1.6 U	1.6 U	1.6 U	1.6 U
1,2-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
1,3-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	ug/m3	2.9 J	1.4	1.2 U	1.2 U
Dichlorodifluoromethane	ug/m3	8.4 J	7.7	2.1	3.1
1,1-Dichloroethane	ug/m3	0.82 U	0.82 U	0.82 U	0.82 U
1,2-Dichloroethane	ug/m3	0.18	0.11	0.18	0.10 U
1,1-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.46
cis-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
trans-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dichloropropane	ug/m3	0.93 U	0.93 U	0.93 U	0.93 U
cis-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U	0.46 U	0.46 U
trans-1,3-Dichloropropene	ug/m3	0.46 U	0.46 UJ	0.46 U	0.46 UJ
1,2-Dichlorotetrafluoroethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
1,4-Dioxane	ug/m3	0.73 U	0.73 U	0.73 U	0.73 U
Ethyl Acetate	ug/m3	2.0	0.73 U	60	3.9
Ethyl Benzene	ug/m3	0.89	3.3	8.7	16
4-Ethyltoluene	ug/m3	4.0 U	4.0 U	4.0 U	4.0 U
Heptane	ug/m3	0.86 J	1.4	7.3	5.3
Hexachlorobutadiene	ug/m3	2.2 U	2.2 U	2.2 U	2.2 U
Hexane	ug/m3	0.71 U	1.9	0.78	10
2-Hexanone	ug/m3	1.7 UJ	1.7 U	38 J	3.0
Methyl tert-butyl ether	ug/m3	0.73 U	0.73 U	0.73 U	0.73 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	1-__	2-__	3-__	4-__
Methylene Chloride	ug/m3	1.3 J	0.70 U	2.7 J	0.70 U
4-Methyl-2-Pentanone	ug/m3	10 J	3.4 J	9.9 J	2.7 J
2-Propanol	ug/m3	34 J	0.50 UJ	3800 J	340 J
Propene	ug/m3	1.6	5.9	0.59	10
Styrene	ug/m3	4.2 J	3.0	3.0	0.86 U
1,1,2,2-Tetrachloroethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
Tetrachloroethene	ug/m3	1.3	2.2	0.34 U	1.6
Tetrahydrofuran	ug/m3	8.2 J	5.5	15	2.0
Toluene	ug/m3	6.2 J	9.1	680 J	55
1,2,4-Trichlorobenzene	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U
1,1,1-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U
Trichloroethene	ug/m3	0.14 U	0.14 U	0.14 U	0.14 U
Trichlorofluoromethane	ug/m3	32 J	26	2.8 J	5.3
1,1,2-Trichlorotrifluoroethane	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U
1,2,4-Trimethylbenzene	ug/m3	7.1 J	4.8	5.2	4.2
1,3,5-Trimethylbenzene	ug/m3	2.3 J	1.5	1.4	1.1
2,2,4-Trimethylpentane	ug/m3	1.6	2.2	0.94 U	0.94 U
Vinyl Acetate	ug/m3	8.3 J	0.71 UJ	1.6 J	0.71 UJ
Vinyl Bromide	ug/m3	0.88 U	0.88 U	0.88 U	0.88 U
Vinyl Chloride	ug/m3	0.13 U	0.13 U	0.13 U	0.13 U
m and/or p-Xylene	ug/m3	4.3	5.7	26	7.5
o-Xylene	ug/m3	2.8 J	2.8	5.9	3.6

Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
1 Air VOA Field Parameters					
Canister ID	I.D.	717	3012	816	3001
Regulator ID	I.D.	141	19	16	7
Starting Pressure	inHg	-29	-28.5	-13	-29.5
Ending Pressure	inHg	-5	0	-7	-7
1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS					
Acetone	ug/m3	3500	190 J	250 J	2000 J
Allyl Chloride	ug/m3	0.36	0.32 U	0.32 U	0.32 U
Benzene	ug/m3	0.38	0.27	9.8	0.35
Benzyl Chloride	ug/m3	4.2 U	4.2 U	4.2 U	4.2 U
Bromodichloromethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
Bromoform	ug/m3	2.1 U	2.1 U	2.1 U	2.1 U
Bromomethane	ug/m3	0.78 U	0.78 U	0.78 U	0.78 U
1,3-Butadiene	ug/m3	0.45 U	0.45 U	0.45 U	0.45 U
2-Butanone	ug/m3	130	5.8	14	41
Carbon Disulfide	ug/m3	0.63 U	0.63 U	0.65	0.63 U
Carbon Tetrachloride	ug/m3	0.57	0.54	0.54	0.54
Chlorobenzene	ug/m3	0.93 U	0.93 U	0.93 U	0.93 U
Chloroethane	ug/m3	0.53 U	0.53 U	0.53 U	0.53 U
Chloroform	ug/m3	0.78	0.12	2.2	1.1
Chloromethane	ug/m3	1.4 J	1.4 J	1.1 J	1.6 J
Cyclohexane	ug/m3	0.70 U	0.70 U	4.5	0.70 U
Dibromochloromethane	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U
1,2-Dibromoethane	ug/m3	1.6 U	1.6 U	1.6 U	1.6 U
1,2-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
1,3-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
Dichlorodifluoromethane	ug/m3	2.2	2.6	35	2.3
1,1-Dichloroethane	ug/m3	0.82 U	0.82 U	0.82 U	0.82 U
1,2-Dichloroethane	ug/m3	0.20	0.55	2.5	0.10 U
1,1-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
cis-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
trans-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dichloropropane	ug/m3	0.93 U	0.93 U	4.2	0.93 U
cis-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U	0.46 U	0.46 U
trans-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U	0.46 U	0.46 U
1,2-Dichlorotetrafluoroethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
1,4-Dioxane	ug/m3	0.73 U	0.73 U	0.73 U	0.73 U
Ethyl Acetate	ug/m3	190	2.5	5.0	56
Ethyl Benzene	ug/m3	3.6	0.88 U	15	1.1
4-Ethyltoluene	ug/m3	4.0 U	4.0 U	5.9	4.0 U
Heptane	ug/m3	0.83 U	0.83 U	8.1	1.9
Hexachlorobutadiene	ug/m3	2.2 U	2.2 U	2.2 U	2.2 U
Hexane	ug/m3	0.75	0.77	20	0.74
2-Hexanone	ug/m3	1.7 UJ	1.7 UJ	3.0 J	3.1 J
Methyl tert-butyl ether	ug/m3	0.73 U	0.73 U	0.73 U	0.73 U

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Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
Methylene Chloride	ug/m3	0.70 U	0.70 U	1.9 J	0.70 U
4-Methyl-2-Pentanone	ug/m3	4.6 J	1.7 U	1.8 J	1.9 J
2-Propanol	ug/m3	4900 J	24 J	13 J	1900 J
Propene	ug/m3	0.67	2.9	0.65	0.44
Styrene	ug/m3	1.6	0.86 U	3.1	0.86 U
1,1,2,2-Tetrachloroethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
Tetrachloroethene	ug/m3	0.34 U	0.34 U	5.4	0.34 U
Tetrahydrofuran	ug/m3	4.0	12	1.2	1.1
Toluene	ug/m3	170 J	1.6 J	270 J	59 J
1,2,4-Trichlorobenzene	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U
1,1,1-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U
Trichloroethene	ug/m3	0.14 U	0.14 U	0.18	0.14 U
Trichlorofluoromethane	ug/m3	2.4 J	1.8 J	180 J	1.7 J
1,1,2-Trichlorotrifluoroethane	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U
1,2,4-Trimethylbenzene	ug/m3	4.9	0.99 U	20	1.8
1,3,5-Trimethylbenzene	ug/m3	2.1	0.99 U	4.7	0.99 U
2,2,4-Trimethylpentane	ug/m3	0.94 U	0.94 U	63	0.94 U
Vinyl Acetate	ug/m3	3.4 J	1.5 J	20 J	2.7 J
Vinyl Bromide	ug/m3	0.88 U	0.88 U	0.88 U	0.88 U
Vinyl Chloride	ug/m3	0.13 U	0.13 U	0.13 U	0.13 U
m and/or p-Xylene	ug/m3	11	1.8 U	53	3.4
o-Xylene	ug/m3	3.1	0.88 U	21	0.95

Analysis/ Analyte	Units	9-__	10-__	11-__	12-__
1 Air VOA Field Parameters					
Canister ID	I.D.	662	17007	R2226	606
Regulator ID	I.D.	N/A	156	155	N/A
Starting Pressure	inHg	-30	-30	-30	-30
Ending Pressure	inHg	-2	-3.5	-4.5	-3
1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS					
Acetone	ug/m3	160 J	13	31	5.9
Allyl Chloride	ug/m3	0.32 U	0.32 U	0.32 U	0.32 U
Benzene	ug/m3	1.8	0.22	0.95	0.53
Benzyl Chloride	ug/m3	4.2 U	4.2 U	4.2 U	4.2 U
Bromodichloromethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
Bromoform	ug/m3	2.1 U	2.1 U	2.1 U	2.1 U
Bromomethane	ug/m3	0.78 U	0.78 U	0.78 U	0.78 U
1,3-Butadiene	ug/m3	0.45 U	0.45 U	0.45 U	0.45 U
2-Butanone	ug/m3	4.0	1.2 U	2.3	1.2 U
Carbon Disulfide	ug/m3	0.63 U	0.63 U	0.63 U	0.63 U
Carbon Tetrachloride	ug/m3	0.32 U	0.51	0.52	0.43
Chlorobenzene	ug/m3	0.93 U	0.93 U	0.93 U	0.93 U
Chloroethane	ug/m3	0.53 U	0.53 U	0.58	0.53 U
Chloroform	ug/m3	1.2	0.12 U	1.3	0.90
Chloromethane	ug/m3	0.42 U	0.99 J	1.0 J	0.42 U
Cyclohexane	ug/m3	0.70 U	0.70 U	0.70 U	0.70 U
Dibromochloromethane	ug/m3	1.7 U	1.7 U	1.7 U	1.7 U
1,2-Dibromoethane	ug/m3	1.6 U	1.6 U	1.6 U	1.6 U
1,2-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
1,3-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	1.2 U
Dichlorodifluoromethane	ug/m3	1.5	2.1	1.8	2.7
1,1-Dichloroethane	ug/m3	0.82 U	0.82 U	0.82 U	0.82 U
1,2-Dichloroethane	ug/m3	0.10 U	0.10 U	0.10 U	0.10 U
1,1-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
cis-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
trans-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dichloropropane	ug/m3	0.93 U	0.93 U	0.93 U	0.93 U
cis-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U	0.46 U	0.46 U
trans-1,3-Dichloropropene	ug/m3	0.46 UJ	0.46 U	0.46 U	0.46 U
1,2-Dichlorotetrafluoroethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
1,4-Dioxane	ug/m3	0.73 U	0.73 U	0.73 U	0.73 U
Ethyl Acetate	ug/m3	0.73 U	0.73 U	7.6	0.73 U
Ethyl Benzene	ug/m3	1.5	0.88 U	0.88 U	0.88 U
4-Ethyltoluene	ug/m3	4.0 U	4.0 U	4.0 U	4.0 U
Heptane	ug/m3	0.83 U	0.83 U	0.83 U	0.83 U
Hexachlorobutadiene	ug/m3	2.2 U	2.2 U	2.2 U	2.2 U
Hexane	ug/m3	0.76	0.71 U	1.8	0.71 U
2-Hexanone	ug/m3	1.7 U	1.7 UJ	1.7 UJ	1.7 U
Methyl tert-butyl ether	ug/m3	0.73 U	0.73 U	0.73 U	0.73 U

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Analysis/ Analyte	Units	9-__	10-__	11-__	12-__
Methylene Chloride	ug/m3	0.70 U	0.70 U	0.70 U	0.70 U
4-Methyl-2-Pentanone	ug/m3	1.7 UJ	1.7 U	1.7 U	1.7 UJ
2-Propanol	ug/m3	27 J	8.9 J	34 J	0.97 J
Propene	ug/m3	1.1	0.35 U	0.71	0.35
Styrene	ug/m3	0.86 U	0.86 U	0.86 U	0.86 U
1,1,2,2-Tetrachloroethane	ug/m3	1.4 U	1.4 U	1.4 U	1.4 U
Tetrachloroethene	ug/m3	0.51	0.34 U	0.34 U	0.89
Tetrahydrofuran	ug/m3	0.60 U	0.60 U	0.60 U	0.60 U
Toluene	ug/m3	3.7	0.76 U	8.1 J	1.2
1,2,4-Trichlorobenzene	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U
1,1,1-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U
1,1,2-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	1.1 U
Trichloroethene	ug/m3	0.14 U	0.14 U	0.14 U	0.20
Trichlorofluoromethane	ug/m3	3.5	1.4 J	1.3 J	1.5
1,1,2-Trichlorotrifluoroethane	ug/m3	1.5 U	1.5 U	1.5 U	1.5 U
1,2,4-Trimethylbenzene	ug/m3	1.6	0.99 U	1.3	0.99 U
1,3,5-Trimethylbenzene	ug/m3	0.99 U	0.99 U	0.99 U	0.99 U
2,2,4-Trimethylpentane	ug/m3	0.94 U	0.94 U	0.94 U	0.94 U
Vinyl Acetate	ug/m3	0.71 UJ	0.89 J	5.8 J	0.94 J
Vinyl Bromide	ug/m3	0.88 U	0.88 U	0.88 U	0.88 U
Vinyl Chloride	ug/m3	0.13 U	0.13 U	0.13 U	0.13 U
m and/or p-Xylene	ug/m3	1.8 U	1.8 U	1.8 U	1.8 U
o-Xylene	ug/m3	0.88 U	0.88 U	0.88 U	0.88 U

Analysis/ Analyte	Units	13-__	14-__	15-__	16-__
1 Air VOA Field Parameters					
Canister ID	I.D.	3243	4562	737	727
Regulator ID	I.D.	167	N/A	N/A	N/A
Starting Pressure	inHg	-26.5	-30	-30	-30
Ending Pressure	inHg	-4.5	-2	-5	-5
1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS					
Acetone	ug/m3	27	42	69	65
Allyl Chloride	ug/m3	0.32 U	0.32 U	0.32 U	3.2 U
Benzene	ug/m3	0.27	0.67	1.6	7.6
Benzyl Chloride	ug/m3	4.2 U	4.2 U	4.2 U	42 U
Bromodichloromethane	ug/m3	1.4 U	1.4 U	1.4 U	14 U
Bromoform	ug/m3	2.1 U	2.1 U	2.1 U	21 U
Bromomethane	ug/m3	0.78 U	0.78 U	0.78 U	7.8 U
1,3-Butadiene	ug/m3	0.45 U	0.45 U	0.45 U	4.5 U
2-Butanone	ug/m3	2.8	4.5	24	13
Carbon Disulfide	ug/m3	0.63 U	0.63 U	0.63 U	7.7
Carbon Tetrachloride	ug/m3	0.52	0.48	0.54	3.2 U
Chlorobenzene	ug/m3	0.93 U	0.93 U	0.93 U	9.3 U
Chloroethane	ug/m3	0.53 U	0.53 U	0.53 U	5.3 U
Chloroform	ug/m3	0.12 U	0.12 U	0.12 U	1.2 U
Chloromethane	ug/m3	1.4 J	0.79	0.42 U	4.2 U
Cyclohexane	ug/m3	0.70 U	0.70 U	0.70 U	11
Dibromochloromethane	ug/m3	1.7 U	1.7 U	1.7 U	17 U
1,2-Dibromoethane	ug/m3	1.6 U	1.6 U	1.6 U	16 U
1,2-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	12 U
1,3-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	12 U
1,4-Dichlorobenzene	ug/m3	1.2 U	1.2 U	1.2 U	12 U
Dichlorodifluoromethane	ug/m3	2.7	2.3	1.0 U	10 U
1,1-Dichloroethane	ug/m3	0.82 U	0.82 U	0.82 U	8.2 U
1,2-Dichloroethane	ug/m3	0.10 U	0.10 U	0.10 U	1.0 U
1,1-Dichloroethene	ug/m3	0.20 U	0.20 U	0.20 U	3.5
cis-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	7.1	260
trans-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U	180	17
1,2-Dichloropropane	ug/m3	0.93 U	0.93 U	0.93 U	9.3 U
cis-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U	0.46 U	4.6 U
trans-1,3-Dichloropropene	ug/m3	0.46 U	0.46 UJ	0.46 UJ	4.6 UJ
1,2-Dichlorotetrafluoroethane	ug/m3	1.4 U	1.4 U	1.4 U	14 U
1,4-Dioxane	ug/m3	0.73 U	0.73 U	0.73 U	7.3 U
Ethyl Acetate	ug/m3	0.73 U	0.73 U	0.73 U	7.3 U
Ethyl Benzene	ug/m3	0.88 U	2.0	1.8	8.8 U
4-Ethyltoluene	ug/m3	4.0 U	4.0 U	4.0 U	40 U
Heptane	ug/m3	0.83 U	0.83 U	1.1	8.3 U
Hexachlorobutadiene	ug/m3	2.2 U	2.2 U	2.2 U	22 U
Hexane	ug/m3	0.71 U	0.71 U	0.71 U	7.1 U
2-Hexanone	ug/m3	1.7 UJ	1.7 U	1.7 U	17 U
Methyl tert-butyl ether	ug/m3	0.73 U	0.73 U	0.73 U	7.3 U

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Analysis/ Analyte	Units	13-__	14-__	15-__	16-__
Methylene Chloride	ug/m3	0.70 U	0.70 U	0.70 U	7.0 U
4-Methyl-2-Pentanone	ug/m3	1.7 U	1.7 UJ	1.7 UJ	17 UJ
2-Propanol	ug/m3	10 J	21 J	0.50 UJ	5.0 UJ
Propene	ug/m3	0.41	1.2	0.35 U	3.5 U
Styrene	ug/m3	0.86 U	0.86 U	0.86 U	8.6 U
1,1,2,2-Tetrachloroethane	ug/m3	1.4 U	1.4 U	1.4 U	14 U
Tetrachloroethene	ug/m3	0.64	52	8.0	25
Tetrahydrofuran	ug/m3	0.60 U	0.60 U	0.60 U	6.0 U
Toluene	ug/m3	0.76 U	2.3	5.9	19
1,2,4-Trichlorobenzene	ug/m3	1.5 U	1.5 U	1.5 U	15 U
1,1,1-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	11 U
1,1,2-Trichloroethane	ug/m3	1.1 U	1.1 U	1.1 U	11 U
Trichloroethene	ug/m3	0.14 U	0.14	1.5	59
Trichlorofluoromethane	ug/m3	3.1 J	3.4	1.1 U	11 U
1,1,2-Trichlorotrifluoroethane	ug/m3	1.5 U	1.5 U	1.5 U	15 U
1,2,4-Trimethylbenzene	ug/m3	0.99 U	1.4	6.7	9.9 U
1,3,5-Trimethylbenzene	ug/m3	0.99 U	0.99 U	1.5	9.9 U
2,2,4-Trimethylpentane	ug/m3	0.94 U	0.94 U	0.94 U	9.4 U
Vinyl Acetate	ug/m3	1.9 J	0.88 J	0.71 UJ	7.1 UJ
Vinyl Bromide	ug/m3	0.88 U	0.88 U	0.88 U	8.8 U
Vinyl Chloride	ug/m3	0.13 U	0.13 U	0.13 U	200
m and/or p-Xylene	ug/m3	1.8 U	2.3	7.6	18 U
o-Xylene	ug/m3	0.88 U	1.0	3.5	8.8 U

Analysis/ Analyte	Units	101-__	102-__	103-__	104-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	9.2 U	9.5 U	12 U	9.3 U
Benzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Bromochloromethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Bromodichloromethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Bromoform	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Bromomethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
2-Butanone	ug/kg	9.2 U	9.5 U	12 U	9.3 U
Carbon Disulfide	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Carbon Tetrachloride	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Chlorobenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Chloroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Chloroform	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Chloromethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Cyclohexane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2-Dibromo-3-Chloropropane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Dibromochloromethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2-Dibromoethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2-Dichlorobenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,3-Dichlorobenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,4-Dichlorobenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Dichlorodifluoromethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,1-Dichloroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2-Dichloroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,1-Dichloroethene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
cis-1,2-Dichloroethene	ug/kg	4.6 U	18	5.9 U	4.6 U
trans-1,2-Dichloroethene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2-Dichloropropane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
cis-1,3-Dichloropropene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
trans-1,3-Dichloropropene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Ethyl Benzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
2-Hexanone	ug/kg	9.2 U	9.5 U	12 U	9.3 U
Isopropylbenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Methyl Acetate	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Methyl tert-butyl ether	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Methylcyclohexane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Methylene Chloride	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
4-Methyl-2-Pentanone	ug/kg	9.2 U	9.5 U	12 U	9.3 U
Styrene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,1,2,2-Tetrachloroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Tetrachloroethene	ug/kg	6.0	14000 J	16	4200
Toluene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2,3-Trichlorobenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,2,4-Trichlorobenzene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,1,1-Trichloroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,1,2-Trichloroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	101-__	102-__	103-__	104-__
Trichloroethene	ug/kg	4.6 U	35	5.9 U	4.6 U
Trichlorofluoromethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
1,1,2-Trichlorotrifluoroethane	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
Vinyl Chloride	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
m and/or p-Xylene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U
o-Xylene	ug/kg	4.6 U	4.7 U	5.9 U	4.6 U

Analysis/ Analyte	Units	105-__	106-__	107-__	108-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	12 U	120	10 U	10 U
Benzene	ug/kg	5.8 U	5.9 U	5.0 UJ	5.1 U
Bromochloromethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Bromodichloromethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Bromoform	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Bromomethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
2-Butanone	ug/kg	12 U	12 U	10 U	10 U
Carbon Disulfide	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Carbon Tetrachloride	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Chlorobenzene	ug/kg	5.8 U	5.9 U	5.0 UJ	5.1 U
Chloroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Chloroform	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Chloromethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Cyclohexane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Dibromochloromethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,2-Dibromoethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,2-Dichlorobenzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,3-Dichlorobenzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,4-Dichlorobenzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Dichlorodifluoromethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,1-Dichloroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,2-Dichloroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,1-Dichloroethene	ug/kg	5.8 U	5.9 U	5.0 UJ	5.1 U
cis-1,2-Dichloroethene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
trans-1,2-Dichloroethene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,2-Dichloropropane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
cis-1,3-Dichloropropene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
trans-1,3-Dichloropropene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Ethyl Benzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
2-Hexanone	ug/kg	12 U	12 U	10 U	10 U
Isopropylbenzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Methyl Acetate	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Methyl tert-butyl ether	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Methylcyclohexane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Methylene Chloride	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
4-Methyl-2-Pentanone	ug/kg	12 U	12 U	10 U	10 U
Styrene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,1,2,2-Tetrachloroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Tetrachloroethene	ug/kg	180	140	9800 J	5.1 U
Toluene	ug/kg	5.8 U	5.9 U	5.0 UJ	5.1 U
1,2,3-Trichlorobenzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,2,4-Trichlorobenzene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,1,1-Trichloroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,1,2-Trichloroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	105-__	106-__	107-__	108-__
Trichloroethene	ug/kg	5.8 U	5.9 U	5.0 UJ	5.1 U
Trichlorofluoromethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
Vinyl Chloride	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
m and/or p-Xylene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U
o-Xylene	ug/kg	5.8 U	5.9 U	5.0 U	5.1 U

Analysis/ Analyte	Units	109-__	110-__	111-__	112-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	9.7 U	50 J	10 U	10 U
Benzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Bromochloromethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Bromodichloromethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Bromoform	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Bromomethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
2-Butanone	ug/kg	9.7 U	9.6 U	10 U	10 U
Carbon Disulfide	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Carbon Tetrachloride	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Chlorobenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Chloroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Chloroform	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Chloromethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Cyclohexane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Dibromochloromethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,2-Dibromoethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,2-Dichlorobenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,3-Dichlorobenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,4-Dichlorobenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Dichlorodifluoromethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,1-Dichloroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,2-Dichloroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,1-Dichloroethene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
cis-1,2-Dichloroethene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
trans-1,2-Dichloroethene	ug/kg	4.9 U	4.8 U	13	5.0 U
1,2-Dichloropropane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
cis-1,3-Dichloropropene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
trans-1,3-Dichloropropene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Ethyl Benzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
2-Hexanone	ug/kg	9.7 U	9.6 U	10 U	10 U
Isopropylbenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Methyl Acetate	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Methyl tert-butyl ether	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Methylcyclohexane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Methylene Chloride	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
4-Methyl-2-Pentanone	ug/kg	9.7 U	9.6 U	10 U	10 U
Styrene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Tetrachloroethene	ug/kg	4.9 U	4.8 U	5.2 U	19
Toluene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,2,3-Trichlorobenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,2,4-Trichlorobenzene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,1,1-Trichloroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,1,2-Trichloroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	109-__	110-__	111-__	112-__
Trichloroethene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Trichlorofluoromethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
Vinyl Chloride	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
m and/or p-Xylene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U
o-Xylene	ug/kg	4.9 U	4.8 U	5.2 U	5.0 U

Analysis/ Analyte	Units	113-__	114-__	115-__	116-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	23	27	11 U	9.5 U
Benzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Bromochloromethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Bromodichloromethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Bromoform	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Bromomethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
2-Butanone	ug/kg	11 U	10 U	11 U	9.5 U
Carbon Disulfide	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Carbon Tetrachloride	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Chlorobenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Chloroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Chloroform	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Chloromethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Cyclohexane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Dibromochloromethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2-Dibromoethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2-Dichlorobenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,3-Dichlorobenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,4-Dichlorobenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Dichlorodifluoromethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,1-Dichloroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2-Dichloroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,1-Dichloroethene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
cis-1,2-Dichloroethene	ug/kg	5.4 U	33	7.9	4.8 U
trans-1,2-Dichloroethene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2-Dichloropropane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
cis-1,3-Dichloropropene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
trans-1,3-Dichloropropene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Ethyl Benzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
2-Hexanone	ug/kg	11 U	10 U	11 U	9.5 U
Isopropylbenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Methyl Acetate	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Methyl tert-butyl ether	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Methylcyclohexane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Methylene Chloride	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
4-Methyl-2-Pentanone	ug/kg	11 U	10 U	11 U	9.5 U
Styrene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,1,2,2-Tetrachloroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Tetrachloroethene	ug/kg	5.4 U	5.2 U	4300	4200
Toluene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2,3-Trichlorobenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,2,4-Trichlorobenzene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,1,1-Trichloroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,1,2-Trichloroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	113-__	114-__	115-__	116-__
Trichloroethene	ug/kg	6.8	14	8.0	4.8 U
Trichlorofluoromethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
Vinyl Chloride	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
m and/or p-Xylene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U
o-Xylene	ug/kg	5.4 U	5.2 U	5.6 U	4.8 U

Analysis/ Analyte	Units	117-__	118-__	119-__	120-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	11 U	11 U	19	220
Benzene	ug/kg	5.3 U	5.4 U	4.8 U	11
Bromochloromethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Bromodichloromethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Bromoform	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
Bromomethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
2-Butanone	ug/kg	11 U	11 U	9.6 U	50
Carbon Disulfide	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Carbon Tetrachloride	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Chlorobenzene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Chloroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Chloroform	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Chloromethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Cyclohexane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
Dibromochloromethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,2-Dibromoethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,2-Dichlorobenzene	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
1,3-Dichlorobenzene	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
1,4-Dichlorobenzene	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
Dichlorodifluoromethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,1-Dichloroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,2-Dichloroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,1-Dichloroethene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
cis-1,2-Dichloroethene	ug/kg	79	38	4.8 U	21
trans-1,2-Dichloroethene	ug/kg	16	5.4 U	14	5.8 U
1,2-Dichloropropane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
cis-1,3-Dichloropropene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
trans-1,3-Dichloropropene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Ethyl Benzene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
2-Hexanone	ug/kg	11 U	11 U	9.6 U	12 U
Isopropylbenzene	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
Methyl Acetate	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Methyl tert-butyl ether	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Methylcyclohexane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Methylene Chloride	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
4-Methyl-2-Pentanone	ug/kg	11 U	11 U	9.6 U	12 U
Styrene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,1,2,2-Tetrachloroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Tetrachloroethene	ug/kg	200	31000 J	4.8 U	5.8 U
Toluene	ug/kg	5.3 U	5.4 U	4.8 U	10
1,2,3-Trichlorobenzene	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
1,2,4-Trichlorobenzene	ug/kg	5.3 U	5.4 UJ	4.8 U	5.8 U
1,1,1-Trichloroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,1,2-Trichloroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	117-__	118-__	119-__	120-__
Trichloroethene	ug/kg	21	28	4.8 U	5.8 U
Trichlorofluoromethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
Vinyl Chloride	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
m and/or p-Xylene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U
o-Xylene	ug/kg	5.3 U	5.4 U	4.8 U	5.8 U

Analysis/ Analyte	Units	121-__	122-__	123-__	124-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	12 U	13 U	9.8 U	9.5 U
Benzene	ug/kg	5.8 U	6.6 U	4.9 UJ	4.7 U
Bromochloromethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Bromodichloromethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Bromoform	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Bromomethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
2-Butanone	ug/kg	12 U	13 U	9.8 U	9.5 U
Carbon Disulfide	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Carbon Tetrachloride	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
Chlorobenzene	ug/kg	5.8 U	6.6 U	4.9 UJ	4.7 U
Chloroethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Chloroform	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Chloromethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Cyclohexane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Dibromochloromethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,2-Dibromoethane	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
1,2-Dichlorobenzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,3-Dichlorobenzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,4-Dichlorobenzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Dichlorodifluoromethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,1-Dichloroethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,2-Dichloroethane	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
1,1-Dichloroethene	ug/kg	5.8 U	6.6 U	4.9 UJ	4.7 U
cis-1,2-Dichloroethene	ug/kg	75	6.6 U	4.9 U	4.7 U
trans-1,2-Dichloroethene	ug/kg	13	6.6 U	4.9 U	4.7 U
1,2-Dichloropropane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
cis-1,3-Dichloropropene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
trans-1,3-Dichloropropene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Ethyl Benzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
2-Hexanone	ug/kg	12 U	13 U	9.8 U	9.5 U
Isopropylbenzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Methyl Acetate	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
Methyl tert-butyl ether	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
Methylcyclohexane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Methylene Chloride	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
4-Methyl-2-Pentanone	ug/kg	12 U	13 U	9.8 U	9.5 U
Styrene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,1,2,2-Tetrachloroethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
Tetrachloroethene	ug/kg	5.8 U	6.6 U	23	11
Toluene	ug/kg	5.8 U	6.6 U	4.9 UJ	4.7 U
1,2,3-Trichlorobenzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,2,4-Trichlorobenzene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,1,1-Trichloroethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
1,1,2-Trichloroethane	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U

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Analysis/ Analyte	Units	121-__	122-__	123-__	124-__
Trichloroethene	ug/kg	110	6.6 U	4.9 UJ	4.7 U
Trichlorofluoromethane	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.8 U	6.6 UJ	4.9 U	4.7 U
Vinyl Chloride	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
m and/or p-Xylene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U
o-Xylene	ug/kg	5.8 U	6.6 U	4.9 U	4.7 U

Analysis/ Analyte	Units	125-__	126-__	127-__	128-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	12 U	57 J	8.8 U	8.8 U
Benzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Bromochloromethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Bromodichloromethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Bromoform	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Bromomethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
2-Butanone	ug/kg	12 U	9.1 U	8.8 U	8.8 U
Carbon Disulfide	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Carbon Tetrachloride	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Chlorobenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Chloroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Chloroform	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Chloromethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Cyclohexane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Dibromochloromethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2-Dibromoethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2-Dichlorobenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,3-Dichlorobenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,4-Dichlorobenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Dichlorodifluoromethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,1-Dichloroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2-Dichloroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,1-Dichloroethene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
cis-1,2-Dichloroethene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
trans-1,2-Dichloroethene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2-Dichloropropane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
cis-1,3-Dichloropropene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
trans-1,3-Dichloropropene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Ethyl Benzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
2-Hexanone	ug/kg	12 U	9.1 U	8.8 U	8.8 U
Isopropylbenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Methyl Acetate	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Methyl tert-butyl ether	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Methylcyclohexane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Methylene Chloride	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
4-Methyl-2-Pentanone	ug/kg	12 U	9.1 U	8.8 U	8.8 U
Styrene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,1,2,2-Tetrachloroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Tetrachloroethene	ug/kg	150	4.5 U	4.4 U	4.4 U
Toluene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2,3-Trichlorobenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,2,4-Trichlorobenzene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,1,1-Trichloroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,1,2-Trichloroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U

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Analysis/ Analyte	Units	125-__	126-__	127-__	128-__
Trichloroethene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Trichlorofluoromethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
Vinyl Chloride	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
m and/or p-Xylene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U
o-Xylene	ug/kg	5.9 U	4.5 U	4.4 U	4.4 U

Analysis/ Analyte	Units	129-__	130-__	201-__	202-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	77	12 U		
Benzene	ug/kg	5.3 U	5.9 U		
Bromochloromethane	ug/kg	5.3 U	5.9 UJ		
Bromodichloromethane	ug/kg	5.3 U	5.9 U		
Bromoform	ug/kg	5.3 U	5.9 U		
Bromomethane	ug/kg	5.3 U	5.9 U		
2-Butanone	ug/kg	18	12 U		
Carbon Disulfide	ug/kg	5.3 U	5.9 UJ		
Carbon Tetrachloride	ug/kg	5.3 U	5.9 U		
Chlorobenzene	ug/kg	5.3 U	5.9 U		
Chloroethane	ug/kg	5.3 U	5.9 UJ		
Chloroform	ug/kg	5.3 U	5.9 U		
Chloromethane	ug/kg	5.3 U	5.9 UJ		
Cyclohexane	ug/kg	5.3 U	5.9 U		
1,2-Dibromo-3-Chloropropane	ug/kg	5.3 U	5.9 U		
Dibromochloromethane	ug/kg	5.3 U	5.9 U		
1,2-Dibromoethane	ug/kg	5.3 U	5.9 U		
1,2-Dichlorobenzene	ug/kg	5.3 U	5.9 U		
1,3-Dichlorobenzene	ug/kg	5.3 U	5.9 U		
1,4-Dichlorobenzene	ug/kg	5.3 U	5.9 U		
Dichlorodifluoromethane	ug/kg	5.3 U	5.9 UJ		
1,1-Dichloroethane	ug/kg	5.3 U	5.9 U		
1,2-Dichloroethane	ug/kg	5.3 U	5.9 U		
1,1-Dichloroethene	ug/kg	5.3 U	5.9 U		
cis-1,2-Dichloroethene	ug/kg	120	5.9 U		
trans-1,2-Dichloroethene	ug/kg	7.4	5.9 U		
1,2-Dichloropropane	ug/kg	5.3 U	5.9 U		
cis-1,3-Dichloropropene	ug/kg	5.3 U	5.9 U		
trans-1,3-Dichloropropene	ug/kg	5.3 U	5.9 U		
Ethyl Benzene	ug/kg	5.3 U	5.9 U		
2-Hexanone	ug/kg	11 U	12 U		
Isopropylbenzene	ug/kg	5.3 U	5.9 U		
Methyl Acetate	ug/kg	5.3 U	5.9 U		
Methyl tert-butyl ether	ug/kg	5.3 U	5.9 U		
Methylcyclohexane	ug/kg	5.3 U	5.9 U		
Methylene Chloride	ug/kg	5.3 U	5.9 U		
4-Methyl-2-Pentanone	ug/kg	11 U	12 U		
Styrene	ug/kg	5.3 U	5.9 U		
1,1,2,2-Tetrachloroethane	ug/kg	5.3 U	5.9 U		
Tetrachloroethene	ug/kg	58	39		
Toluene	ug/kg	5.3 U	5.9 U		
1,2,3-Trichlorobenzene	ug/kg	5.3 U	5.9 U		
1,2,4-Trichlorobenzene	ug/kg	5.3 U	5.9 U		
1,1,1-Trichloroethane	ug/kg	5.3 U	5.9 U		
1,1,2-Trichloroethane	ug/kg	5.3 U	5.9 U		

Analysis/ Analyte	Units	129-__	130-__	201-__	202-__
Trichloroethene	ug/kg	41	5.9 U		
Trichlorofluoromethane	ug/kg	5.3 U	5.9 U		
1,1,2-Trichlorotrifluoroethane	ug/kg	5.3 U	5.9 U		
Vinyl Chloride	ug/kg	5.3 U	5.9 U		
m and/or p-Xylene	ug/kg	5.3 U	5.9 U		
o-Xylene	ug/kg	5.3 U	5.9 U		
1 VOCs in Water by GC/MS					
Acetone	ug/L			10 U	11
Benzene	ug/L			5.0 U	5.0 U
Bromochloromethane	ug/L			5.0 U	5.0 U
Bromodichloromethane	ug/L			5.0 U	5.0 U
Bromoform	ug/L			5.0 UJ	5.0 UJ
Bromomethane	ug/L			5.0 U	5.0 U
2-Butanone	ug/L			10 U	10 U
Carbon Disulfide	ug/L			5.0 U	5.0 U
Carbon Tetrachloride	ug/L			5.0 U	5.0 U
Chlorobenzene	ug/L			5.0 U	5.0 U
Chloroethane	ug/L			5.0 U	5.0 U
Chloroform	ug/L			5.0 U	5.0 U
Chloromethane	ug/L			5.0 U	5.0 U
Cyclohexane	ug/L			5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L			5.0 U	5.0 U
Dibromochloromethane	ug/L			5.0 U	5.0 U
1,2-Dibromoethane	ug/L			5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L			5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L			5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L			5.0 U	5.0 U
Dichlorodifluoromethane	ug/L			5.0 U	5.0 U
1,1-Dichloroethane	ug/L			5.0 U	5.0 U
1,2-Dichloroethane	ug/L			5.0 UJ	5.0 UJ
1,1-Dichloroethene	ug/L			5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L			880	5.3
trans-1,2-Dichloroethene	ug/L			140	5.0 U
1,2-Dichloropropane	ug/L			5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L			5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L			5.0 U	5.0 U
Ethyl Benzene	ug/L			5.0 U	5.0 U
2-Hexanone	ug/L			10 U	10 U
Isopropylbenzene	ug/L			5.0 U	5.0 U
Methyl Acetate	ug/L			5.0 U	5.0 U
Methyl tert-butyl ether	ug/L			5.0 U	5.0 U
Methylcyclohexane	ug/L			5.0 U	5.0 U
Methylene Chloride	ug/L			5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L			10 U	10 U
Styrene	ug/L			5.0 U	5.0 U

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Analysis/ Analyte	Units	129-__	130-__	201-__	202-__
1,1,2,2-Tetrachloroethane	ug/L			5.0 U	5.0 U
Tetrachloroethene	ug/L			3700	23
Toluene	ug/L			5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L			5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L			5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L			5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L			5.0 U	5.0 U
Trichloroethene	ug/L			250 J	5.0 U
Trichlorofluoromethane	ug/L			5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L			5.0 U	5.0 U
Vinyl Chloride	ug/L			5.0 U	5.0 U
m and/or p-Xylene	ug/L			5.0 U	5.0 U
o-Xylene	ug/L			5.0 U	5.0 U

Analysis/ Analyte	Units	203-__	204-__	205-__	206-__
1 VOCs in Water by GC/MS					
Acetone	ug/L	10 U	10 U	10 U	10 U
Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
1,1-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0	16
trans-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	8.5
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	5.0 U	2400	580
Toluene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

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Analysis/ Analyte	Units	203-__	204-__	205-__	206-__
Trichloroethene	ug/L	5.0 U	5.0 U	16	44
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
m and/or p-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

Analysis/ Analyte	Units	207-__	208-__	209-__	210-__
1 VOCs in Water by GC/MS					
Acetone	ug/L	10 U	10 U	10 U	10 U
Benzene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Bromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
1,1-Dichloroethene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	30	5.0 U	5.0 U
Toluene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	207-__	208-__	209-__	210-__
Trichloroethene	ug/L	5.0 U	5.0 UJ	5.0 U	5.0 U
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
m and/or p-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

Analysis/ Analyte	Units	211-__	212-__	213-__	214-__
1 VOCs in Water by GC/MS					
Acetone	ug/L	10 U	10 U	15	10 U
Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
1,1-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	56	170	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	47	50	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	2500	300	5.0 U	5.0 U
Toluene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	211-__	212-__	213-__	214-__
Trichloroethene	ug/L	66	60	5.0 U	5.0 U
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
m and/or p-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

Analysis/ Analyte	Units	215-__	216-__	217-__	218-__
1 VOCs in Water by GC/MS					
Acetone	ug/L	10 U	10 U	10 U	10 U
Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
1,1-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	380	260	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	52	77	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	28	5.0 U	5.0 U
Toluene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	215-__	216-__	217-__	218-__
Trichloroethene	ug/L	5.0 U	63	5.0 U	5.0 U
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	11	31	5.0 U	5.0 U
m and/or p-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U	5.0 U

Analysis/ Analyte	Units	221-FB	222-FB	223-FB
1 VOCs in Water by GC/MS				
Acetone	ug/L	10 U	10 U	10 U
Benzene	ug/L	5.0 U	5.0 U	5.0 U
Bromochloromethane	ug/L	5.0 U	5.0 U	5.0 U
Bromodichloromethane	ug/L	5.0 U	5.0 U	5.0 U
Bromoform	ug/L	5.0 UJ	5.0 UJ	5.0 U
Bromomethane	ug/L	5.0 U	5.0 U	5.0 U
2-Butanone	ug/L	10 U	10 U	10 U
Carbon Disulfide	ug/L	5.0 U	5.0 U	5.0 U
Carbon Tetrachloride	ug/L	5.0 U	5.0 U	5.0 U
Chlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	5.0 U	5.0 U	5.0 U
Chloroform	ug/L	5.0 U	5.0 U	5.0 U
Chloromethane	ug/L	5.0 U	5.0 U	5.0 U
Cyclohexane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dibromo-3-Chloropropane	ug/L	5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dibromoethane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,3-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,4-Dichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
Dichlorodifluoromethane	ug/L	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	ug/L	5.0 UJ	5.0 UJ	5.0 U
1,1-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	5.0 U	5.0 U	5.0 U
1,2-Dichloropropane	ug/L	5.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U
trans-1,3-Dichloropropene	ug/L	5.0 U	5.0 U	5.0 U
Ethyl Benzene	ug/L	5.0 U	5.0 U	5.0 U
2-Hexanone	ug/L	10 U	10 U	10 U
Isopropylbenzene	ug/L	5.0 U	5.0 U	5.0 U
Methyl Acetate	ug/L	5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L	5.0 U	5.0 U	5.0 U
Methylcyclohexane	ug/L	5.0 U	5.0 U	5.0 U
Methylene Chloride	ug/L	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	ug/L	10 U	10 U	10 U
Styrene	ug/L	5.0 U	5.0 U	5.0 U
1,1,2,2-Tetrachloroethane	ug/L	5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5.0 U	5.0 U	5.0 U
1,2,3-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,2,4-Trichlorobenzene	ug/L	5.0 U	5.0 U	5.0 U
1,1,1-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5.0 U	5.0 U	5.0 U

ASR Number: 8924
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

07/21/2021

Analysis/ Analyte	Units	221-FB	222-FB	223-FB
Trichloroethene	ug/L	5.0 U	5.0 U	5.0 U
Trichlorofluoromethane	ug/L	5.0 U	5.0 U	5.0 U
1,1,2-Trichlorotrifluoroethane	ug/L	5.0 U	5.0 U	5.0 U
Vinyl Chloride	ug/L	5.0 U	5.0 U	5.0 U
m and/or p-Xylene	ug/L	5.0 U	5.0 U	5.0 U
o-Xylene	ug/L	5.0 U	5.0 U	5.0 U

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

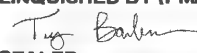
EPA PROJECT MANAGER (Print) Todd Davis	TYPE OR SAMPLING EVENT Sunshine Laundry	DATE OF SAMPLE COLLECTION(S) 6 / 7-10 / 2021 <small>MONTH DAY YEAR</small>	SHEET 1 of 2
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CONTENTS OF SHIPMENT

ASR AND SAMPLE NUMBER	TYPE OF CONTAINERS					SAMPLED MEDIA				RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample number, etc.)
	1/8 L BOTTLE	6 L Summa CANISTER	3 Vials + 1 Tube BOTTLE	BOTTLE	VOA SET (VIALS Etc.)	WATER	SOLID	HAZ WASTE	AIR	
<small>NUMBER OF CONTAINERS PER SAMPLE NUMBER</small>										
8924-1		1								✓
8924-2		1								✓
8924-3		1								✓
8924-4		1								✓
8924-5		1								✓
8924-6		1								✓
8924-7		1								✓
8924-8		1								✓
8924-9		1								✓
8924-10		1								✓
8924-11		1								✓
8924-12		1								✓
8924-101			1					✓		
8924-102			1					✓		
8924-103			1					✓		
8924-104			1					✓		
8924-105			1					✓		
8924-106			1					✓		
8924-107			3					✓		MS/MSD
8924-108			1					✓		
8924-109			1					✓		
8924-110			1					✓		
8924-111			1					✓		
8924-112			1					✓		

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
52 CONTAINER(S) CONSISTING OF 5 CRATE(S) 3 ICE CHEST(S); OTHER _____	<input type="checkbox"/> COMMERCIAL CARRIER _____ <input checked="" type="checkbox"/> SAMPLER CONVEYED _____ <small>(SHIPPING AIRBILL NUMBER)</small>

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)  <small>Digitally signed by: Tim Barbeau DN: CN = Tim Barbeau email = tim.barbeau@tetratech.com C = US OU = Tetra Tech Date: 2021.06.10 20:19:30 -0500'</small> <input checked="" type="radio"/> SEALED <input checked="" type="radio"/> UNSEALED	RECEIVED BY NICOLE ROBLEZ <small>Digitally signed by NICOLE ROBLEZ Date: 2021.06.11 11:16:42 -05'00'</small> <input checked="" type="radio"/> SEALED <input checked="" type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY STC Analyses
<input type="radio"/> SEALED <input type="radio"/> UNSEALED	<input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
<input type="radio"/> SEALED <input type="radio"/> UNSEALED	<input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
<input type="radio"/> SEALED <input type="radio"/> UNSEALED	<input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY

**CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII**

EPA PROJECT MANAGER (Print) Todd Davis	SITE OR SAMPLING EVENT Sunshine Laundry	DATE OF SAMPLE COLLECTION(S) 6 / 7-10 / 2021 <small>MONTH DAY YEAR</small>	SHEET 2 of 2
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CONTENTS OF SHIPMENT

ASR AND SAMPLE NUMBER	TYPE OF CONTAINERS				VOA SET (3 VIALS EA)	SAMPLED MEDIA				RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	1 L PLASTIC BOTTLE	6 L Summa CANISTER	3 Vials + 1 Tube BOTTLE	BOTTLE		WATER	SOIL	ICE/WASTE	AIR	
NUMBERS) OF CONTAINERS PER SAMPLE NUMBER										
8924-113			1				✓			Some water LDL VOA samples were rec'd
8924-114			1				✓			at the STC w/air bubble(s)/sediment
8924-115			1				✓			in them. Noted & lab informed to proceed
8924-116			1				✓			accordingly & note as needed. 6/11/2021
8924-117			1				✓			Since Sealed or Unsealed not marked
8924-118			1				✓			below on both eCOCs dated 6/10/2021,
8924-119			1				✓			NR marked Unsealed at the STC sample
8924-120			1				✓			receipt on 6/11/2021. nr6/11/2021
8924-121			1				✓			
8924-122			1				✓			
8924-123			3				✓			MS/MSD
8924-124			1				✓			PM/TT sampler received email dated
8924-125			1				✓			6/11/2021 noting that no water QC=MS/MSD
8924-126			1				✓			was collected/provided by the TT sampler
8924-127			1				✓			as noted/needed/required on the ASR & sample
8924-128			1				✓			info. provided by the LTAB. No QC=MS/MSD
8924-129			1				✓			will be done/provided on below samples
8924-130			1				✓			201-205 & 223FB. nr6/11/2021
8924-201					1^		✓			^= 1 of 3 vials rec'd broken at the STC per
8924-202					1		✓			TT sampler on 6/10/2021. nr6/11/2021
8924-203					1		✓			
8924-204					1		✓			Coolers rec'd at the STC with a temp.
8924-205					1		✓			range of 13.3-15.4degC. nr6/11/2021
8924-223-FB					1		✓			Trip Blank/ ASR Not Complete

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
52 CONTAINER(S) CONSISTING OF 5 CRATE(S)	<input type="checkbox"/> COMMERCIAL CARRIER
3 ICE CHEST(S); OTHER	<input checked="" type="checkbox"/> SAMPLER CONVEYED
	<small>(SHIPPING AIRBILL NUMBER)</small>

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PWSA) Tim Barbeau <small>Digitally signed by: Tim Barbeau DN: CN = Tim Barbeau email = tim.barbeau@tetratech.com C = US OU = Tetra Tech Date: 2021.06.10 20:21:13 -0500</small>	RECEIVED BY NICOLE ROBLEZ <small>Digitally signed by NICOLE ROBLEZ Date: 2021.06.11 11:19:21 -0500</small>	REASON FOR CHANGE OF CUSTODY STC Analyses
<input checked="" type="radio"/> SEALED <input type="radio"/> UNSEALED	<input checked="" type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PWSAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="radio"/> SEALED <input type="radio"/> UNSEALED	<input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PWSAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="radio"/> SEALED <input type="radio"/> UNSEALED	<input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PWSAMPLER)	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
<input type="radio"/> SEALED <input type="radio"/> UNSEALED	<input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VI

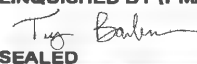
EPA PROJECT MANAGER (Print) Todd Davis	WELL OR SAMPLING EVENT Sunshine Laundry	DATE OF SAMPLE COLLECTION(S) 6 / 10-11 / 2021 <small>MONTH DAY YEAR</small>	SHEET 1 of 1
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CONTENTS OF SHIPMENT

ASR AND SAMPLE NUMBER	TYPE OF CONTAINERS					SAMPLING MEDIA				RECEIVING LABORATORY REMARKS OTHER INFORMATION (condition of samples upon receipt, other lot/box number, etc.)	
	1 L PLASTIC BOTTLE	6 L Summa CANISTER	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	WATER	SOLID	HAZ WASTE	AIR		
<small>NUMBERS OF CONTAINERS PER SAMPLE NUMBER</small>											
8924-13		1								✓	
8924-14		1								✓	Some water VOA vials below were
8924-15		1								✓	received with black material in the vials.
8924-16		1								✓	Lab was informed to note and proceed
8924-206					1	✓					accordingly. nr6/14/2021
8924-207					1	✓					
8924-208					3	✓					MS/MSD
8924-209					1	✓					
8924-210					1	✓					
8924-211					1	✓					
8924-212					1	✓					
8924-213					1	✓					
8924-214					1	✓					Rinsate Blank
8924-215					1	✓					
8924-216					1	✓					
8924-217					1	✓					
8924-218					1	✓					
8924-221-FB					1	✓					Trip Blank
8924-222-FB					1	✓					Field Blank
											ASR Complete
											No temp. needed on air canister crate
											& cooler received at 3-5degC. nr6/14/2021

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
21 CONTAINER(S) CONSISTING OF 2 CRATE(S) 1 ICE CHEST(S); OTHER _____ nr6/14/2021	<input type="checkbox"/> COMMERCIAL CARRIER _____ <input checked="" type="checkbox"/> SAMPLER CONVEYED _____ <small>(SHIPPING AIRBILL NUMBER)</small>

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (PM/SAMPLER)  <small>Digitally signed by: Tim Barbeau DN: CN = Tim Barbeau email = tim.barbeau@tetratech.com C = US OU = Tetra Tech Date: 2021.06.14 08:00:59 -0500'</small> <input checked="" type="radio"/> SEALED <input type="radio"/> UNSEALED	RECEIVED BY NICOLE ROBLEZ <small>Digitally signed by NICOLE ROBLEZ Date: 2021.06.14 10:26:31 -05'00'</small> <input checked="" type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY STC Analyses
RELINQUISHED BY (PM/SAMPLER) <input type="radio"/> SEALED <input type="radio"/> UNSEALED	RECEIVED BY <input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PM/SAMPLER) <input type="radio"/> SEALED <input type="radio"/> UNSEALED	RECEIVED BY <input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY (PM/SAMPLER) <input type="radio"/> SEALED <input type="radio"/> UNSEALED	RECEIVED BY <input type="radio"/> SEALED <input type="radio"/> UNSEALED	REASON FOR CHANGE OF CUSTODY

**United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101**

Date: 01/13/2022

Subject: Transmittal of Sample Analysis Results for ASR #: 9124

Project ID: TDB7K8

Project Description: Sunshine Laundry, Fort Dodge

From: Margaret E.W. St. Germain, Chief
Laboratory Technology & Analysis Branch
Laboratory Services and Applied Sciences Division

To: Todd Davis
SEMD/AERR

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. These results are based on samples as received at the Science and Technology Center. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please ensure that you file this electronic (.pdf only) transmittal in your records management system. The Regional Laboratory will now retain all of the original hardcopy documentation (e.g. COC[s] and the R7LIMS field sheet[s], etc.) according to our LSASD records management system.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the Online ASR Sample/Data Disposition and Customer Survey for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Online ASR Sample/Data Disposition and Customer Survey. It is critical that we receive your response in accordance to RCRA and the laboratory accreditation.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Project Manager: Todd Davis**Org:** SEMD/AERR**Phone:** 913-551-7749**Project ID:** TDB7K8**QAPP Number:** 2021126**Project Desc:** Sunshine Laundry, Fort Dodge**Location:** Fort Dodge**State:** Iowa**Program:** Superfund**Site Name:** SUNSHINE LAUNDRY, FORT DODGE - Site
Evaluation/Disposition**Site ID:** B7K8 **Site OU:** 00**GPRA PRC:** 000DC6**Purpose:** Site Characterization

Integrated site assessment sampling.

Submitted ASR from the EPA PM (TD)/Sampler dated 11/16/2021 noted that this ASR is not part of a litigation hold at this time.

GPRA/site code (+OU) check OK per ok JE on 11/17/2021.

Explanation of Codes, Units and Qualifiers used on this report**Sample QC Codes:** QC Codes identify the type of sample for quality control purpose.**Units:** Specific units in which results are reported.

___ = Field Sample

inHg = Inch of Mercury

ug/kg = Micrograms per Kilogram

ug/m3 = Micrograms per Cubic Meter

I.D. = Identification, Species or Other ID

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.

U = The analyte was not detected at or above the reporting limit.

UJ = The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.

J = The identification of the analyte is acceptable; the reported value is an estimate.

ASR Number: 9124

Sample Information Summary

01/13/2022

Project ID: TDB7K8

Project Desc: Sunshine Laundry, Fort Dodge

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 - ___		Air	406 S 25th St. IA		12/15/2021	10:42	12/16/2021	08:25	12/17/2021
2 - ___		Air	406 S 25th St. SS		12/15/2021	10:50	12/16/2021	08:26	12/17/2021
101 - ___		Solid	SB-20-(3-4)		12/15/2021	12:00			12/17/2021
102 - ___		Solid	SB-20-(17.5-18.5)		12/15/2021	12:16			12/17/2021
103 - ___		Solid	SB-21-(4-5)		12/15/2021	12:26			12/17/2021
104 - ___		Solid	SB-21-(10-11)		12/15/2021	12:35			12/17/2021
105 - ___		Solid	SB-22-(4-5)		12/15/2021	13:02			12/17/2021
106 - ___		Solid	SB-22-(14-15)		12/15/2021	13:12			12/17/2021
107 - ___		Solid	SB-23-(5-5.5)		12/15/2021	13:31			12/17/2021
108 - ___		Solid	SB-23-(9-10)		12/15/2021	13:37			12/17/2021
109 - ___		Solid	SB-24-(3.5-4.5)		12/15/2021	14:32			12/17/2021
110 - ___		Solid	SB-24-(14-15)		12/15/2021	14:42			12/17/2021
111 - ___		Solid	SB-25-(4-5)		12/15/2021	14:50			12/17/2021
112 - ___		Solid	SB-25-(9-10)		12/15/2021	14:57			12/17/2021
113 - ___		Solid	SB-26-(4-5)		12/15/2021	15:08			12/17/2021
114 - ___		Solid	SB-26-(14-15)		12/15/2021	15:14			12/17/2021

Analysis Comments About Results For This Analysis

1 Air VOA Field Parameters

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples: 1-__ 2-__

Comments:
(N/A)

1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.4I

Samples: 1-__ 2-__

Comments:

Slight Trichloroethene contamination was found in the laboratory method blank. Only samples containing this analyte at a level greater than ten times the contamination level of the blank are reported without being qualified. All samples that contained this analyte but at a level less than ten times the contamination in the blank have the result U-coded indicating that the reporting limit has been raised to the level found in the sample. Samples affected were: 2 for Trichloroethene.

1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap

Lab: Contract Lab Program (Out-Source)

Method: CLP Statement of Work

Basis: Dry

Samples: 101-__ 102-__ 103-__ 104-__ 105-__ 106-__ 107-__
 108-__ 109-__ 110-__ 111-__ 112-__ 113-__ 114-__

Comments:

Acetone was J-coded in samples -102, -103, -107, -109, -110, -111 and -113. 2-Butanone was J-coded in samples -107,-111 and -113. Cyclohexane and Methylcyclohexane were J-Coded in sample -103. Although the analytes in question have been positively identified in the samples, the quantitation is an estimate (J-coded) due to high recoveries of surrogate analytes in these samples. The actual concentration for these analytes may be lower than the reported value.

Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene were UJ-coded in samples -101, -102 and -106. These analytes were not found in the samples at or above the reporting limits; however, the reporting limits are an estimate (UJ-coded) due to low recovery of the surrogate analyte. The actual reporting limits for these analytes may be higher than the reported value.

Bromoform, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, Isopropylbenzene, 1,2,3-Trichlorobenzene and 1,2,4-

Analysis Comments About Results For This Analysis

Trichlorobenzene were UJ-coded in samples -101, -102, -103, -106, -109, -110 and -114. 1,1,1-Trichloroethene, Cyclohexane, Methylcyclohexane, Carbon Tetrachloride, Benzene, Trichloroethene, 1,2-Dichloropropane, Bromodichloromethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 4-Methyl-2-Pentanone, Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, 2-Hexanone, Dibromochloromethane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, m/p-Xylene, o-Xylene, Styrene and 1,1,2,2-Tetrachloroethane were UJ-coded in sample -110. These analytes were not found in the samples at or above the reporting limits; however, the reporting limits are an estimate (UJ-coded) due to low internal standard responses. The actual reporting limits for these analytes may be higher than the reported values.

Trichloroethene was J-coded in sample -109. Although the analyte in question has been positively identified in the sample, the quantitation is an estimate (J-coded) due to high recovery of this analyte in the laboratory matrix spike. The actual concentration for this analyte may be lower than the reported value.

Analysis/ Analyte	Units	1-__	2-__	101-__	102-__
1 Air VOA Field Parameters					
Canister ID	I.D.	631	698		
Regulator ID	I.D.	163	164		
Starting Pressure	inHg	-27.5	-28		
Ending Pressure	inHg	-6.5	-4.5		
1 VOCs in Air Samples in Canisters at Ambient Levels by GC/MS					
Acetone	ug/m3	50	42		
Allyl Chloride	ug/m3	0.32 U	0.32 U		
Benzene	ug/m3	0.43	0.59		
Benzyl Chloride	ug/m3	4.2 U	4.2 U		
Bromodichloromethane	ug/m3	1.4 U	1.4 U		
Bromoform	ug/m3	2.1 U	2.1 U		
Bromomethane	ug/m3	0.78 U	0.78 U		
1,3-Butadiene	ug/m3	0.45 U	0.45 U		
2-Butanone	ug/m3	7.5	12		
Carbon Disulfide	ug/m3	0.63 U	0.63 U		
Carbon Tetrachloride	ug/m3	0.52	0.40		
Chlorobenzene	ug/m3	0.93 U	0.93 U		
Chloroethane	ug/m3	0.53 U	0.53 U		
Chloroform	ug/m3	0.12 U	0.12 U		
Chloromethane	ug/m3	0.94	0.42 U		
Cyclohexane	ug/m3	0.70 U	0.70 U		
Dibromochloromethane	ug/m3	1.7 U	1.7 U		
1,2-Dibromoethane	ug/m3	1.6 U	1.6 U		
1,2-Dichlorobenzene	ug/m3	1.2 U	1.2 U		
1,3-Dichlorobenzene	ug/m3	1.2 U	1.2 U		
1,4-Dichlorobenzene	ug/m3	1.2 U	1.2 U		
Dichlorodifluoromethane	ug/m3	1.7	1.9		
1,1-Dichloroethane	ug/m3	0.82 U	0.82 U		
1,2-Dichloroethane	ug/m3	0.10 U	0.10 U		
1,1-Dichloroethene	ug/m3	0.20 U	0.20 U		
cis-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U		
trans-1,2-Dichloroethene	ug/m3	0.20 U	0.20 U		
1,2-Dichloropropane	ug/m3	0.93 U	0.93 U		
cis-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U		
trans-1,3-Dichloropropene	ug/m3	0.46 U	0.46 U		
1,2-Dichlorotetrafluoroethane	ug/m3	1.4 U	1.4 U		
1,4-Dioxane	ug/m3	0.73 U	0.73 U		
Ethyl Acetate	ug/m3	0.73 U	0.73 U		
Ethyl Benzene	ug/m3	2.1	2.2		
4-Ethyltoluene	ug/m3	0.99 U	1.2		
Heptane	ug/m3	0.83 U	0.83 U		
Hexachlorobutadiene	ug/m3	2.2 U	2.2 U		
Hexane	ug/m3	0.71 U	0.71 U		
2-Hexanone	ug/m3	1.7 U	1.7 U		
Methyl tert-butyl ether	ug/m3	0.73 U	0.73 U		

Analysis/ Analyte	Units	1-__	2-__	101-__	102-__
Methylene Chloride	ug/m3	0.70 U	0.70 U		
4-Methyl-2-Pentanone	ug/m3	1.7 U	1.7 U		
2-Propanol	ug/m3	1.3	0.93		
Propene	ug/m3	0.35 U	0.35 U		
Styrene	ug/m3	0.86 U	1.2		
1,1,2,2-Tetrachloroethane	ug/m3	1.4 U	1.4 U		
Tetrachloroethene	ug/m3	1.5	33		
Tetrahydrofuran	ug/m3	50	88		
Toluene	ug/m3	1.7	4.0		
1,2,4-Trichlorobenzene	ug/m3	1.5 U	1.5 U		
1,1,1-Trichloroethane	ug/m3	1.1 U	1.1 U		
1,1,2-Trichloroethane	ug/m3	1.1 U	1.1 U		
Trichloroethene	ug/m3	0.14 U	0.24 U		
Trichlorofluoromethane	ug/m3	1.1	1.2		
1,1,2-Trichlorotrifluoroethane	ug/m3	1.5 U	1.5 U		
1,2,4-Trimethylbenzene	ug/m3	0.99 U	5.7		
1,3,5-Trimethylbenzene	ug/m3	0.99 U	1.2		
2,2,4-Trimethylpentane	ug/m3	0.94 U	0.94 U		
Vinyl Acetate	ug/m3	0.82	0.71 U		
Vinyl Bromide	ug/m3	0.88 U	0.88 U		
Vinyl Chloride	ug/m3	0.13 U	0.13 U		
m and/or p-Xylene	ug/m3	9.9	7.7		
o-Xylene	ug/m3	3.0	3.1		

1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap

Acetone	ug/kg			18	47 J
Benzene	ug/kg			5.7 U	4.3 U
Bromochloromethane	ug/kg			5.7 U	4.3 U
Bromodichloromethane	ug/kg			5.7 U	4.3 U
Bromoform	ug/kg			5.7 UJ	4.3 UJ
Bromomethane	ug/kg			5.7 U	4.3 U
2-Butanone	ug/kg			11 U	8.7 U
Carbon Disulfide	ug/kg			5.7 U	4.3 U
Carbon Tetrachloride	ug/kg			5.7 U	4.3 U
Chlorobenzene	ug/kg			5.7 UJ	4.3 UJ
Chloroethane	ug/kg			5.7 U	4.3 U
Chloroform	ug/kg			5.7 U	4.3 U
Chloromethane	ug/kg			5.7 U	4.3 U
Cyclohexane	ug/kg			5.7 U	4.3 U
1,2-Dibromo-3-Chloropropane	ug/kg			5.7 UJ	4.3 UJ
Dibromochloromethane	ug/kg			5.7 U	4.3 U
1,2-Dibromoethane	ug/kg			5.7 U	4.3 U
1,2-Dichlorobenzene	ug/kg			5.7 UJ	4.3 UJ
1,3-Dichlorobenzene	ug/kg			5.7 UJ	4.3 UJ
1,4-Dichlorobenzene	ug/kg			5.7 UJ	4.3 UJ
Dichlorodifluoromethane	ug/kg			5.7 U	4.3 U

ASR Number: 9124
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

01/13/2022

Analysis/ Analyte	Units	1-__	2-__	101-__	102-__
1,1-Dichloroethane	ug/kg			5.7 U	4.3 U
1,2-Dichloroethane	ug/kg			5.7 U	4.3 U
1,1-Dichloroethene	ug/kg			5.7 U	4.3 U
cis-1,2-Dichloroethene	ug/kg			5.7 U	4.3 U
trans-1,2-Dichloroethene	ug/kg			5.7 U	4.3 U
1,2-Dichloropropane	ug/kg			5.7 U	4.3 U
cis-1,3-Dichloropropene	ug/kg			5.7 U	4.3 U
trans-1,3-Dichloropropene	ug/kg			5.7 U	4.3 U
Ethyl Benzene	ug/kg			5.7 U	4.3 U
2-Hexanone	ug/kg			11 U	8.7 U
Isopropylbenzene	ug/kg			5.7 UJ	4.3 UJ
Methyl Acetate	ug/kg			5.7 U	4.3 U
Methyl tert-butyl ether	ug/kg			5.7 U	4.3 U
Methylcyclohexane	ug/kg			5.7 U	4.3 U
Methylene Chloride	ug/kg			5.7 U	4.3 U
4-Methyl-2-Pentanone	ug/kg			11 U	8.7 U
Styrene	ug/kg			5.7 U	4.3 U
1,1,2,2-Tetrachloroethane	ug/kg			5.7 U	4.3 U
Tetrachloroethene	ug/kg			9.4	4.3 U
Toluene	ug/kg			5.7 U	4.3 U
1,2,3-Trichlorobenzene	ug/kg			5.7 UJ	4.3 UJ
1,2,4-Trichlorobenzene	ug/kg			5.7 UJ	4.3 UJ
1,1,1-Trichloroethane	ug/kg			5.7 U	4.3 U
1,1,2-Trichloroethane	ug/kg			5.7 U	4.3 U
Trichloroethene	ug/kg			5.7 U	4.3 U
Trichlorofluoromethane	ug/kg			5.7 U	4.3 U
1,1,2-Trichlorotrifluoroethane	ug/kg			5.7 U	4.3 U
Vinyl Chloride	ug/kg			5.7 U	4.3 U
m and/or p-Xylene	ug/kg			5.7 U	4.3 U
o-Xylene	ug/kg			5.7 U	4.3 U

Analysis/ Analyte	Units	103-__	104-__	105-__	106-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	41 J	14 U	11	15 U
Benzene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Bromochloromethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Bromodichloromethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Bromoform	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
Bromomethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
2-Butanone	ug/kg	11 U	14 U	7.6 U	15 U
Carbon Disulfide	ug/kg	5.6 U	7.0 U	6.8	7.5 U
Carbon Tetrachloride	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Chlorobenzene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 UJ
Chloroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Chloroform	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Chloromethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Cyclohexane	ug/kg	6.2 J	7.0 U	3.8 U	7.5 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
Dibromochloromethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,2-Dibromoethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,2-Dichlorobenzene	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
1,3-Dichlorobenzene	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
1,4-Dichlorobenzene	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
Dichlorodifluoromethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,1-Dichloroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,2-Dichloroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,1-Dichloroethene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
cis-1,2-Dichloroethene	ug/kg	5.6 U	19	3.8 U	7.5 U
trans-1,2-Dichloroethene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,2-Dichloropropane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
cis-1,3-Dichloropropene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
trans-1,3-Dichloropropene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Ethyl Benzene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
2-Hexanone	ug/kg	11 U	14 U	7.6 U	15 U
Isopropylbenzene	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 U
Methyl Acetate	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Methyl tert-butyl ether	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Methylcyclohexane	ug/kg	16 J	7.0 U	3.8 U	7.5 U
Methylene Chloride	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
4-Methyl-2-Pentanone	ug/kg	11 U	14 U	7.6 U	15 U
Styrene	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,1,2,2-Tetrachloroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Tetrachloroethene	ug/kg	5.6 U	120	8.8	7.5 U
Toluene	ug/kg	7.0	7.0 U	3.8 U	8
1,2,3-Trichlorobenzene	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
1,2,4-Trichlorobenzene	ug/kg	5.6 UJ	7.0 U	3.8 U	7.5 UJ
1,1,1-Trichloroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,1,2-Trichloroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U

ASR Number: 9124
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

01/13/2022

Analysis/ Analyte	Units	103-__	104-__	105-__	106-__
Trichloroethene	ug/kg	5.6 U	9.3	3.8 U	7.5 U
Trichlorofluoromethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
Vinyl Chloride	ug/kg	5.6 U	7.0 U	3.8 U	7.5 U
m and/or p-Xylene	ug/kg	16	7.0 U	3.8 U	7.5 U
o-Xylene	ug/kg	16	7.0 U	3.8 U	7.5 U

Analysis/ Analyte	Units	107-__	108-__	109-__	110-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	270 J	13 U	32 J	19 J
Benzene	ug/kg	11	6.6 U	5.8 U	4.3 UJ
Bromochloromethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Bromodichloromethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
Bromoform	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
Bromomethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
2-Butanone	ug/kg	68 J	13 U	12 U	8.7 U
Carbon Disulfide	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Carbon Tetrachloride	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
Chlorobenzene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
Chloroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Chloroform	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Chloromethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Cyclohexane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
1,2-Dibromo-3-Chloropropane	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
Dibromochloromethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
1,2-Dibromoethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
1,2-Dichlorobenzene	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
1,3-Dichlorobenzene	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
1,4-Dichlorobenzene	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
Dichlorodifluoromethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
1,1-Dichloroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
1,2-Dichloroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
1,1-Dichloroethene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
cis-1,2-Dichloroethene	ug/kg	5.0 U	43	5.8 U	4.3 U
trans-1,2-Dichloroethene	ug/kg	5.0 U	9.7	5.8 U	4.3 U
1,2-Dichloropropane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
cis-1,3-Dichloropropene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
trans-1,3-Dichloropropene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
Ethyl Benzene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
2-Hexanone	ug/kg	9.9 U	13 U	12 U	8.7 UJ
Isopropylbenzene	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
Methyl Acetate	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Methyl tert-butyl ether	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Methylcyclohexane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
Methylene Chloride	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
4-Methyl-2-Pentanone	ug/kg	9.9 U	13 U	12 U	8.7 UJ
Styrene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
1,1,2,2-Tetrachloroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
Tetrachloroethene	ug/kg	5.0 U	220	51	4.3 UJ
Toluene	ug/kg	11	6.6 U	5.8 U	4.3 UJ
1,2,3-Trichlorobenzene	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
1,2,4-Trichlorobenzene	ug/kg	5.0 U	6.6 U	5.8 UJ	4.3 UJ
1,1,1-Trichloroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
1,1,2-Trichloroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ

ASR Number: 9124
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

01/13/2022

Analysis/ Analyte	Units	107-__	108-__	109-__	110-__
Trichloroethene	ug/kg	5.0 U	35	11 J	4.3 UJ
Trichlorofluoromethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
Vinyl Chloride	ug/kg	5.0 U	6.6 U	5.8 U	4.3 U
m and/or p-Xylene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ
o-Xylene	ug/kg	5.0 U	6.6 U	5.8 U	4.3 UJ

Analysis/ Analyte	Units	111-__	112-__	113-__	114-__
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	85 J	15 U	88 J	10 U
Benzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Bromochloromethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Bromodichloromethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Bromoform	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
Bromomethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
2-Butanone	ug/kg	20 J	15 U	20 J	10 U
Carbon Disulfide	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Carbon Tetrachloride	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Chlorobenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Chloroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Chloroform	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Chloromethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Cyclohexane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
Dibromochloromethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,2-Dibromoethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,2-Dichlorobenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
1,3-Dichlorobenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
1,4-Dichlorobenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
Dichlorodifluoromethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,1-Dichloroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,2-Dichloroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,1-Dichloroethene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
cis-1,2-Dichloroethene	ug/kg	5.5 U	16	9.6	19
trans-1,2-Dichloroethene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,2-Dichloropropane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
cis-1,3-Dichloropropene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
trans-1,3-Dichloropropene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Ethyl Benzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
2-Hexanone	ug/kg	11 U	15 U	17 U	10 U
Isopropylbenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
Methyl Acetate	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Methyl tert-butyl ether	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Methylcyclohexane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Methylene Chloride	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
4-Methyl-2-Pentanone	ug/kg	11 U	15 U	17 U	10 U
Styrene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,1,2,2-Tetrachloroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Tetrachloroethene	ug/kg	5.5 U	11	8.5 U	5.1 U
Toluene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,2,3-Trichlorobenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
1,2,4-Trichlorobenzene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 UJ
1,1,1-Trichloroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,1,2-Trichloroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U

ASR Number: 9124
Project ID: TDB7K8

RLAB Approved Sample Analysis Results
Project Desc: Sunshine Laundry, Fort Dodge

01/13/2022

Analysis/ Analyte	Units	111-__	112-__	113-__	114-__
Trichloroethene	ug/kg	5.5 U	16	8.5 U	5.1 U
Trichlorofluoromethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
Vinyl Chloride	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
m and/or p-Xylene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U
o-Xylene	ug/kg	5.5 U	7.7 U	8.5 U	5.1 U

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APPENDIX H

**SUPERFUND REMOVAL SITE EVALUATION AND REMOVAL PRELIMINARY
ASSESSMENT FORM**

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

I. SITE NAME AND LOCATION:

NAME: Sunshine Laundry

ADDRESS OR OTHER LOCATION IDENTIFIER: Rainbow Cleaners; 2422 5th Ave. S. Former Dry Cleaner

CITY: Fort Dodge

STATE: IA

ZIP: 50501

DIRECTIONS TO SITE: From intersection of U.S. Highways 20 and 169 south of Fort Dodge, take Hwy 169 north to Business Hwy 20 (Kenyon Rd), turn northeast into Fort Dodge. Kenyon Road bends east and becomes 5th Ave. S. Proceed east about 1 mile to site at 24225th Ave. S. (north side).

MAP ATTACHED: See Figure 1 of ISA/RSE report.

II. PROGRAM CONTACTS:

REQUESTED BY: Todd Davis

DATE OF REQUEST: 04/05/2021

AGENCY/OFFICE: U.S. EPA Region 7 Superfund Division

MAILING ADDRESS: 11201 Renner Boulevard

CITY: Lenexa

STATE: Kansas

ZIP: 66219

TELEPHONE: (913) 551-7749

FAX: (913) 551-7948

EVALUATOR: Jenna Mead

AGENCY/OFFICE: Tetra Tech, Inc

MAILING ADDRESS: 415 Oak Street

CITY: Kansas City

STATE: MO

ZIP: 64106

TELEPHONE: 816-412-1771

FAX: 816-410-1748

III. REMOVAL SITE EVALUATION CRITERIA [40 CFR 300.410(e)]:

IS THERE A RELEASE AS DEFINED BY THE NCP:

YES or NO

EXPLAIN: A release of tetrachloroethene (PCE) to soil and groundwater has occurred.

(A RELEASE is defined as any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment of barrels, containers, and other closed receptacles containing any hazardous substances or pollutant or contaminant), but excludes: workplace exposures; engine exhaust emissions; nuclear releases otherwise regulated; and the normal application of fertilizer. For purposes of the NCP, release also means threat of release.)

IS THE SOURCE A FACILITY OR VESSEL AS DEFINED BY THE NCP:

YES or NO

EXPLAIN: The area where the PCE was released is considered a facility as defined by the NCP.

(A FACILITY is defined as any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or POTW), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel. A VESSEL is defined as any description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel.)

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

DOES THE RELEASE INVOLVE A HAZARDOUS SUBSTANCE, OR POLLUTANT OR CONTAMINANT AS DEFINED BY THE NCP: YES or NO

EXPLAIN: PCE is considered a hazardous substance as defined by the NCP.

(A HAZARDOUS SUBSTANCE means any substance, element, compound, mixture, solution, hazardous waste, toxic pollutant, hazardous air pollutant, or imminently hazardous chemical substance or mixture designated pursuant to the CWA, CERCLA, SDWA, CAA or TSCA. The term does not include petroleum products, natural gas, natural gas liquids, liquefied natural gas, synthetic gas or mixtures of natural and synthetic gas. The definition of POLLUTANT or CONTAMINANT includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions or physical deformations, in such organisms or their offspring. The term does not include petroleum products, natural gas, natural gas liquids, liquefied natural gas, synthetic gas or mixtures of natural and synthetic gas).

IS THE RELEASE SUBJECT TO THE LIMITATIONS ON RESPONSE: YES or NO

EXPLAIN: The release does not meet the criteria for limitations on response.

(The LIMITATIONS ON RESPONSE provisions of the NCP (40 CFR 300.400(B) states that removals shall not be undertaken in response to a release: of a naturally occurring substance in its unaltered or natural form; from products that are a part of the structure of, and result in exposure within, residential buildings or business or community structures; or into public or private drinking water supplies due to deterioration of the system through ordinary use.)

DOES THE QUANTITY OR CONCENTRATION WARRANT RESPONSE: YES or NO

EXPLAIN: High PCE concentrations in soil and groundwater and in sub-slab vapors at on-site building suggests that follow-up Superfund response is warranted. TCE concentration in soil gas near the adjoining property also exceeded the vapor intrusion screening level (VISL).

HAS A PRP BEEN IDENTIFIED: YES or NO

EXPLAIN: Rainbow Cleaners formerly operated the facility from about 1984 to 1992, when the business was sold and became Sunshine Laundry. No dry cleaning reportedly occurred during Sunshine Laundry's years of operation.

IV. CONDITIONS TO WARRANT REMOVAL [40 CFR 300.415(b)(2)]:

ACTUAL OR POTENTIAL EXPOSURE TO HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS: YES or NO

EXPLAIN:

PCE has been detected in indoor air and sub-slab vapors at or near the site; however, levels were below EPA removal management levels (RML). TCE in one soil-gas sample exceeded the RML; however, the distance of the sample location from the nearby building was greater than the recommended distance (within 10 feet) in the EPA guidance.

ACTUAL OR POTENTIAL CONTAMINATION OF DRINKING WATER SUPPLIES: YES or NO

EXPLAIN:

Concentrations of PCE up to 3,700 micrograms per liter (µg/L) have been detected in groundwater samples collected at the site. No private water wells were identified in the site area, which is supplied by municipal water sourced from wells near the Des Moines River about 1-2 miles west or southwest of the site.

HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS IN DRUMS, BARRELS, OR BULK STORAGE CONTAINERS: YES or NO

EXPLAIN: No hazardous substances stored in bulk storage containers are at the site.

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

HIGH LEVELS OF HAZARDOUS SUBSTANCES, POLLUTANTS, OR CONTAMINANTS IN NEAR-SURFACE SOILS: YES or NO

EXPLAIN: The surface is largely covered by a deteriorated asphalt surface. Membrane interface probe (MIP) logging indicated lower levels of chlorinated compounds in near surface soils, with increasing concentrations at greater depth. The shallowest soil confirmation sample, collected within 1-2 feet below ground surface (bgs), contained PCE at 6 micrograms per kilogram (mg/kg). Highest soil contamination levels occurred between about 7 feet bgs and top of groundwater at about 15 feet bgs.

CONDITIONS SUSCEPTIBLE TO IMPACT FROM ADVERSE WEATHER CONDITIONS: YES or NO

EXPLAIN: No conditions susceptible to adverse weather conditions are present. The site is covered with asphalt (poor condition), a building, and small landscaped areas.

THREAT OF FIRE OR EXPLOSION: YES or NO

EXPLAIN: No threat of fire or explosion exists at the site.

POTENTIAL FOR OTHER FEDERAL OR STATE RESPONSE MECHANISMS: YES or NO

EXPLAIN: The Iowa Department of Natural Resources was involved with previous investigations regarding the site. The City of Fort Dodge requested EPA conduct this assessment.

OTHER SITUATIONS OR FACTORS WHICH POSE A THREAT: YES or NO

EXPLAIN: Demolition of the building and current parking lot for reconstruction as a City parking lot could expose construction workers to contaminated soil, shallow groundwater, and vapors.

V. POTENTIAL REMOVAL ACTIONS [40 CFR 300.415(d)]:

(NOTE: The following identifies potential removal actions which may be determined to be appropriate pending further review and study. The proposed actions should be considered preliminary proposals and are subject to change.)

SITE SECURITY: YES or NO

EXPLAIN: Provision of site security is not required at the site.

DRAINAGE CONTROL: YES or NO

EXPLAIN: Drainage control is not required at the site.

STABILIZATION OR REMOVAL OF SURFACE IMPOUNDMENTS: YES or NO

EXPLAIN: No surface impoundments exist at the site.

CAPPING OF CONTAMINATED SOIL: YES or NO

EXPLAIN: Capping of contaminated soil as part of the proposed conversion of the site into a parking lot would prevent contact with surface soils; however, contamination could continue to migrate into groundwater.

USE OF CHEMICALS TO CONTROL/RETARD SPREAD OF CONTAMINATION: YES or NO

EXPLAIN: Injection of remediation fluids to chemically treat contaminated subsurface media may be an option at the site.

CONTAMINATED SOIL EXCAVATION: YES or NO

EXPLAIN: Excavation of contaminated soils at the site may prevent further groundwater contamination and vapor intrusion into overlying buildings.

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

REMOVAL OF DRUMS, TANKS, OR BULK STORAGE CONTAINERS:

YES or NO

EXPLAIN: No drums, tanks, or bulk storage containers are present at the site.

**CONTAINMENT, TREATMENT, OR DISPOSAL OF HAZARDOUS SUBSTANCES,
POLLUTANTS, OR CONTAMINANTS:**

YES or NO

EXPLAIN: Excavation and disposal of contaminated soil and/or chemical or thermal treatment of contaminated soil and/or groundwater are also possibilities. Chemical treatment of contaminated groundwater is also possible.

PROVIDE ALTERNATIVE WATER SUPPLIES:

YES or NO

EXPLAIN: Although elevated concentrations of PCE have been detected in groundwater samples, no contaminated drinking water supplies have been identified at this time. The City of Fort Dodge, Iowa supplies drinking water in the area.

SUPERFUND REMOVAL SITE EVALUATION and REMOVAL PRELIMINARY ASSESSMENT

VI. REMOVAL SITE EVALUATION DETERMINATION AND REMOVAL PRELIMINARY ASSESSMENT FINDINGS AND RECOMMENDATIONS:

REMOVAL NOT WARRANTED—REMOVAL SITE EVALUATION TERMINATED

(Cite one or more of the criteria from SECTION III. REMOVAL SITE EVALUATION CRITERIA, as the basis for the above determination.)

<input type="checkbox"/>	NOT A RELEASE	<input type="checkbox"/>	NOT A FACILITY OR VESSEL
<input type="checkbox"/>	NOT A HAZARDOUS SUBSTANCE OR POLLUTANT OR CONTAMINANT	<input type="checkbox"/>	SUBJECT TO RESPONSE LIMITATIONS
<input type="checkbox"/>	INSUFFICIENT QUANTITY OR CONCENTRATION	<input type="checkbox"/>	WILLING/CAPABLE PRP IDENTIFIED

COMMENT:

REMOVAL RECOMMENDED [EMERGENCY TIME-CRITICAL NON-TIME-CRITICAL]

(Cite one or more of the conditions or factors from Section IV. CONDITIONS TO WARRANT A REMOVAL ACTION, as a basis for recommending that a removal action be conducted.)

<input checked="" type="checkbox"/>	EXPOSURE TO HAZARDOUS SUBSTANCES OR POLLUTANTS OR CONTAMINANTS	<input type="checkbox"/>	ADVERSE WEATHER IMPACTS
<input type="checkbox"/>	CONTAMINATED DRINKING WATER	<input type="checkbox"/>	FIRE/EXPLOSION THREAT
<input type="checkbox"/>	DRUMS, BARRELS OR CONTAINERS	<input type="checkbox"/>	NO OTHER RESPONSE MECHANISM
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	CONTAMINATED SOIL
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	OTHER FACTORS

(Identify one or more of the removal actions listed in Section V. REMOVAL ACTIONS WHICH MAY BE APPROPRIATE, as examples of the types of response actions which are recommended.)

<input type="checkbox"/>	SITE SECURITY	<input type="checkbox"/>	DRAINAGE CONTROL	<input type="checkbox"/>	IMPOUNDMENT STABILIZATION
<input type="checkbox"/>	REMOVAL OF DRUMS, BARRELS, ETC.	<input type="checkbox"/>	SOIL CAPPING	<input checked="" type="checkbox"/>	SOIL EXCAVATION
<input checked="" type="checkbox"/>	CONTAIN/TREAT/DISPOSE OF WASTES	<input checked="" type="checkbox"/>	CHEMICAL CONTROLS	<input type="checkbox"/>	ALT. DRINKING WATER SUPPLIES

COMMENT: High PCE concentrations (31,000 mg/kg in soils and 3,700 µg/L in groundwater) have been detected at the site, indicating presence of a significant amount of PCE in site media. These high concentrations at the source area will continue to leach to groundwater and migrate, potentially resulting in a vapor intrusion hazard.

ADDITIONAL REMOVAL SITE EVALUATION RECOMMENDED

(Cite one or more of the conditions or factors from Section IV. CONDITIONS TO WARRANT A REMOVAL ACTION, as a basis for recommending that additional site evaluation be performed.)

<input checked="" type="checkbox"/>	EXPOSURE TO HAZARDOUS SUBSTANCES OR POLLUTANTS OR CONTAMINANTS	<input type="checkbox"/>	ADVERSE WEATHER IMPACTS
<input type="checkbox"/>	CONTAMINATED DRINKING WATER	<input type="checkbox"/>	FIRE/EXPLOSION THREAT
<input type="checkbox"/>	DRUMS, BARRELS OR CONTAINERS	<input type="checkbox"/>	NO OTHER RESPONSE MECHANISM
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	CONTAMINATED SOIL
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	OTHER FACTORS

(Identify one or more of the removal actions listed in Section V. REMOVAL ACTIONS WHICH MAY BE APPROPRIATE, as examples of the types of response actions which may be appropriate pending the results of further site evaluation.)

<input type="checkbox"/>	SITE SECURITY	<input type="checkbox"/>	DRAINAGE CONTROL	<input type="checkbox"/>	IMPOUNDMENT STABILIZATION
<input type="checkbox"/>	REMOVAL OF DRUMS, BARRELS, ETC.	<input type="checkbox"/>	SOIL CAPPING	<input checked="" type="checkbox"/>	SOIL EXCAVATION
<input checked="" type="checkbox"/>	CONTAIN/TREAT/DISPOSE OF WASTE	<input checked="" type="checkbox"/>	CHEMICAL CONTROLS	<input type="checkbox"/>	ALTERNATIVE DRINKING WATER SUPPLIES

COMMENT: Off-site migration of PCE-contaminated groundwater to the adjoining property has been documented.

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

VII. ADDITIONAL INFORMATION OR COMMENTS:

Soil, soil gas, and shallow groundwater at the site have been impacted by PCE and associated degradation products. The property has been proposed as the site of a City parking lot. The on-site building likely would be demolished, exposing contaminated soils beneath the structure. Intrusive construction activities at the existing parking lot could also expose contaminated soils.

EPA USE ONLY

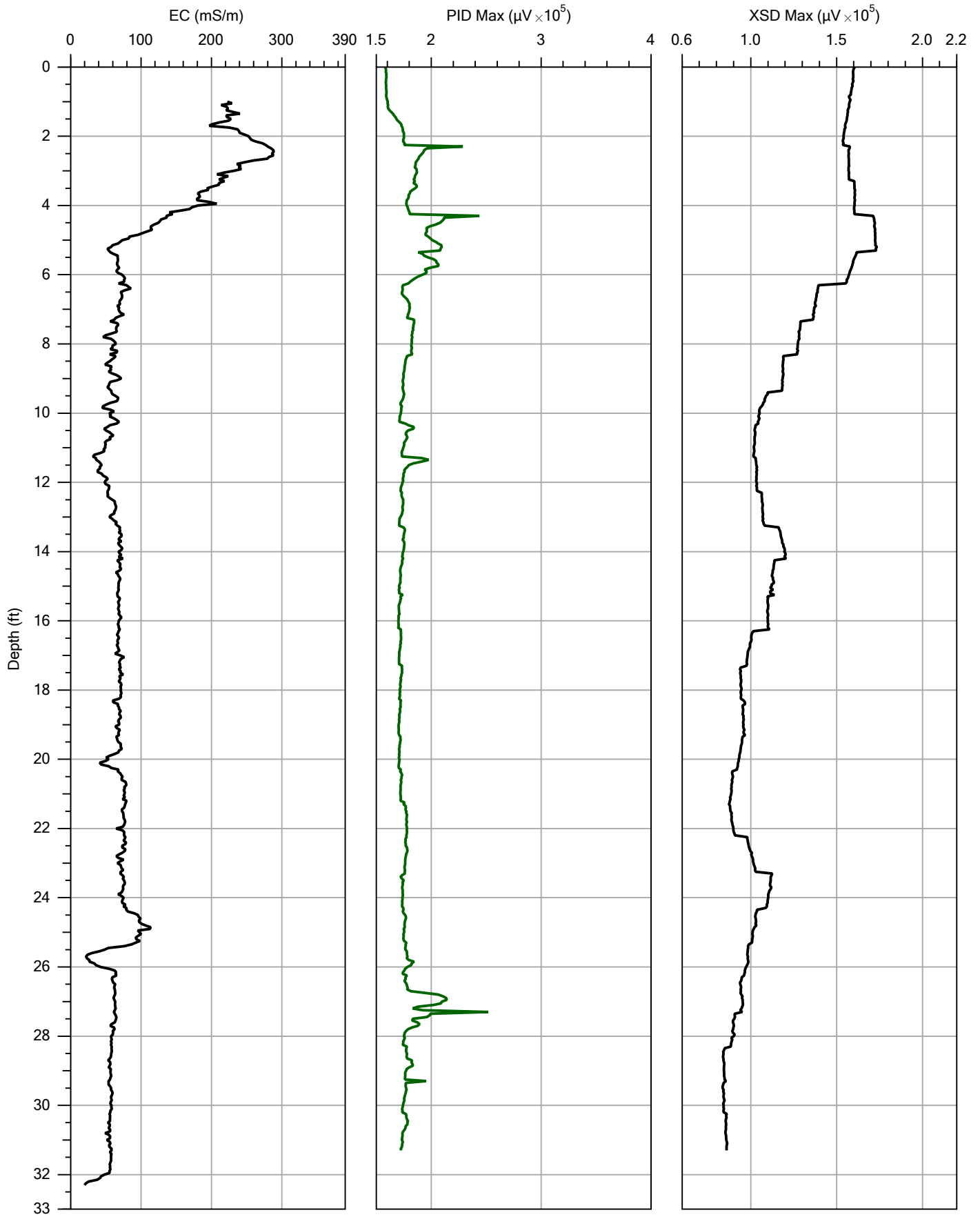
VIII. CERTIFICATION:

SIGNATURE:
POSITION/TITLE:
OFFICE/AGENCY:

DATE:

ATTACHMENT 1

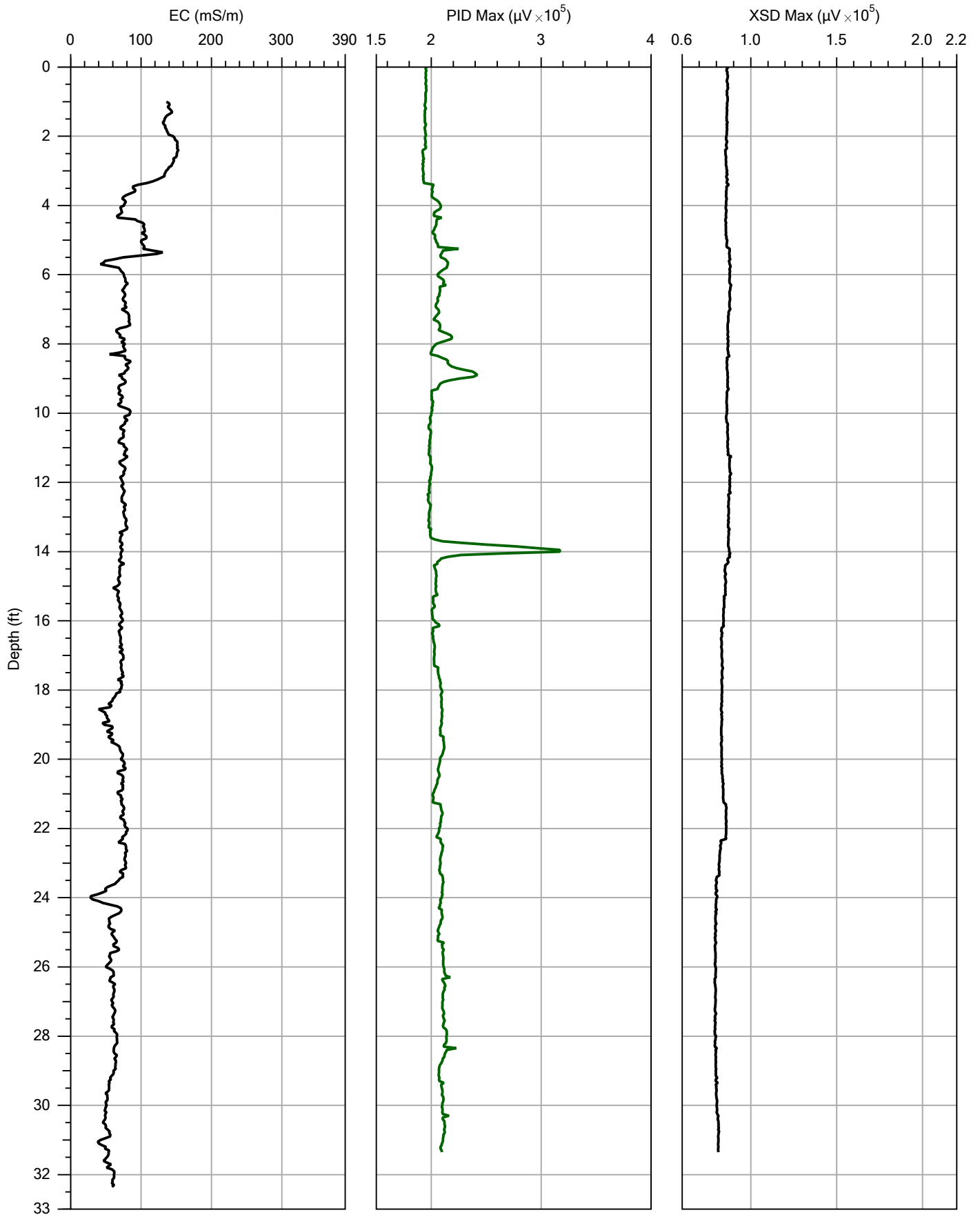
**PLAINS ENVIRONMENTAL SERVICES MEMBRANE INTERFACE PROBE AND
ELECTRICAL CONDUCTIVITY LOGS**



Company: Plains Environmental Services
 Project ID: Sunshine Cleaners

Operator: Jason A.
 Client: Tetra Tech

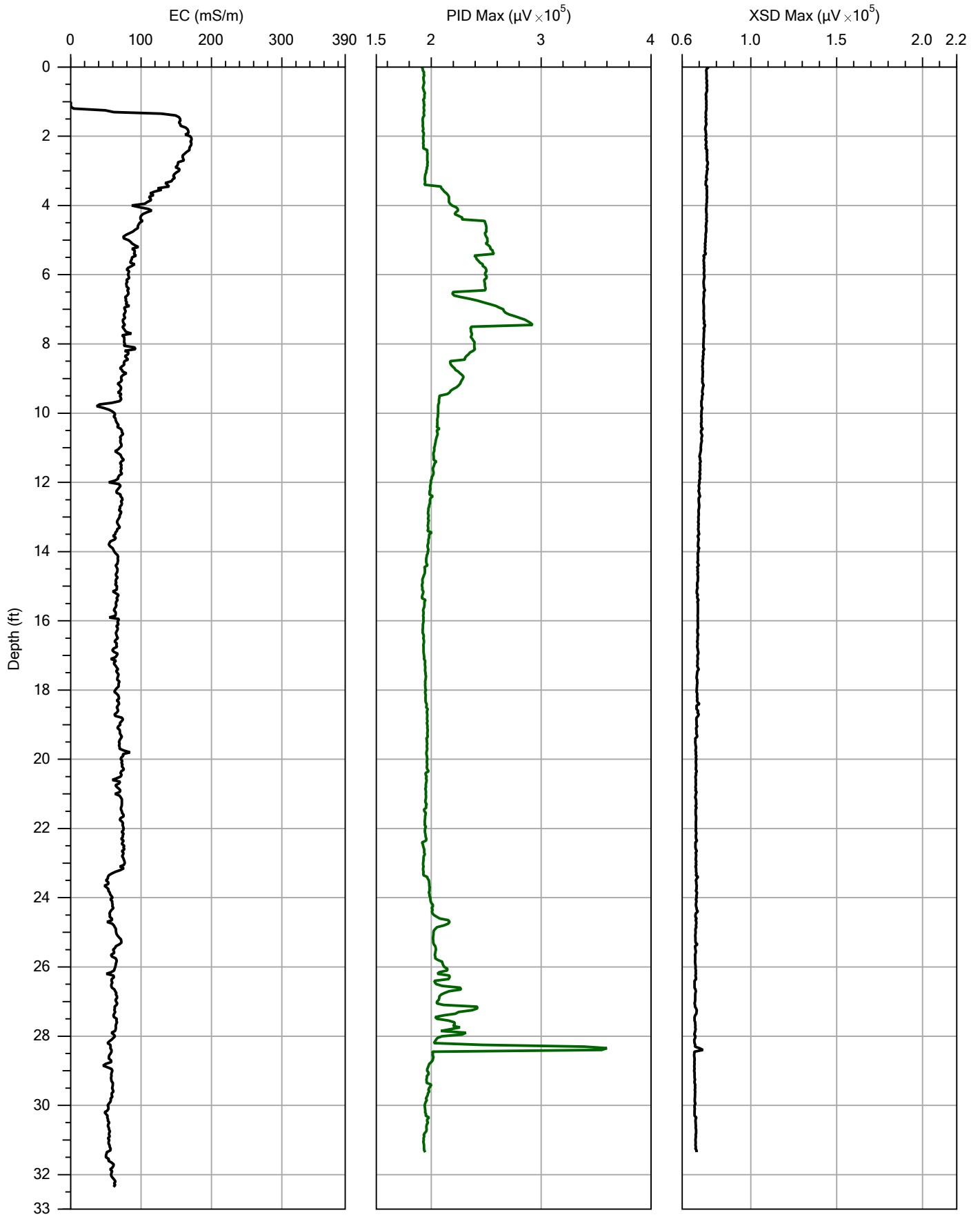
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Date:	6/7/2021
Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

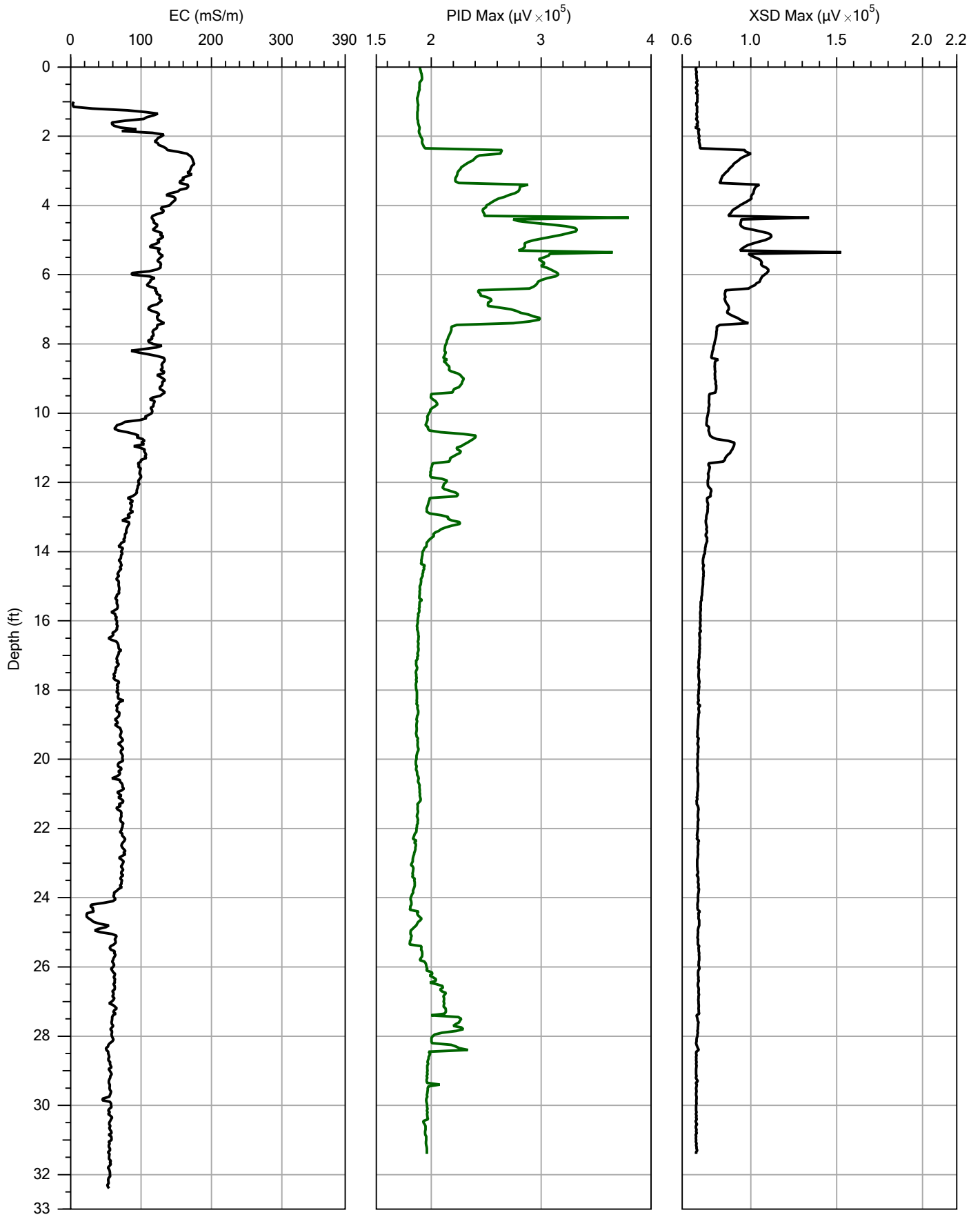
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

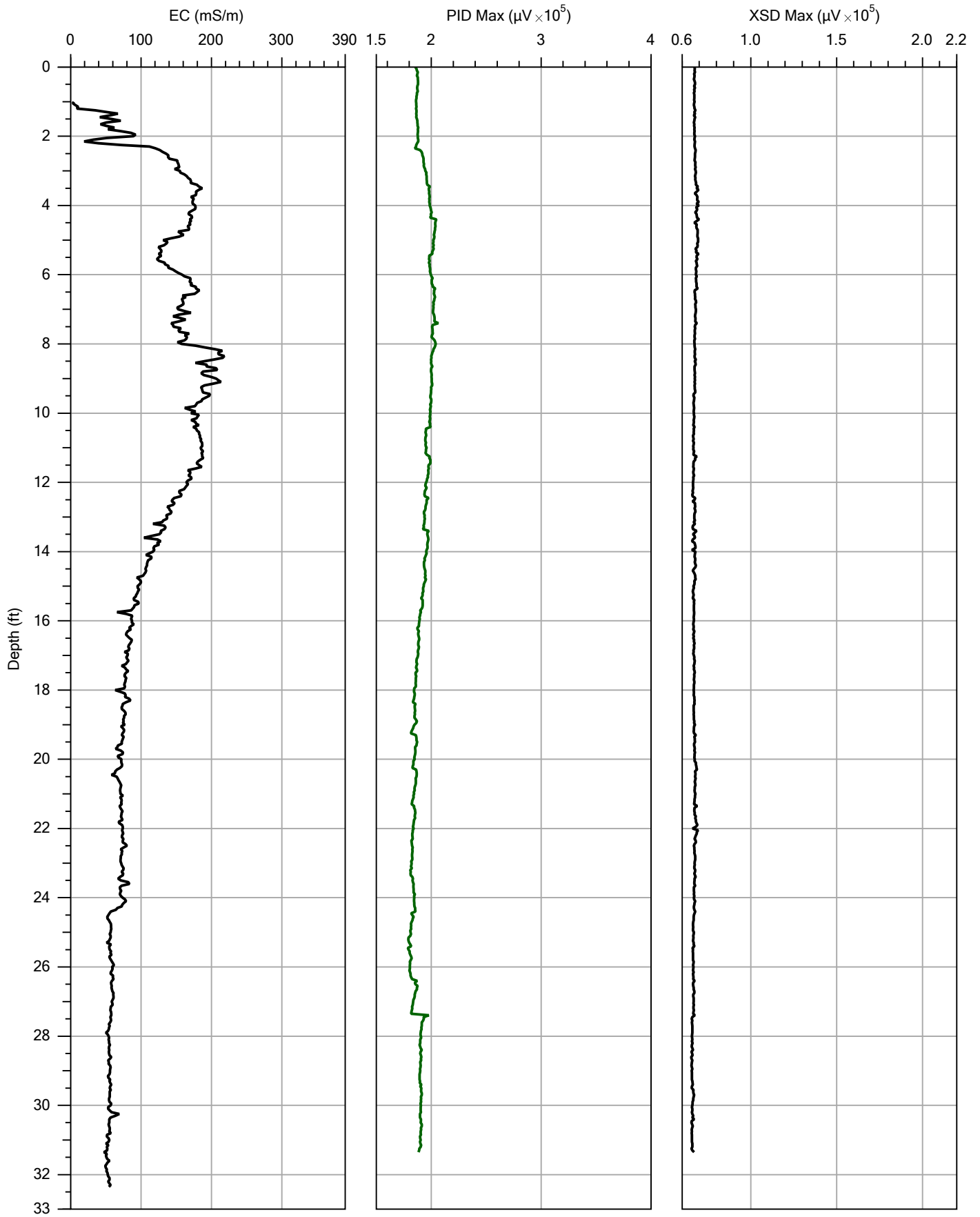
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

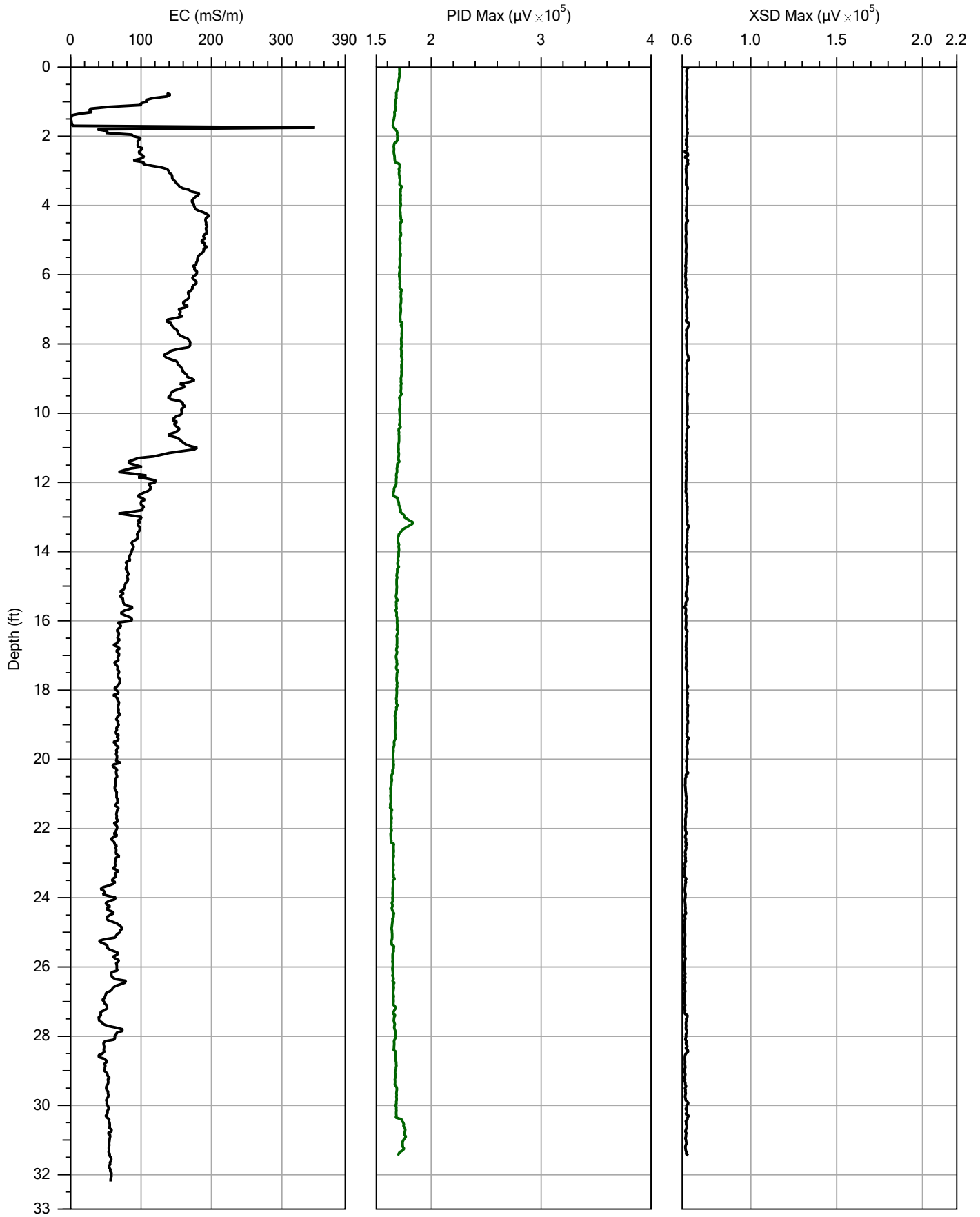
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Location:	Fort Dodge, Iowa



Company: Plains Environmental Services
 Project ID: Sunshine Cleaners

Operator: Jason A.
 Client: Tetra Tech

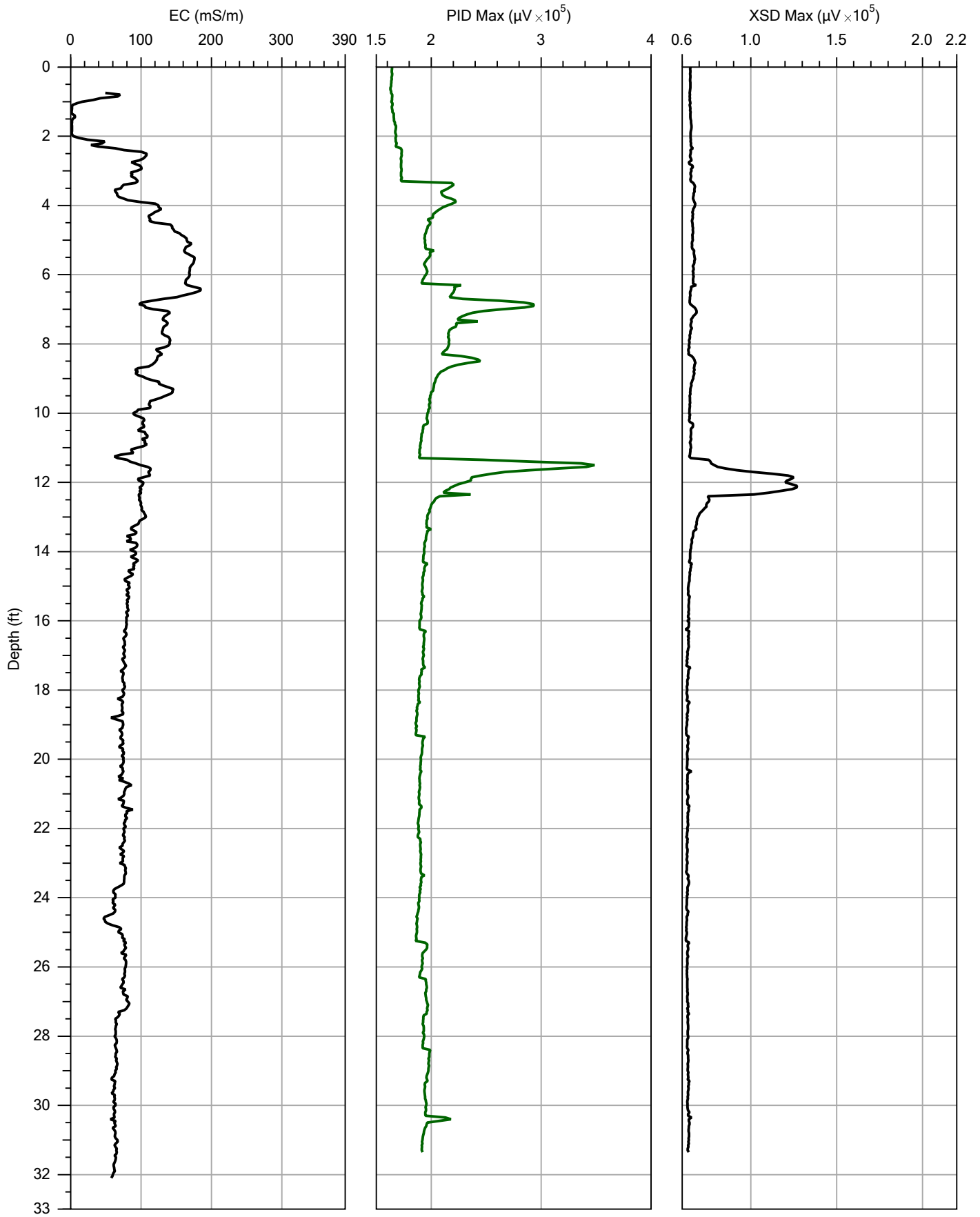
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Location:	Fort Dodge, Iowa



Company: Plains Environmental Services
 Project ID: Sunshine Cleaners

Operator: Jason A.
 Client: Tetra Tech

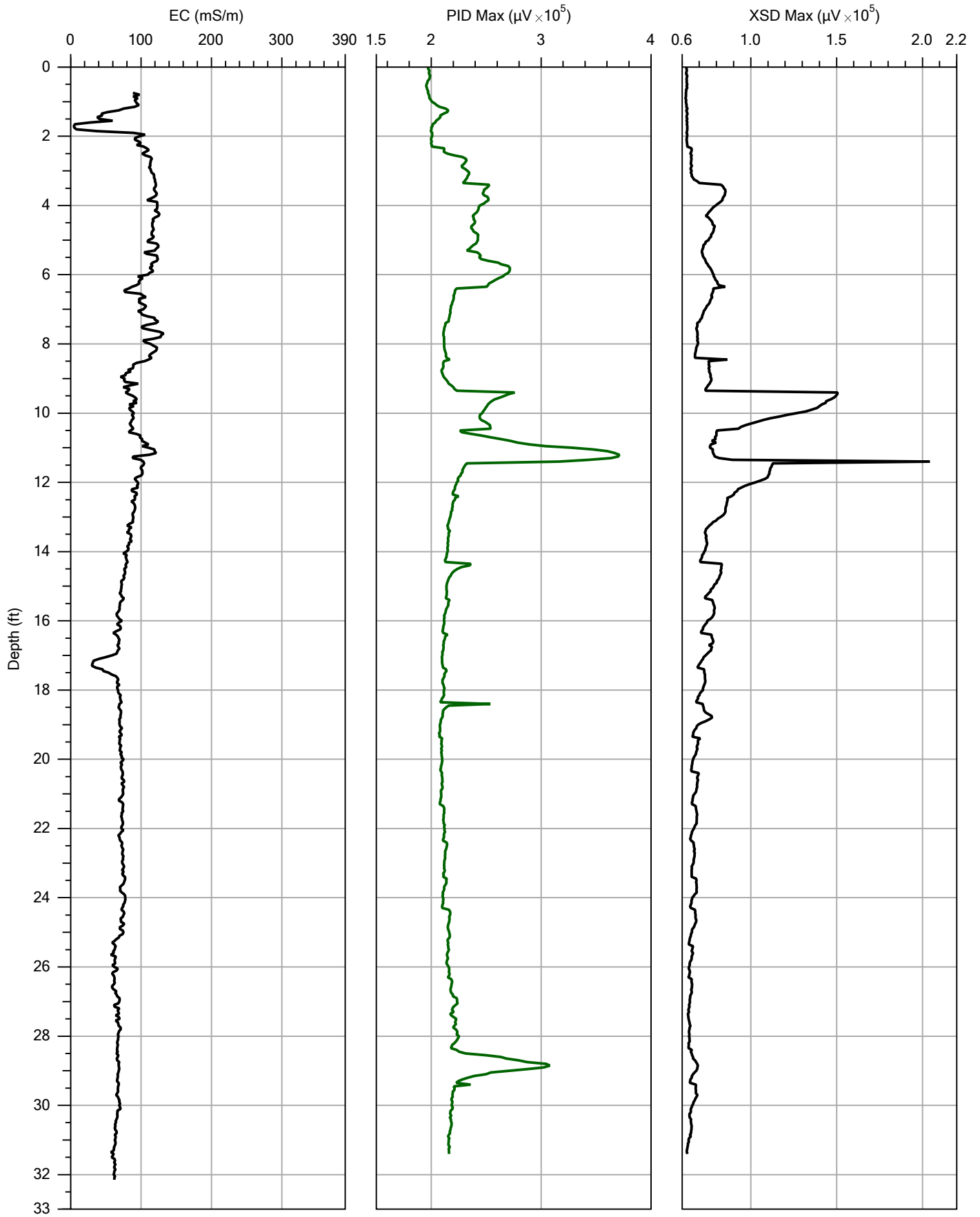
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

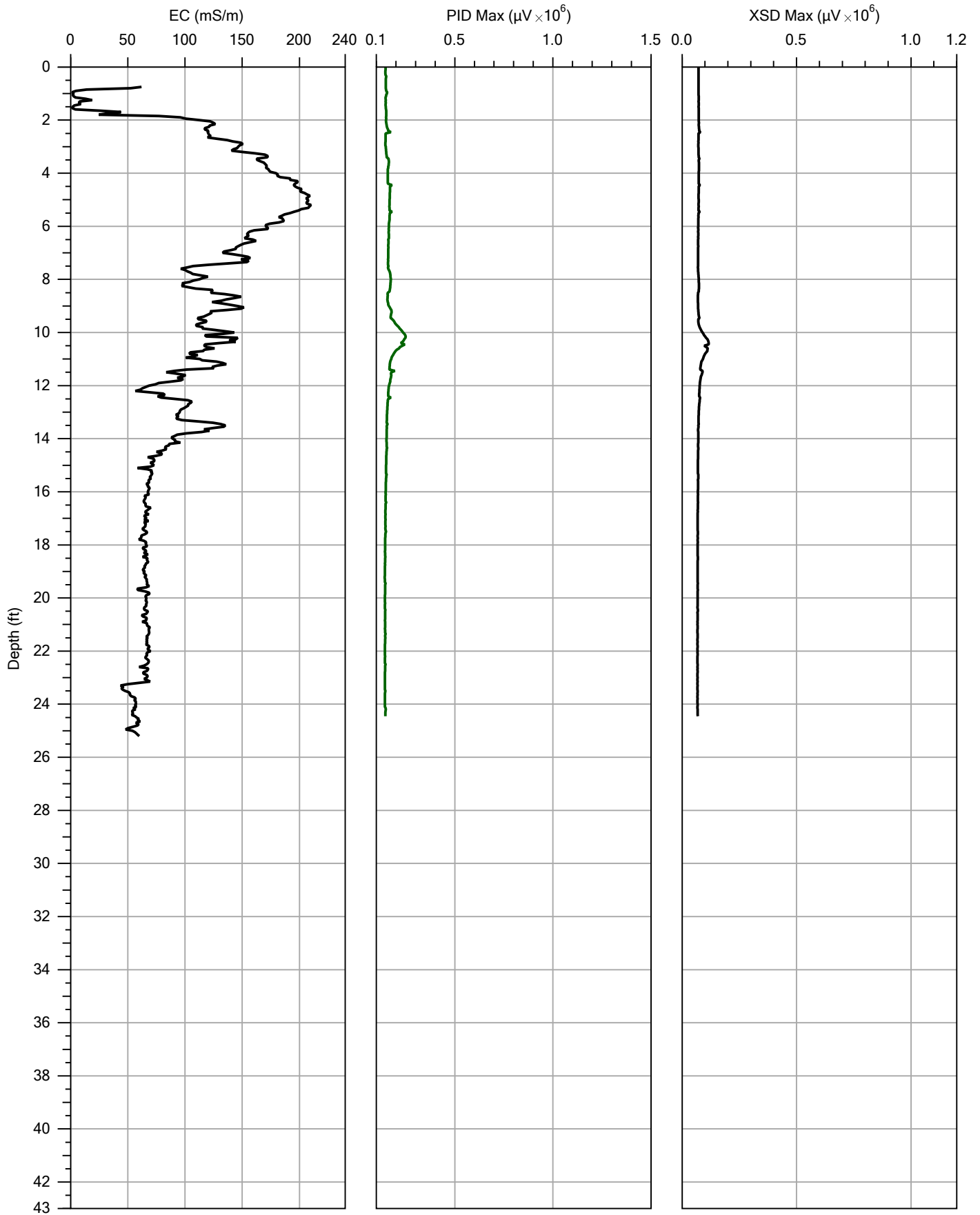
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Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

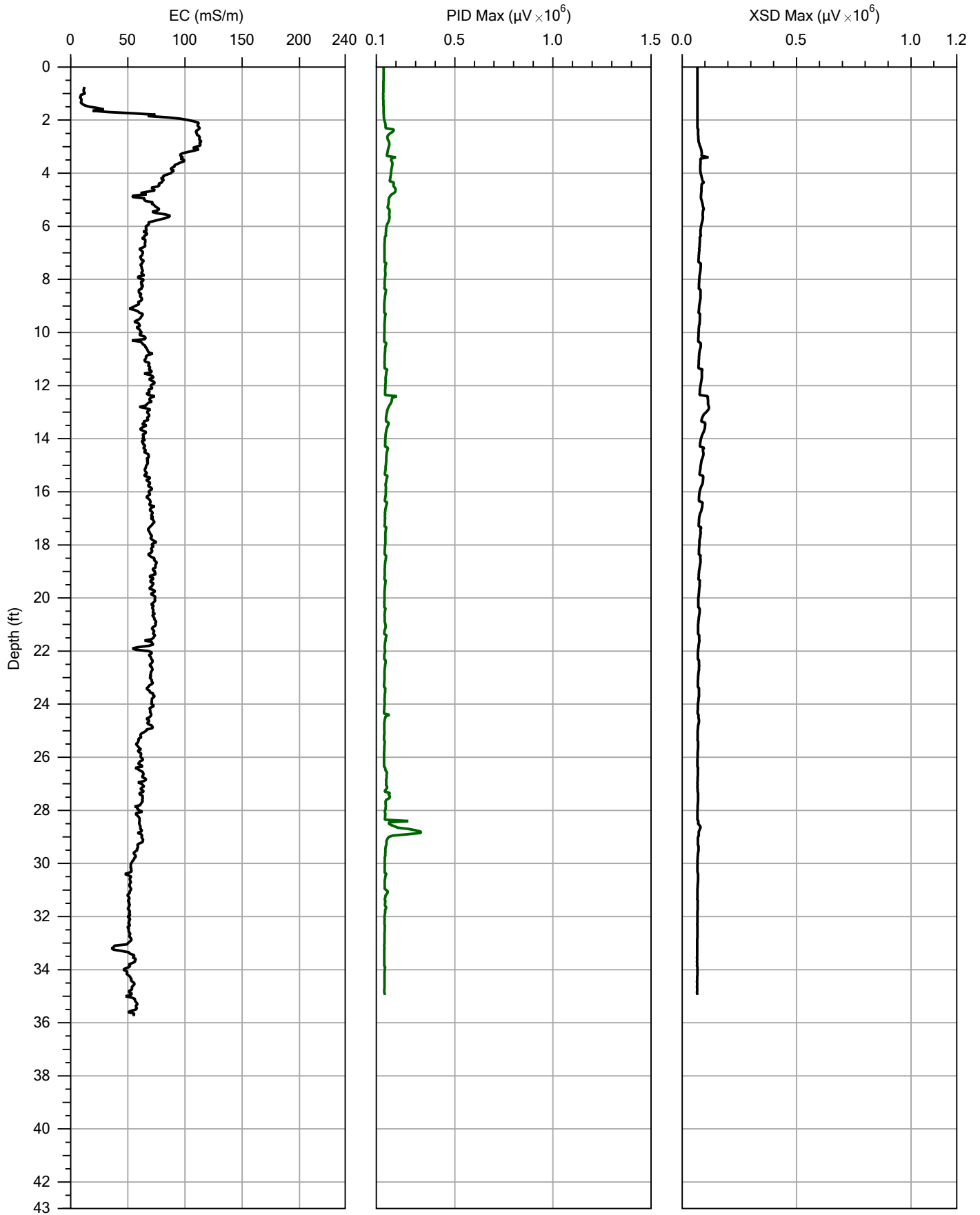
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Location:	Fort Dodge, Iowa



Company: Plains Environmental Services
 Project ID: Sunshine Cleaners

Operator: Jason A.
 Client: Tetra Tech

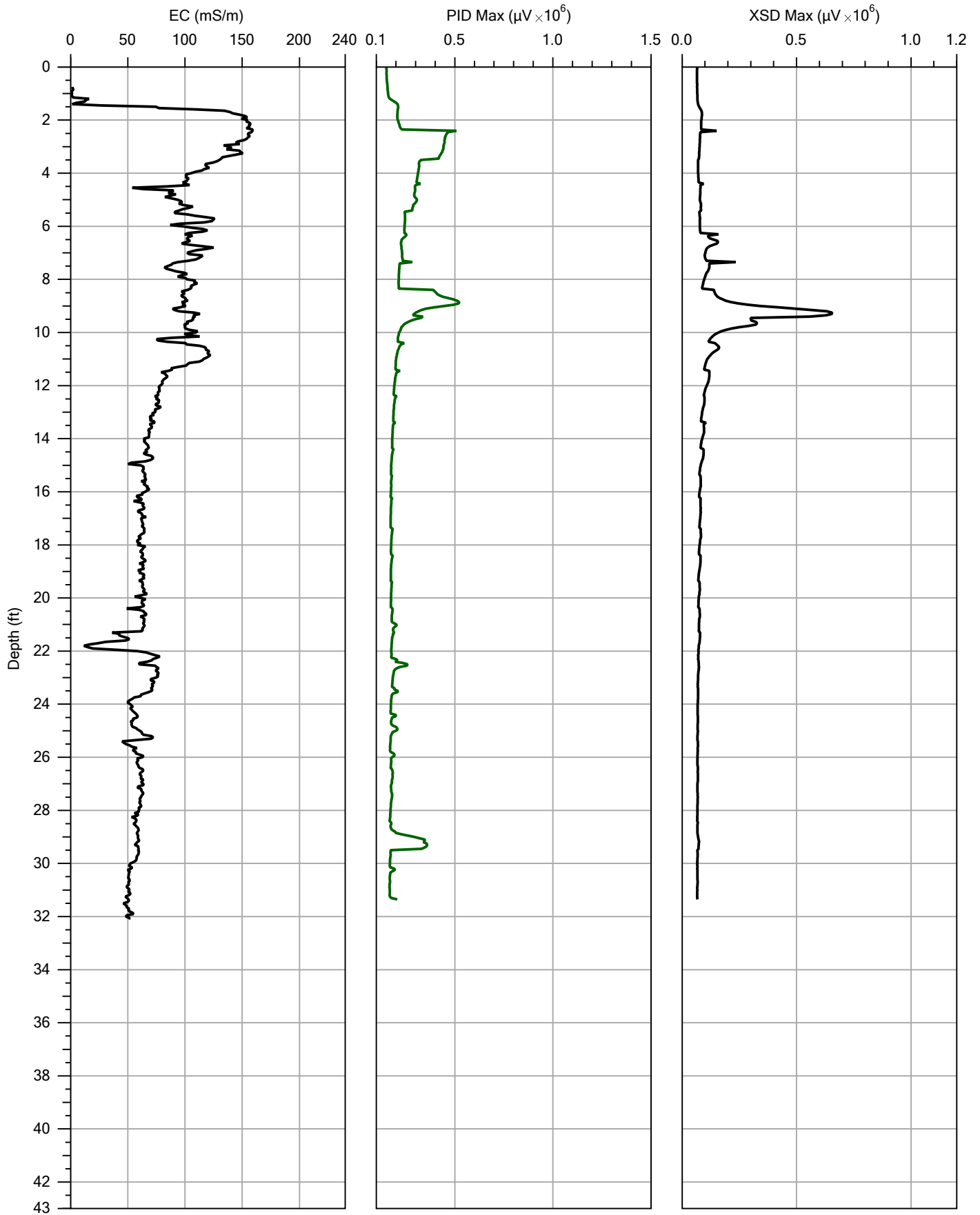
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

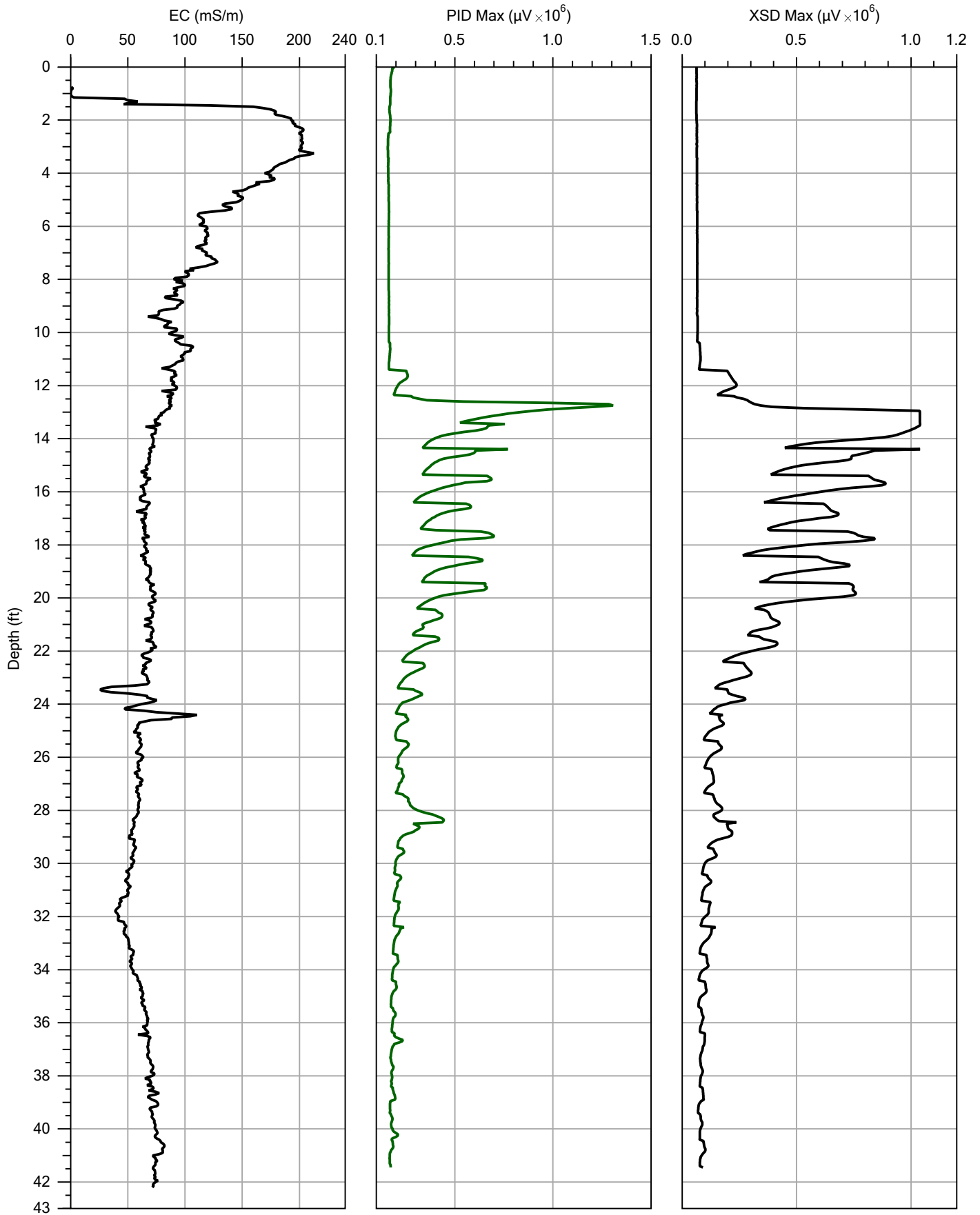
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Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

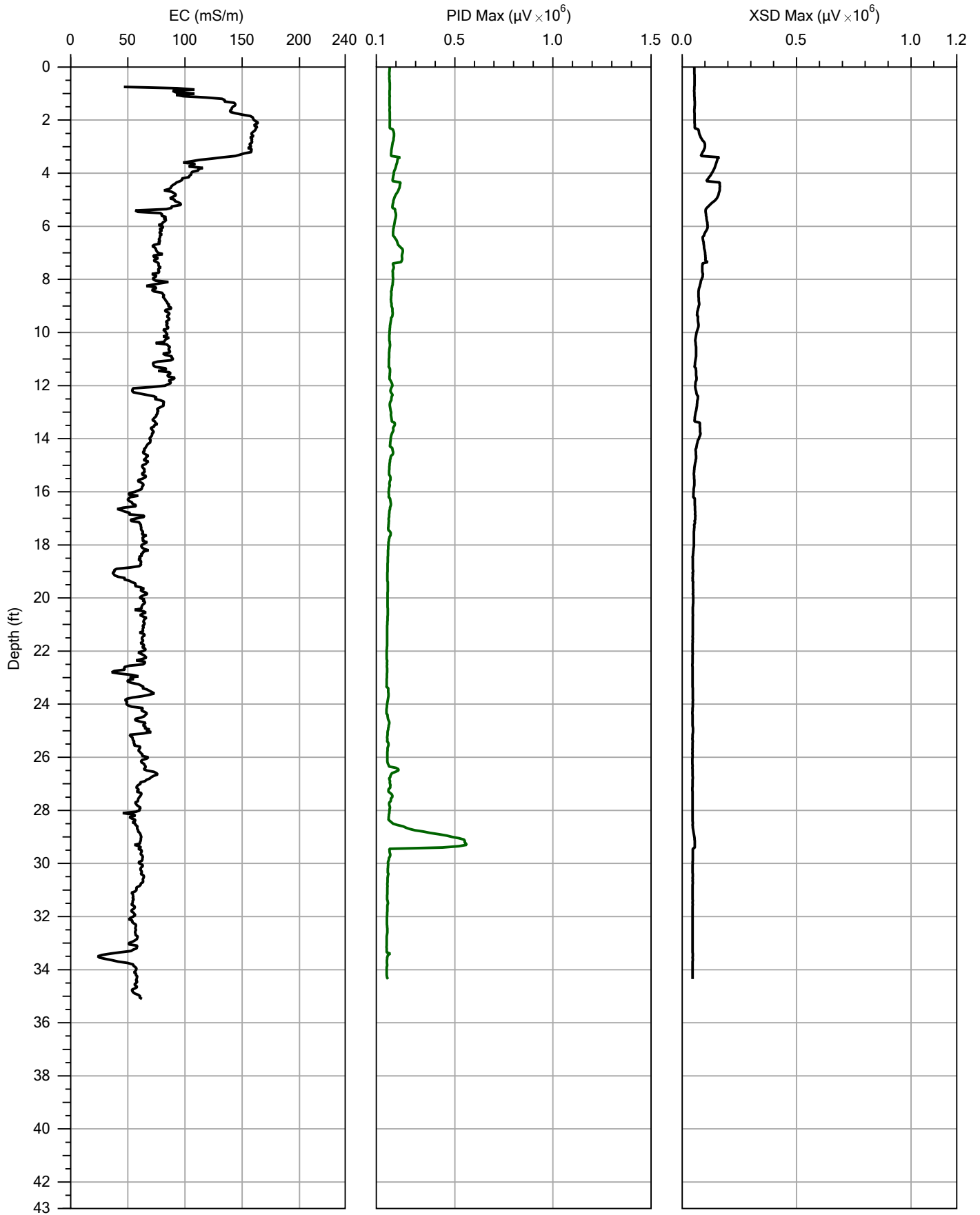
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

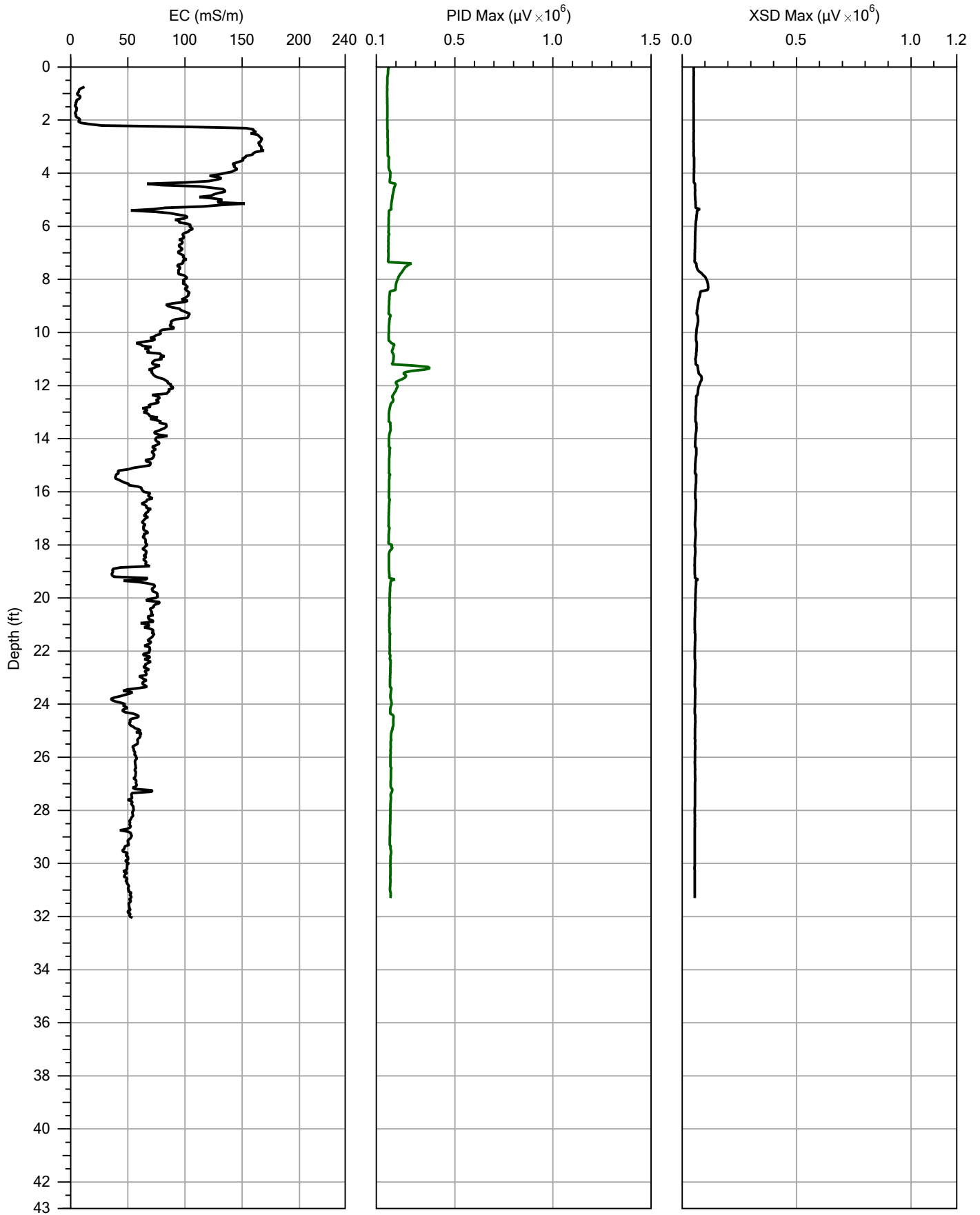
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

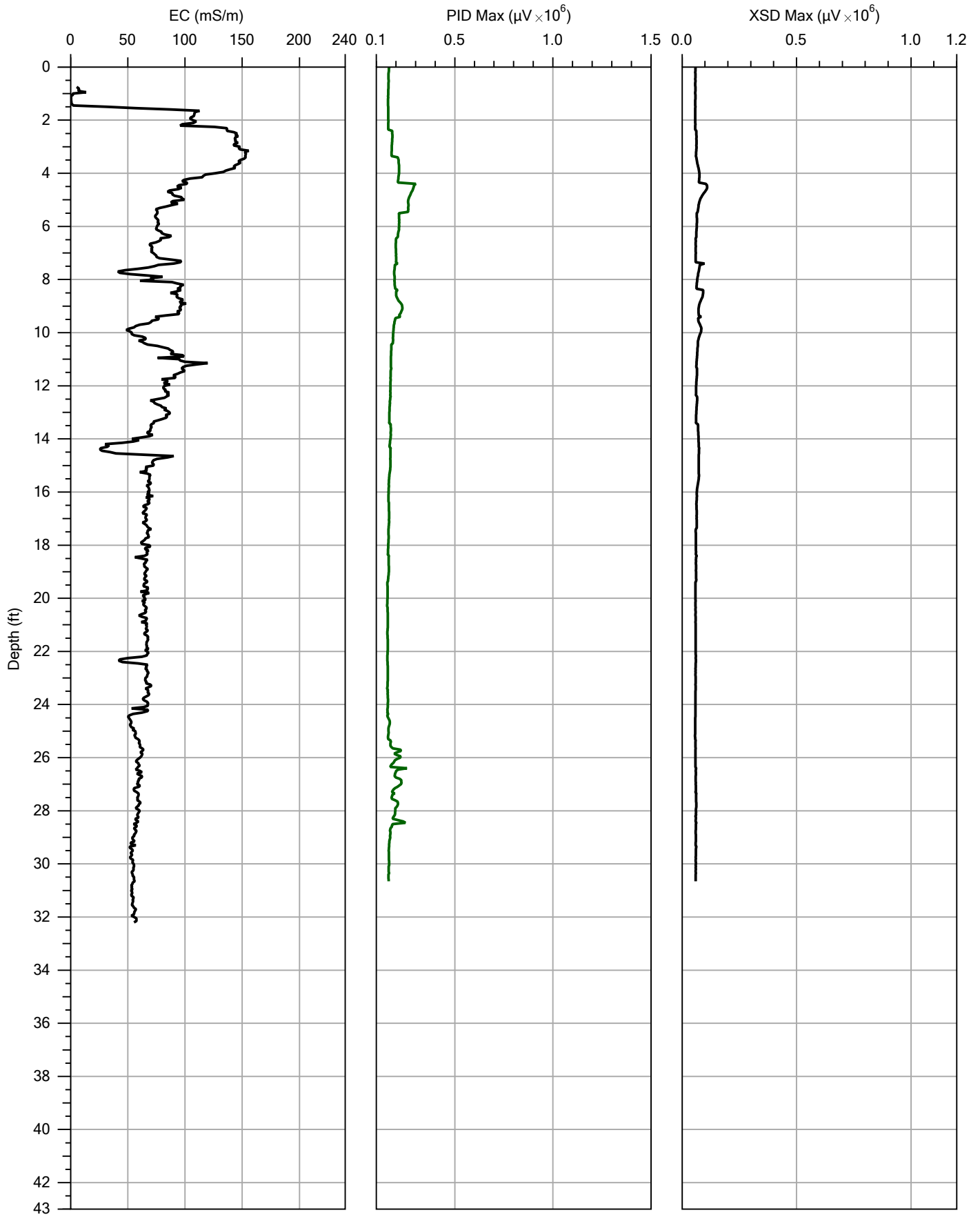
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Location:	Fort Dodge, Iowa



Company:
Plains Environmental Services
Project ID:
Sunshine Cleaners

Operator:
Jason A.
Client:
Tetra Tech

File:	MIP-14.MIP
Date:	6/8/2021
Location:	Fort Dodge, Iowa



Company: Plains Environmental Services
 Project ID: Sunshine Cleaners

Operator: Jason A.
 Client: Tetra Tech

File:	MIP-15.MIP
Date:	6/8/2021
Location:	Fort Dodge, Iowa