Remedial Action Plan

Greeley Fishing Pond
East of 31st Street at 1st Avenue
Greeley, Weld County, Colorado
July 31, 2019

Terracon Project No. 21197001

Prepared for:
City of Greeley – Public Works Department
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

Terracon

July 31, 2019

Colorado Department of Public Health and Environment
HMWMD-RP-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Attention: Mr. Fonda Apostolopoulos

Re: **Remedial Action Plan – Greeley Fishing Pond**
East of 31st Street at 1st Avenue
Greeley, Weld County, Colorado
Terracon Project No. 21187023

Dear Mr. Apostolopoulos:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to provide you with this Remedial Action Plan (RAP) for the above-referenced Site. Should you have any questions or require additional information, please do not hesitate to contact us at (303) 776-3921. We look forward to your comments and/or approval of this RAP.

Sincerely,
Terracon Consultants, Inc.

Michael J. Skridulis
Environmental Department Manager

John C Graves, P.G.
Senior Principal/Regional Manager

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REMEDIAL ACTION PLAN
GREELEY FISHING POND
EAST OF 31ST STREET AND 1ST AVENUE
GREELEY, WELD COUNTY, COLORADO

Terracon Project No. 21187023
July 31, 2019

1.0 INTRODUCTION

The proposed Greeley Fishing Pond Redevelopment site consists of three adjacent parcels identified as Weld County Assessor Parcel numbers 096121217001 (16.14-acres), 096121201023 (18.72-acres), and 096121100029 (3.79-acres). The parcels are located southeast of the City of Greeley, Weld County, Colorado. The parcels lie on the east side of 31st Street at 1st Avenue and make up the Greeley Fishing Pond and associated open space. A Topographic Map is included as Exhibit 1 in **Appendix A**. General Site Diagrams are included as Exhibit 2 and Exhibit 3 in **Appendix A**.

Environmental investigations performed by Terracon and others at the site have identified solid waste, asbestos containing material (ACM), arsenic, and semi volatile organic compounds (SVOCs) in site soils in exceedance of regulatory guidance action levels and regulatory standards. The site has been entered into the Colorado Department of Public Health and Environment (CDPHE), Voluntary Cleanup Program (VCP) to remediate the property and mitigate risks associated with the planned redevelopment of the property. Redevelopment of the property consists of the redevelopment of the site as City natural open space. Details of past investigations and reports can be found in the VCP application included as **Appendix C**.

The remedial action plan outlined in the VCP application submitted to the CDPHE on November 8, 2018 (Terracon Project No. 21187023), and accepted by CDPHE on December 27, 2018, includes excavation and relocation of ACM, construction of an engineered vegetative soil cover, a groundwater monitoring program, and institutional controls to limit future site disturbance. The cover is being installed to mitigate on-site environmental issues as outlined in this RAP. The VCP application is included as **Appendix C**.

Table 1.1 summarizes environmental investigations performed by Terracon and others (as noted).

Table 1.1 GREELEY FISHING POND

REPORT	DATE	ATTACHMENT
Phase I ESA, ERO Resources Corporation	04-06-2015	Appendix C
Phase II Investigation – Initial Data Reporting, Quantum Water & Environment	04-03-2018	Appendix C
Interim Stabilization Plan for Regulated Asbestos Contaminated Soil, Spirit Environmental	06-05-2018	Appendix C

Table 1.1 GREELEY FISHING POND		
REPORT	DATE	ATTACHMENT
Addendum #01 to Interim Stabilization Plan for RACS, Terracon	07-09-2018	Appendix C
Oversight of Interim Stabilization Activities of Regulated Asbestos-Containing Soils, Terracon	08-06-2018	Appendix C
Limited Asbestos Assessment, Terracon	08-21-2018	Appendix C
Cultural resources Assessment, Terracon	10-25-2018	Appendix C
Natural Resources Assessment, Terracon	10-31-2018	Appendix C
Limited Hazardous Materials Investigation, Terracon	10-29-2018	Appendix C
Materials Management Plan, Terracon	10-16-2018	Appendix F

2.0 GENERAL SITE INFORMATION

The proposed Greeley Fishing Pond Redevelopment site consists of three adjacent parcels identified as Weld County Assessor Parcel numbers 096121217001 (16.14-acres), 096121201023 (18.72-acres), and 096121100029 (3.79-acres). The parcels are located southeast of the City of Greeley, Weld County, Colorado. The parcels lie on the east side of 31st Street at 1st Avenue and make up the Greeley Fishing Pond and associated open space.

The property is owned by the City of Greeley (City) and has been allocated as future open space by the City of Greeley Public Works Department. The City is planning to convert the property to public open space trails with unrestricted access to the Greeley Fishing Pond.

3.0 PHYSICAL SETTING

The property is located at an approximate elevation of 4,635 feet above sea level. Surface geology in the area is characterized by alluvial deposits of sand and gravel underlain by claystone, shale, sandy shale, and sandstone of the Cretaceous-era Laramie formation (Colton 1978). According to the U.S. Geological Survey (USGS), depth to the uppermost ground water beneath the property and vicinity is less than 5 feet below ground surface (bgs) (Hillier et al. 1979). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the east, toward the South Platte River (USGS 2013).

3.1 Geology

Regionally, the site is located on Late Cenozoic-age post piney-creek alluvium, a deposit consisting of dark grey humic, sandy to gravelly alluvium containing scattered plant debris having an average depth of 5 to 15 feet (Colton, 1978).

Based on boring information collected at the site, the general site lithology is sand with silt and clay to depths ranging from 4 feet bgs (SB-03/MW-03 & SB-08/MW-08) to 14 feet bgs (SB-05R/MW-05R). Clay and silt content generally increased as the distance from the South Platte River increased, heading approximately west. Bedrock was not encountered in any of the borings to a maximum depth of 16 feet bgs.

Solid waste/trash (household waste including plastic, glass, and tires) was found across the site in soil borings ranging between 5.5 feet bgs to 10 feet bgs.

3.2 Site Hydrogeology

Terracon surveyed the relative elevation of the top of well casing (TOC) for monitoring wells in August 2018 for site monitoring wells MW-01 through MW-05, MW-07, and BH-02 through BH-04. Based on the site landscaping, the monitoring wells were installed with "stick-up" well vaults and, therefore, the well casings extend above the surface approximately three feet.

Depth to groundwater was observed between 7.00 (BH-01) and 10.50 (BH-03) feet bgs at the site on February 8, 2018. Depth to groundwater was observed between 9.8 (MW-04) and 11.30 (MW-02) feet below top of casing (btoc) at the site on August 24, 2018. Using the static water levels measured during the August 2018 semi-annual groundwater sampling event, a Groundwater Contour Map was generated and is depicted as Exhibit 4 in **Appendix A**.

Based on the potentiometric map, groundwater flows to the east at an approximate hydraulic gradient of 0.002 feet per foot (ft/ft). Groundwater flow direction, flow velocity and depth to groundwater may change due to seasonal weather variations such as precipitation, and inconsistency in the subsurface due to the solid waste material and varying depths to bedrock.

4.0 FIELD ACTIVITIES

4.1 Soil Borings

Fourteen (14) soil borings have been drilled at the site utilizing direct push methods. Nine of the borings were completed as groundwater monitoring wells. The approximate soil boring and groundwater monitoring locations and other site features are shown on the Site Map provided as Exhibit 2 in **Appendix A**. The purpose of the soil borings was to collect soil and groundwater samples for laboratory analyses to evaluate the presence of Resource Recovery and Conservation Act (RCRA) 8 metals, VOCs, and SVOCs.

Five of the groundwater monitoring wells (MW-01, MW-02, MW-04, MW-05, and MW-07) were completed as 1-inch monitoring wells to depths of approximately 13 feet bgs constructed of one-

inch diameter polyvinyl chloride (PVC) with ten feet of 0.010-inch slotted well screen and one-inch diameter blank riser casing of varying lengths. A 10/20 sieve silica sand pack was placed into the annular space between the well screen and the borehole wall to approximately two feet above the screen interval, followed by a hydrated bentonite seal to just below ground surface. Four of the soil borings were completed as two-inch diameter monitoring wells (MW-02R, MW-03, MW-05R, MW-08) to an approximate depth of 15 feet bgs constructed of two-inch diameter polyvinyl chloride (PVC) with ten feet of 0.010-inch slotted well screen and two-inch diameter blank riser casing of varying lengths. A 10/20 sieve silica sand pack was placed into the annular space between the well screen and the borehole wall to approximately two feet above the screen interval, followed by a hydrated bentonite seal to just below ground surface.

A summary of soil analytical results is included in **Appendix B** – Table 1, and results are discussed in Section 5.1.

4.2 Groundwater Monitoring

Terracon performed groundwater monitoring at six (6) wells MW-01 through MW-05 and MW-07 on September 24, 2018 and three (3) wells MW-02R, MW-05R, and MW-08 on October 9, 2018. Groundwater samples were collected from site monitoring wells for laboratory analysis using a single-use polyethylene bailer. Prior to groundwater sample collection, each monitoring well was purged using a single-use polyethylene bailer. The groundwater samples were placed in an ice-filled cooler for delivery to Pace Analytical laboratory under chain-of custody procedures for laboratory analysis. The groundwater samples were analyzed for RCRA 8 metals, VOCs, SVOCs, and additional water quality field parameters.

Depth to groundwater measurements were collected during sampling events and utilized to prepare a potentiometric surface map. The September 24, 2018 data is represented on Exhibit 4 in **Appendix A**.

A summary of groundwater analytical results is included in **Appendix B** – Table 2, and results are discussed in Section 5.2.

4.3 Soil Vapor Monitoring

Four soil vapor samples were collected from the installed monitoring wells BH-01 through BH-04 during the Phase II Limited Site Investigation on March 6, 2018 by Quantum Water & Environment (Quantum).

As part of the Limited Hazardous Materials Investigation performed by Terracon, five soil vapor samples were collected from soil vapor points the installed next to the monitoring well locations MW-01 through MW-04 and MW-07 (SVP-01 through SVP-04, and SVP-07). The soil vapor points

were installed to confirm previously completed soil vapor sampling results from Quantum and to facilitate additional soil vapor sampling for delineation of potential soil vapor concerns.

An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory.

Soil vapor samples were analyzed for VOCs and fixed gases. A summary of soil gas analytical results is included in **Appendix B** - Table 3, and results are discussed in Section 5.3.

4.4 Surface Sampling

Four surface water (SW-1R and SW-2P through SW-4P) and seven sediment samples (SS-01 through SS-07) were collected at the property to investigate quality of pond water, pond sediment, pond inlet/out bank sediment, and river bank water and sediment to assist in delineation of potential contamination from onsite sources.

Surface sediment samples were collected for laboratory analyses to evaluate the presence of RCRA 8 metals, VOCs, SVOCs, polychlorinated biphenyls (PCBs), herbicides, and pesticides. Surface water samples were collected for laboratory analysis to evaluate the presence of total and dissolved RCRA 8 metals, VOCs, SVOCs, PCBs, herbicides, pesticides, total dissolved solids (TDS), total suspended solids (TSS), total nitrogen, total phosphorous, hardness, and alkalinity, along with additional water quality field parameters.

Surface sediment sampling results are summarized in Table 1 of **Appendix B** and surface water sample results are summarized in Table 2 of **Appendix B**, and results are discussed in Section 5.4.

4.5 Asbestos Containing Materials

Spirit Environmental, LLC (Spirit) and Quantum conducted a friable asbestos-containing materials (ACM) bulk sampling survey of the property from between March 7, 2018 and May 8, 2018. Additionally, Spirit prepared an Interim Stabilization Plan (ISP), Plan dated June 5, 2018 for the ACM identified during the initial site surveys. Additional detailed site information (i.e., site histories, regulatory records, etc.) are included in the Reports/Plans included in the appendices of the VCP Application attached to this report in **Appendix C**.

A total of 69 bulk samples were collected during the inspection. On March 29, 2018, Spirit/Quantum provided notification to CDPHE of the ACM discovery. On April 3, 2018, representatives from the City, Quantum, and Spirit met on-site with Mr. Brian Long (CDPHE representative) to discuss the layout of the warning fence/signage and initial requirements for the ISP. The ISP was developed on June 5, 2018.

Terracon Consultants, Inc. (Terracon) conducted additional ACM sampling within the designated ISP area of the site on July 3, 2018. The purpose of the inspection was to further delineate the extent of the previously identified friable ACM within the approximate 55-foot by 45-foot area outlined in the ISP.

Terracon confirmed the two general locations of the friable ACM roofing outlined in the ISP and determined the size of the areas to be covered during the implementation of the ISP could be reduced. Terracon verified the locations for implementation of the ISP and submitted the addendum to CDPHE.

On July 25 and 27, 2018, Terracon conducted oversight of the implementation of the ISP by Region 8 Environmental (R8). Terracon was responsible for oversight of the stabilization and/or removal of regulated asbestos contaminated soils (RACS) identified in the ISP and Addendum #01 to the ISP.

Based on Terracon's final visual inspection performed on July 27, 2018, fill dirt was placed over the geotextile in the required RACS locations in accordance with the ISP. Terracon confirmed that at least six inches of fill soil was placed over the geotextile in each location.

Terracon conducted a supplemental limited asbestos assessment at the property on July 24, 25, and August 6, 2018. The purpose of the investigation was to confirm the findings of previous ACM surveys performed on the property.

Survey activities were initiated with visual observation of the property (within the property line boundary but excluding the previously identified areas surveyed by Quantum/Spirit in the ISP). A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.

Terracon inspectors walked all the accessible areas of the property and visually assessed and documented suspect asbestos-containing building material (ACBM) debris on the property and obtained bulk samples for analysis.

Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM for laboratory analysis.

ACM results are discussed in Section 5.5.

5.0 DATA SUMMARY

5.1 Soil Boring Analytical Results

Soil samples were collected during the Limited Hazardous Materials Investigation from the soil borings for field screening with a photoionization detector (PID) and for laboratory analysis. Seventeen soil samples from soil borings were submitted for laboratory analysis.

Arsenic was reported in soil samples SB-01, SB-02, SB-04 through SB-06, SB-02R, and SB-05R above the EPA Residential and Industrial RSLs of 0.68 mg/kg and 3.0 mg/kg, respectively. These values are below Colorado Department of Public Health and Environment (CDPHE) background Risk Management Guidance for Evaluating Arsenic Concentrations in Soil dated July 2014.

Benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil samples SB-01, SB-02, and SB-03 at concentrations above their respective EPA Residential and/or Industrial RSLs.

Benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil sample SB-05 at concentrations above their respective EPA Residential and/or Industrial RSLs.

Indeno(1,2,3-cd)pyrene were reported in soil sample SB-07 at a concentration above its EPA Industrial RSL.

5.2 Groundwater Analytical Results

Terracon performed groundwater monitoring during the Limited Hazardous Materials Investigation at six (6) wells, MW-01 through MW-05 and MW-07 on September 24, 2018, and three (3) wells MW-02R, MW-05R, and MW-08 on October 9, 2018.

SVOCs were reported above CDPHE Reg. 41 values in the groundwater samples collected from MW-02 and MW-05.

Dibenz(a,h)anthracene (5.29 µg/L), and indeno(1,2,3-cd)pyrene (28.3 µg/L) were reported above CDPHE Reg. 41 in the groundwater sample collected from MW-02.

Indeno(1,2,3-cd)pyrene (1.03 µg/L) was reported above CDPHE Reg. 41 in the groundwater sample collected from MW-05.

Monitoring wells MW-02 and MW-05 were installed as one-inch diameter wells during Quantum's Limited Site Investigation (LSI). As part of the Limited Hazardous Materials Investigation, Terracon installed two-inch diameter replacement wells, MW-02R and MW-05R, near the

corresponding one-inch wells. Larger diameter wells facilitated well development with the goal of preventing soil sediment contamination of groundwater samples.

SVOCs, in addition to the other analytes, were not reported above CDPHE Reg 41 in the groundwater samples collected from replacement 2-inch wells MW-02R or MW-05R.

5.3 Soil Vapor Analytical Results

As part of the Limited Hazardous Materials Investigation performed by Terracon, five soil vapor samples were collected from soil vapor points installed next to monitoring well locations MW-01 through MW-04 and MW-07 (SVP-01 through SVP-04, and SVP-07). An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory.

Chloroform was reported from the soil vapor samples collected from SVP-03 (33 µg/m^3) and SVP-02R (6.13) exceeding the EPA vapor intrusion screening level (VISL) of 4 µg/m^3.

Tetrachloroethene ([PCE] 652 µg/m^3) was reported at concentrations exceeding EPA VISL of 367 µg/m^3 for the soil vapor sample collected from SVP-02R.

Trichloroethene (TCE) was reported from the soil vapor samples collected from SVP-02 (32.4 µg/m^3) and SVP-02R (47.8 µg/m^3) exceeding the EPA VISL of 16 µg/m^3.

Methane was not detected above laboratory detection levels from the soil vapor samples collected during this investigation.

5.4 Surface Sediment and Surface Water Analytical Results

Four surface water (SW-1R and SW-2P through SW-4P) and seven sediment samples (SS-01 through SS-07) were collected at the property to investigate quality of pond water, pond sediment, pond inlet/out bank sediment, and river bank water and sediment to assist in delineation of potential contamination from onsite sources.

Constituents of concern were not detected above applicable regulatory limits for any of the surface sediment or surface water samples collected during the investigation.

5.5 Asbestos Containing Materials

Spirit Environmental, LLC (Spirit) and Quantum conducted a friable asbestos-containing materials (ACM) bulk sampling survey of the property from between March 7, 2018 and May 8, 2018. A total of 69 bulk samples were collected on during the inspection. Twenty-one of the samples

tested positive for the presence of asbestos. Of these 21 samples, 8 of the samples were determined to be "friable", as assessed by a certified asbestos building inspector (CABI).

During a supplemental limited asbestos assessment at the property on July 24, 25, and August 6, 2018, Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM. Laboratory analysis confirmed the following asbestos-containing non-friable materials: Red Flooring Material, Gray Mastic, Black Roofing Tar and Felt associated with Gray Mastic, Black Mastic with Silver Coating and Paint, Black Roofing Tar and Felt associated with Black Mastic Based on observations, Terracon considers the ACM debris to be non-RACS. According to CDPHE Solid Waste Regulations, non-friable ACM debris that has not been rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage is considered non-RACS and is therefore exempt from Section 5.5 of the Solid Waste regulations but is subject to the requirement for proper disposal as non-friable asbestos waste.

6.0 APPLICABLE STANDARDS AND RISK DETERMINATION

The following standards were used for risk determination at the site:

- The US EPA Industrial and Residential Regional Screening Levels (RSL) soil screening levels (May 2016 TR=1E-6, HQ=1.0);
- The CDPHE Groundwater Protection Values (March 2014);
- The CDPHE Risk Management Guidance for Evaluating Arsenic Concentrations in Soil were used as the standard for arsenic (July 2014);
- The CDPHE Regulation 41 Groundwater Quality Standards (GWQSs) (December 2016);
- The CDPHE Residential and Industrial Air Screening Concentrations (ASCs) (January 2016); and,
- The USEPA Residential and Industrial Indoor Air RSLs, after applying a 3% attenuation factor for the vapor intrusion screening level (VISL) for subslab soil gas per the USEPA OSWER Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015) were used for soil gas comparison (June 2017).

After implementation of the corrective action plan, potential risks to human health or environment on-site will be considered low. The general risk factors are discussed in more detail in the following sections.

6.1 Estimated Extent of Contamination

During the environmental assessment activities, site soil and soil gas were reported to be environmentally impacted as summarized below.

6.1.1 Soil

The maximum concentrations of contaminants reported in soil samples collected at the site that exceed the EPA Residential and/or Industrial RSLs are summarized on the table below.

Contaminant	Maximum Sampled Concentration (mg/kg)	Standard (mg/kg)	Location
Arsenic	6.74	3.0	SB-02 (4-8)
Benzo(b)pyrene	0.796	0.29	SB-01 (4-8)
Dibenz(a,h)anthracene	2.74	0.29	SB-01 (4-8)
Indeno(1,2,3-cd)pyrene	8.46	2.9	SB-01 (4-8)

6.1.2 Soil Vapor

The maximum sampled concentrations of contaminants that exceed the calculated Residential VISL summarized on the table below.

Contaminant	Maximum Sampled Concentration (mg/L)	VISL ($\mu g/m^3$)	Location
Chloroform	33	4.0	SVP-03
Tetrachloroethylene (PCE)	652	367	SVP-02R
Trichloroethylene (TCE)	47.8	16.0	SVP-02R

6.2 Exposure Pathways and Mitigation

Terracon conducted an exposure pathway evaluation and receptor survey for this application. Based on these activities, the following table summarizes the exposure pathways that are or will be complete or reasonable anticipated to be complete during the implementation of the development activities.

Exposure Pathway	Surface Soil	Groundwater	Surface Water	Sediment
Soil – Dermal Contact	X	NA	NA	NA
Soil – Ingestion	X			
Soil – Vapor Inhalation	X			
Soil – Leach to Groundwater	NC			
Soil – Migrating to Surface Water	NC			
Groundwater – Ingestion	NA	NC		
Groundwater – Vapor Inhalation		NC		
Groundwater – Migration to Surface Water		NC		
Surface Water – Dermal Contact		NA	NC	
Surface Water – Ingestion			NC	
Sediment – Dermal Contact			NA	NC
Sediment – Ingestion				NC

NA – Exposure pathway not applicable to the media
NC – Not anticipated to be complete

The following table summarizes the environmentally-impacted media on-site, based on Terracon and other's assessment activities and results.

Environmental Media	Assessment Levels Exceeded?						Type of Impacts
	On-Site			Off-Site			
	Yes	No	Not Sampled	Yes	No	Not Sampled	
Soil	X					X	SVOCs, ACM
Soil Gas	X					X	VOCs
Groundwater		X				X	
Surface Water		X			X		
Sediment		X			X		

For dermal contact with and ingestion of surface and subsurface soils, there is a completed exposure pathway at the site through the exposed soil areas. Currently the site is secured with a barbed wire fence with a locked gate to prevent access to the site by the public. To eliminate this exposure pathway, the soil will need to either be covered/isolated or the impacted soil will need to be removed from the current location to an acceptable location on site or removed entirely from the site and backfilled with acceptable materials.

During development activities, workers and nearby residents may be exposed to possibly contaminated soil through inhalation of fugitive dust. The use of water and/or reduced construction vehicle speeds to control dust during construction will be used to suppress airborne dust. Excavated soil (if implemented) will be direct loaded into haul trucks when possible to reduce the

handling and dust generation. Soil within the beds of the haul trucks will be covered during transportation of soil to the appropriate disposal facility.

The methods to identify, characterize, manage, and dispose of impacted soil materials are described in more detail in the Materials Management Plan (MMP) which is included as **Appendix E.**

7.0 REMEDIAL ACTION PLAN

The selected remedy for the site considers no new changes to the current planned development of the site and includes specific remedial tasks that will be implemented to mitigate and reduce long-term exposures to site soil contaminants. The remedy for the site considers the planned development of the site as a public park and natural open space with access to the Greeley Fishing Pond and inclusion of newly developed public walking trails and includes specific remedial tasks that will be implemented to mitigate and reduce long-term exposures to site contaminants. The remedy selected for this site is summarized below:

- **Excavate and Relocate ACM-Impacted Soil and Concrete** – ACM impacted material and RACS are present in the historical solid waste disposal area of the site. Identified ACM piles are labeled on the detailed site plans available in the Project Manual under separate cover. The objective of this task will be to isolate and compile all ACM to the location of the site to be implemented with the cover to prevent any future exposure to ACM or removed from the site for disposal at an approved waste facility. Concrete debris with black mastic has been identified as being used as stabilizing ballast on the power poles on the south side of the property. This task will also include “selective-pick” of concrete material currently used as ballast around the power poles. Concrete material with black mastic attached will be placed on-site within the soil cover footprint or removed from the site and disposed of as ACM waste material. Concrete material without black mastic will be replaced as ballast material or crushed and reused or stockpiled on-site. Additionally, previously stabilized friable ACM areas, outlined on the site design and construction drawings, are to be graded as appropriate to cover design specifications, or removed from the site and disposed of as ACM waste following CDPHE guidance for handling of RACS. Handling of this **Friable ACM** material is to be handled with all appropriate safety measures as outlined by CDPHE and in the sections of the site MMP.

- **Debris Removal/Bank Clean-up** – Due to historical solid waste disposal and flooding, solid waste (rusted cars, dead trees, appliances, large waste items, etc.) has accumulated along the southern and eastern boundaries of the project site. Larger debris/solid waste material that is not able to be spread and contained

under the proposed vegetative soil cover is to be collected and removed from the property as waste material.

- **Engineered Vegetative Soil Cover** – An engineered vegetative soil cover will be constructed over the portion of the site associated with the historical solid waste disposal area. The cover will be implemented to mitigate the exposure pathway to shallow soil contamination and to reduce exposure of impacted soils based on the proposed future use of the site. The cover fill material will be imported onto the site using clean fill material or beneficial reuse based on acceptance criteria for industrial RSL criteria and observations during excavation, loading and unloading from off-site sources. The cover will be designed as an approximate 2-foot vegetative cover. The cover will have designed slopes and engineering controls to promote vegetation growth, promote positive drainage, reduce infiltration into the underlying materials, and minimize erosion. Established natural vegetation (trees) located within the proposed cover area will remain and the cover will be implemented around these areas to minimize the need to reestablish natural vegetation growth with the vision of future site use in mind. Technical specifications are outlined in the project specific Project Manual (July 2019) included under separate cover.

- **Groundwater Monitoring Plan** – A groundwater monitoring plan (GWMP) will be developed. The objectives of the GWMP will be to establish baseline groundwater quality, monitor seasonal water level fluctuations, and establish groundwater flow characteristics; to monitor the performance of implemented remedial tasks; and to monitor long-term groundwater quality at the site.

- **Institutional Controls** – To minimize potential future exposure, institutional controls (ICs) will be put in place to restrict the soil use at the site by creating an environmental covenant (EC) per Colorado legislative statue SB 145.

7.1 Beneficial Reuse Soil

If deemed appropriate, beneficial reuse soils or imported soils may/will be used to bring the site to proper grade based on the design specifications and may be used for cover construction purposes.

Other beneficial reuse soils or imported soils may/will be sourced from outside locations as available. If a potential source of beneficial reuse soil or imported soil is identified, Terracon will review the material according to the Soil Transfer Program protocol established by Terracon and approved by CDPHE. Based upon the criteria previously outlined (CDPHE VCP Application Approval Letter, December 28, 2018), the beneficial reuse material or imported soil will be used as supportive fill or cover material on site.

In general, beneficial reuse or imported sources should meet the following criteria:

- Fine grained cohesive soils.
- Free of organics, roots, construction debris, and boulders.
- Meet acceptance criteria for EPA Industrial RSLs.

7.2 Proposed Monitoring Plan and Reporting

Based on the current cover design, some or all of the current onsite monitoring wells that are within the landfill cover construction boundaries will be required to be abandoned. The current onsite monitoring wells within the landfill cover construction boundaries will be plugged, sealed, and abandoned in accordance with Rule 16 of the Colorado Water Well Construction Rules and the monitoring well abandonment form will be filed with the State Engineers Office (SEO), where required.

Terracon will install four replacement monitoring wells to continue to assess groundwater conditions at the site. The monitoring wells will be installed following the completion of cover construction activities. The replacement monitoring wells will be located around the eastern perimeter (downgradient side) of the cover. A qualified well driller with field oversight from a Terracon scientist will perform these environmental drilling services. Monitoring well locations will be established after final construction limits have been established. Input from CDPHE will be considered when selecting proposed monitoring well locations.

Terracon will file a “Notice of Intent” to complete the monitoring wells with the Colorado SEO. Since the proposed groundwater monitoring wells are assumed to remain onsite for more than 1 year, the SEO will require the monitoring wells to be permitted.

The proposed groundwater monitoring wells will be constructed with 10 foot or appropriate (based on depths to groundwater) lengths of 2.0-inch diameter, 0.010-inch slotted polyvinyl chloride (PVC) well screen and 2.0-inch solid PVC riser to land surface. A clean, 10/20 graded silica sand filter pack will be placed from the bottom of the well to approximately two feet above the top of well screen, followed by a hydrated bentonite chip annular seal to approximately one-half foot below ground surface. The monitoring wells will be fitted with J-plug well caps and stick-up well vaults set in concrete. The monitoring wells will be developed by removing 10 well volumes of groundwater or purging the monitoring well until dry by surge blocking and removing groundwater with a dedicated disposable bailer or submersible well pump. Terracon personnel will measure the static groundwater level in each of the newly installed monitoring wells to verify adequate groundwater is present for groundwater sample collection.

Groundwater samples are currently proposed to be collected from monitoring wells on a semi-annual basis for SVOCs by USEPA Method 8270 and additional groundwater quality field measurements.

Depending on the extent of remedial tasks employed, Terracon anticipates site monitoring will continue for 2 to 3 years at a minimum. Any modifications to the groundwater monitoring plan (including, but not limited to, reducing the frequency from semi-annually to annually or the constituents analyzed) will need to be approved by CDPHE.

A Semi-Annual Groundwater Monitoring Report will be completed following each semi-annual groundwater monitoring event for the first 2 to 3 years after the cover construction activities have been completed. Depending on the effects of the proposed remedial activities, Terracon will propose changing all monitoring activities to annual sampling and reporting. The proposed monitoring change would occur following the post remediation performance monitoring that typically ends one year after completing the remedial implementation activities.

Monitoring reports will include a summary of the semi-annual monitoring and remediation activities, and include site exhibits and laboratory analytical results. The reports will also include recommendations for future site activities.

7.3 Institutional Controls

To minimize potential exposure, institutional controls (ICs) will be put in place to restrict the soil use at the site by creating an environmental covenant (EC) per Colorado legislative statue SB 145.

8.0 PLAN APPROVAL AND IMPLEMENTATION

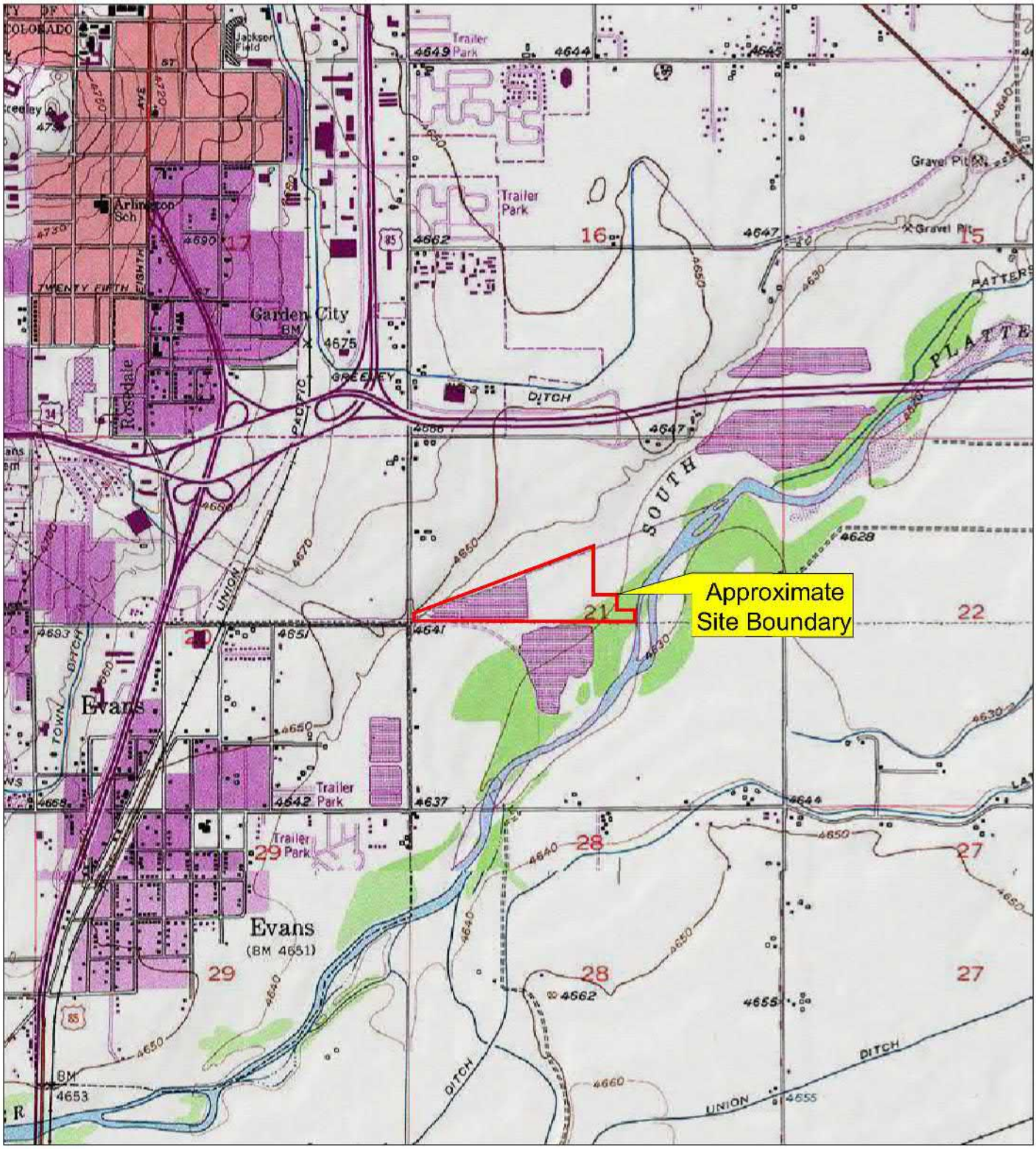
Based upon the acceptance of the site into the Voluntary Cleanup Program and approval of the RAP by CDPHE, Terracon will implement on behalf of the City of Greeley the following tasks at the site for effective mitigation of contaminants on the site:

- Remedial Task No. 1 – Vegetative Cover Construction
- Remedial Task No. 2 – Continued Groundwater Monitoring

Terracon anticipates completing Remedial Task No. 1 in Spring of 2020.

Following completion of the RAP, a No Action Determination (NAD) request letter will be submitted to the CDPHE for approval with the RAP Closeout Report.

APPENDIX A
EXHIBITS



0 .5 1 MILES

1000 0 1000 2000 3000 4000 5000 FEET

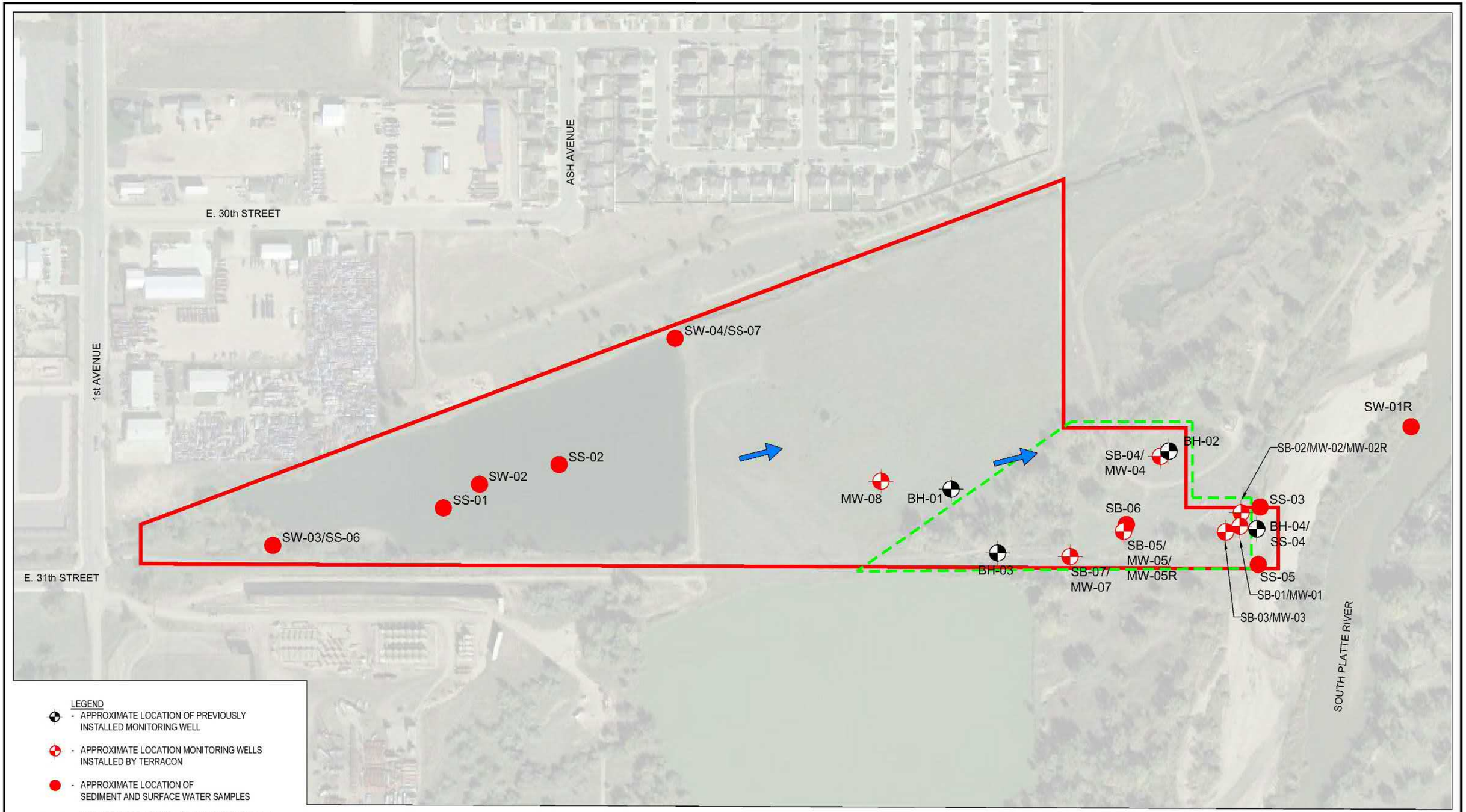
1 .5 0 KILOMETERS 1

1000 0 METERS 1000

APPROXIMATE SCALE

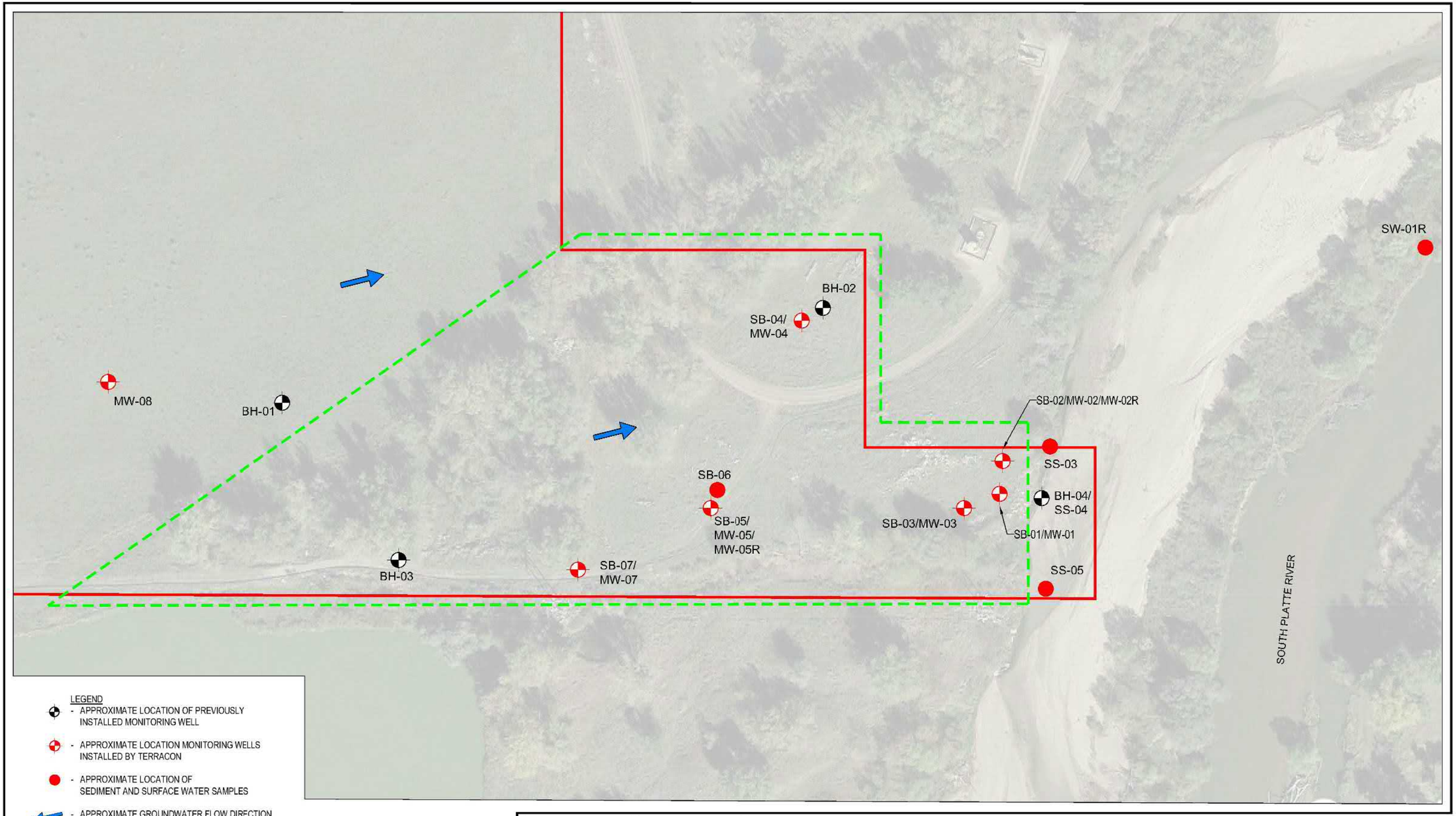
Topographic map image courtesy of the U.S. Geological Survey
Quadrangle includes Greeley, CO (1978)

Project Mngr: MJS	Project No.: 21187023	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP
Drawn By: JAS	Scale: AS-SHOWN	1289 1st Avenue Greeley, CO 80631	GREELEY FISHING POND CITY OF GREELEY 31st STREET AND 1st AVENUE GREELEY, COLORADO
Checked By: MJS	File No.: 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8539	FIG. No. 1
Approved By: JCG	Date: NOVEMBER_2018		



Project Mngr: MJS	Project No. 21187023	Terracon Consulting Engineers and Scientists	SITE DIAGRAM - A
Drawn By: JAS	Scale: AS-SHOWN	1289 1stAvenue Greeley, CO 80631	GREELEY FISHING POND
Checked By: MJS	File No. 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8639	CITY OF GREELEY
Approved By: JCG	Date: NOVEMBER_2018		31st STREET AND 1st AVENUE
			GREELEY, COLORADO

FIG. No. 2



LEGEND

- APPROXIMATE LOCATION OF PREVIOUSLY INSTALLED MONITORING WELL
- APPROXIMATE LOCATION MONITORING WELLS INSTALLED BY TERRACON
- APPROXIMATE LOCATION OF SEDIMENT AND SURFACE WATER SAMPLES
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BOUNDARY OF HISTORICAL SOLID WASTE AREA

N

0 100'

SCALE

Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

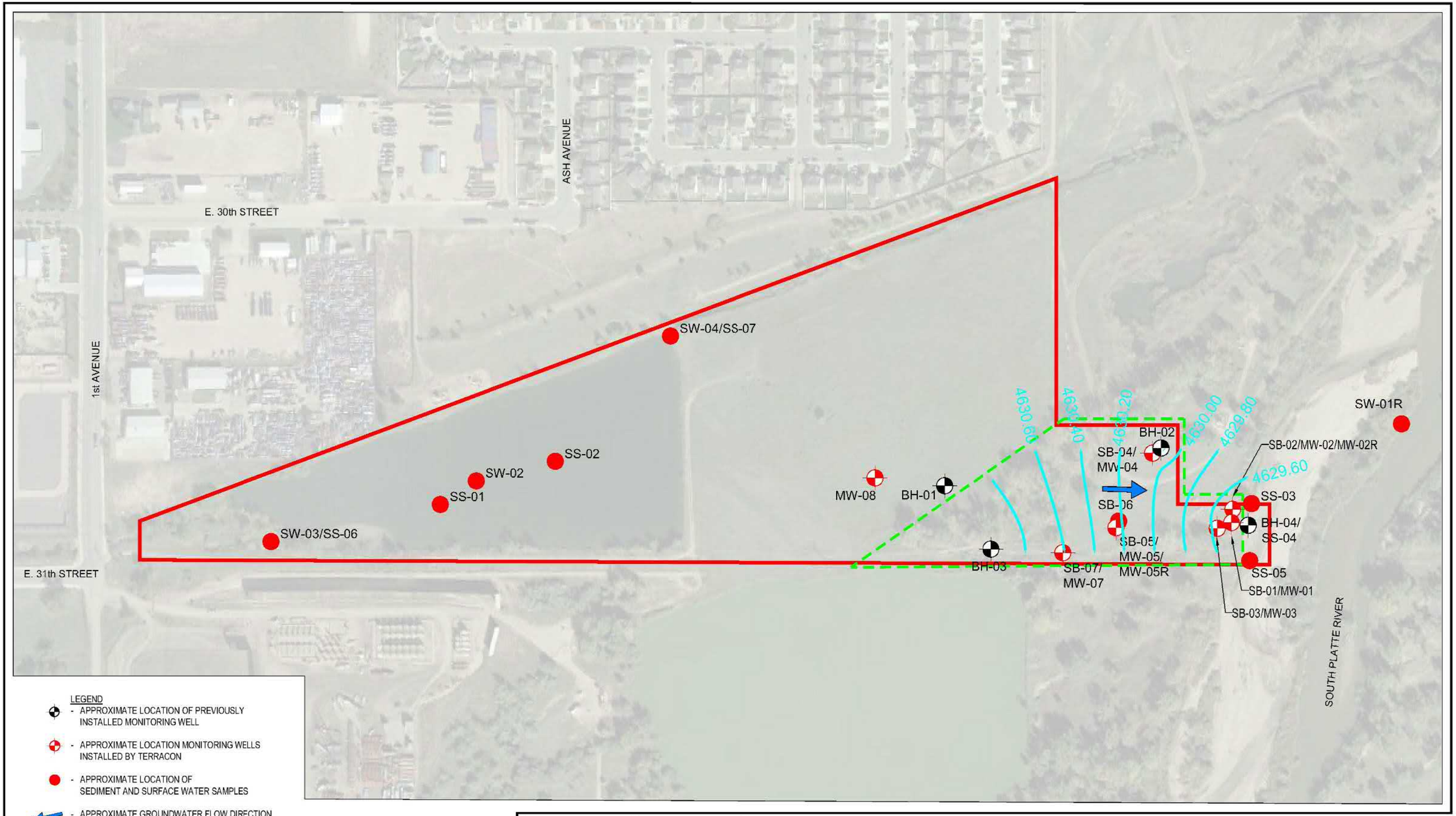
Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

Terracon
Consulting Engineers and Scientists
1289 1stAvenue Greeley, CO 80631
PH. (970) 351-0460 FAX. (970) 353-8639

SITE DIAGRAM - B

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 3



Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

Terracon
Consulting Engineers and Scientists
1289 1stAvenue Greeley, CO 80631
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GROUNDWATER CONTOUR MAP

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 4

APPENDIX B
TABLES

Table 1
Summary of Soil Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID and Depth				SB-01 (4-8)	SB-01 (8-12)	SB-02 (4-8)	SB-02 (8-12)	SB-03 (4-8)	SB-03 (8-12)	SB-04 (4-8)	SB-04 (8-12)	SB-05	SB-06	SB-07 (4-8)	SB-07 (8-12)	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SB-02R (0-4)	SB-02R (4-8)	SB-05R (0-4)	SB-05R (4-8)	SB-08 (0-4)
Collection Date				8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/23/18	8/23/18	8/30/18	8/30/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	10/5/18	10/5/18	10/5/18	10/5/18	10/5/18
Parameter	**Residential RSL**	**Industrial RSL**	**CDPHE GPV**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RCRA Metals (6010B / 7471)																											
Arsenic[1]	0.68	3.0	NE	**2.63**	<0.200	**6.74**	<0.200	<0.200	<0.200	**4.71**	**4.6**	**2.51**	**3.93**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**4.05**	**3.42**	**3.66**	**5.94**	<2.00
Barium	15,000	220,000	NE	**26.9**	**9.44**	**55.3**	**12**	**15.4**	**14.7**	**121**	**77.5**	<0.5	<0.5	**29.7**	**74.4**	**76.6**	**82.9**	**17.5**	**30**	**13.6**	**9.17**	**29.5**	**57.3**	**62.7**	**173**	**104**	**153**
Beryllium	16	230	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.398**	**0.415**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	980	NE	<0.5	<0.5	**0.675**	<0.5	<0.5	<0.5	**0.553**	**0.663**	<0.5	**0.635**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.676**	**0.803**	<0.5
Chromium	NE	NE	NE	**3.27**	**1.33**	**7.14**	**1.88**	**15.4**	**1.96**	**14.3**	**9.81**	**11.2**	**9.98**	**4.29**	**11.5**	**13.2**	**11.8**	**1.55**	**1.84**	<1.0	**1.71**	**4.58**	**6.32**	**7.68**	**11.3**	**9.69**	**20.7**
Lead	400	800	NE	**25.4**	**1.37**	**64.3**	**9.77**	**16**	**7.65**	**120**	**92**	**82.7**	**43.9**	**5.8**	**7.59**	**13.3**	**12.8**	**3.68**	**4.9**	**2.89**	**4.29**	**4.49**	**39.2**	**45.9**	**61.9**	**47.1**	**12.3**
Mercury	11	46	NE	**0.132**	**0.0208**	**0.0939**	**0.024**	**0.044**	**0.0223**	**0.0783**	**0.143**	**0.0339**	**0.165**	<0.02	**0.0763**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.146**	**0.121**	**0.152**	**0.106**	**0.152**
Silver	390	5,800	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**8.97**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	3,100	47,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**11.4**	**52.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	22,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.25**	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	350,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**85.3**	**132**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B) - Not Detected																											
Acetone	61,000	670,000	32	**0.0259**	<0.025	**0.0368**	**0.0539**	<0.025	**0.0334**	**0.0593**	**0.0865**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.0773**	<0.025
Chlorobenzene	280	1,300	5.3	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00922**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00389**	<0.0025
1,4-Dichlorobenzene	2.6	11	7.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0219**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	5.8	25	100	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00278**	<0.0025	**0.0109**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
2-Butanone (MEK)	27,000	190,000	18	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.306	<0.0025
Tetrachloroethene	24	100	1.9	<0.0025	<0.0025	**0.00283**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	4,900	47,000	50	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.00702**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	580	2,500	75	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	**0.00799**	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065
SVOCs (8270C)																											
Acenaphthene	3,600	45,000	1000	**0.0838**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	18,000	230,000	1000	**0.146**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	0.16	2.9	1000	**0.86**	<0.033	**0.189**	**0.0339**	<0.033	<0.033	**0.156**	<0.033	**0.0429**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	0.16	2.9	1000	**1.06**	<0.033	**0.247**	**0.0459**	<0.033	<0.033	**0.192**	<0.033	**0.08**	<0.033	<0.033	<0.033	<0.033	**0.0373**	<0.033	<0.033	<0.033	**0.0359**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(k)fluoranthene	1.6	29	1000	**0.3**	<0.033	**0.103**	<0.033	<0.033	<0.033	**0.0517**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(g,h,i)perylene	NE	NE	NE	**0.274**	<0.033	**0.154**	**0.0349**	<0.033	<0.033	**0.0935**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	0.016	0.29	1000	**0.796**	<0.033	**0.22**	**0.0394**	<0.033	<0.033	**0.149**	<0.033	**0.0522**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Chrysene	16	290	1000	**0.945**	<0.033	**0.231**	**0.0372**	<0.033	<0.033	**0.171**	<0.033	**0.0475**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenz(a,h)anthracene	0.016	0.29	1000	**2.74**	<0.33	**1.15**	**0.259**	<0.33	<0.33	**0.743**	<0.33	**0.207**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Fluoranthene	2,400	30,000	1000	**1.37**	<0.033	**0.331**	**0.0724**	<0.033	<0.033	**0.308**	<0.033	**0.0763**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0513**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Indeno(1,2,3-cd)pyrene	0.16	2.9	1000	**8.46**	**0.188**	**4.08**	**0.904**	<0.033	<0.033	**2.41**	**0.162**	**0.556**	<0.033	<0.033	**0.309**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenanthrene	NE	NE	NE	**0.586**	<0.033	**0.115**	**0.0574**	<0.033	<0.033	**0.131**	<0.033	**0.0472**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Pyrene	1,800	23,000	1000	**1.42**	<0.033	**0.346**	**0.0706**	<0.033	<0.033	**0.286**	**0.0364**	**0.0783**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0512**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenol	19,000	250,000	47	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.67	**1.25**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
Only detected analytes shown (detected concentrations are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
SVOC = Semivolatile Organic Compounds
PCB = Polychlorinated Biphenyl
NA = Not Analyzed

Table 2
Summary of Groundwater Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05	MW-07	SW-1R	SW-2P	SW-3P	SW-4P	MW-02R	MW-05R	MW-08
Collect Date		8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/23/18	8/24/18	8/24/18	8/24/18	10/9/18	10/9/18	10/9/18
Parameter	CDPHE Reg. 41 Groundwater Standard[1]	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dissolved RCRA Metals (6010B/7470A)														
Arsenic	**10**	<10	<10	<10	<10	**4.8**	<10	<10	<10	<10	<10	<10	<10	<10
Barium	**2,000**	**126**	**114**	**122**	**55.1**	NA	**198**	**65.4**	**52.3**	**57.4**	**53.5**	**112**	**92.9**	**46.9**
Cyanide	**200**	NA	NA	NA	NA	**12.8**	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**50**	**13.9**	<10	<10	<10	<10	**12.6**	<10	<10	<10	<10	<10	<10	<10
Zinc	**5,000**	NA	NA	NA	NA	**422**	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B)														
Chlorobenzene	**100**	<1.0	<1.0	<1.0	<1.0	**1.77**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	**140**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.99**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
PAHs (8270)														
Dibenz(a,h)anthracene	**0.0048**	<1.0	**5.29**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-cd)pyrene	**0.0048**	<1.0	**28.3**	<1.0	<1.0	**1.03**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Additional Parameters - mg/L														
Dissolved Solids	**400[2]**	NA	NA	NA	NA	NA	NA	**755**	**379**	**405**	**384**	NA	NA	NA
Suspended Solids	**NE**	NA	NA	NA	NA	NA	NA	**31**	**15.6**	**51.2**	**6.83**	NA	NA	NA
Hardness	**<180[3]**	NA	NA	NA	NA	NA	NA	**427**	**238**	**200**	**279**	NA	NA	NA
Alkalinity	**150**	NA	NA	NA	NA	NA	NA	**204**	**125**	**130**	**127**	NA	NA	NA
Nitrate-Nitrite	**100**	NA	NA	NA	NA	NA	NA	**3.42**	**0.265**	**0.647**	**0.28**	NA	NA	NA
Total Phosphorus	**NE**	NA	NA	NA	NA	NA	NA	**0.352**	<0.1	**0.16**	<0.1	NA	NA	NA

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (December 30, 2016)
2) 400 mg/L or 1.25 times background level, whichever is least restrictive
3) <180 mg/L is considered "very hard" water
Only detected analytes shown (detected concentrations are **bold**)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
NA = Not Analyzed

Table 3
Summary of Soil Gas Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID			BH-01	BH-02	BH-03	BH-04	SVP-01	SVP-02	SVP-03	SVP-04	SVP-07	SVP-02R	SVP-02RB
Collect Date			3/6/2018	3/6/2018	3/6/2018	3/6/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	10/9/2018	10/9/2018
Parameter	**Residential RSL**	**Residential VISL[1]**	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
VOC (TO-15)													
TPH (GC/MS) Low Fraction	**31**	**1,033**	<1.9	<1.9	<1.9	<1.9	**789**	**599**	**418**	**1,580**	<413	NA	NA
Acetone	**32,000**	**1,066,667**	<19	<20	**22**	**30**	**43.4**	**14.1**	**17.9**	**56**	**15.2**	**9.28**	**7.81**
Benzene	**0.36**	**12**	<1.9	<1.9	<1.9	<1.9	**1.86**	<1.28	<1.28	**7.16**	<1.28	<1.28	<1.28
Carbon disulfide	**73**	**2,433**	<1.9	<1.9	<1.9	<1.9	**2.8**	<1.24	**7.23**	**10.2**	<1.24	<1.24	<1.24
Chloroform	**0.12**	**4**	<1.9	2	<1.9	<1.9	<1.95	**3.78**	**33**	**3.4**	<1.95	**6.13**	<1.95
Chloromethane	**94**	**3,133**	<1.9	<1.9	<1.9	<1.9	<0.826	<0.826	<0.826	**2.66**	<0.826	<0.826	**0.916**
Cyclohexane	**630**	**21,000**	<1.9	<1.9	<1.9	<1.9	**3.23**	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
1,3-Dichlorobenzene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<2.40	<2.40	<2.40	**2.63**	<2.40	<2.40	<2.40
cis-1,2-Dichloroethene	**NE**	**NE**	<1.9	<2	<1.9	2	<1.59	**1.99**	<1.59	<1.59	<1.59	**3.04**	<1.59
trans-1,2-Dichloroethene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.59	**3.26**	<1.59	<1.59	<1.59	**5.39**	<1.59
1,4-Dioxane	**0.56**	**19**	<1.9	<1.9	<1.9	<1.9	<1.44	<1.44	<1.44	**3.46**	<1.44	<1.44	<1.44
Ethanol	**NE**	**NE**	<19	<20	**47**	**80**	**73.4**	**21.1**	**16.3**	**23.1**	**9.45**	**7.26**	**7.44**
Ethylbenzene	**1.1**	**37**	<1.9	<1.9	<1.9	<1.9	**3.12**	**1.87**	**12.9**	**29.1**	<1.73	<1.73	<1.73
4-Ethyltoluene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.96	<1.96	<1.96	**4.23**	<1.96	<1.96	<1.96
Trichlorofluoromethane	**NE**	**NE**	<1.9	**5.7**	<1.9	**2.7**	**6.49**	**6.92**	**9.68**	**4.6**	<2.25	**12.4**	<2.25
Dichlorodifluoromethane	**100**	**3,333**	**2.1**	**27**	<1.9	**7.4**	**7.73**	**32.9**	**6.01**	**9.43**	**12.9**	**19.6**	**2.06**
1,2-Dichlorotetrafluoroethane	**NE**	**NE**	<1.9	**8.3**	<1.9	**4.9**	**106**	**567**	**127**	**10.4**	<2.80	**110**	<2.80
Heptane	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	**4.65**	<1.64	<1.64	<1.64	<1.64	<1.64	<1.64
n-Hexane	**730**	**24,333**	<1.9	<1.9	<1.9	<1.9	**5.86**	**2.62**	**5.87**	**4.3**	<1.41	<1.41	**1.58**
Isopropylbenzene	**420**	**14,000**	<1.9	<1.9	<1.9	<1.9	<1.97	<1.97	**2.5**	**5.32**	<1.97	<1.97	<1.97
Methylene Chloride	**100**	**3,333**	**15**	<1.9	<1.9	<1.9	**28.1**	**25.3**	**17.2**	**16.6**	**2.47**	**1.54**	**4.65**
2-Butanone (MEK)	**5,200**	**173,333**	<1.9	<1.9	<1.9	<1.9	**7.65**	<10.2	<10.2	**11.9**	<10.2	<10.2	<10.2
2-Propanol	**210**	**7,000**	<19	<20	<19	**26**	**26.4**	**8.94**	<6.15	**23.4**	**8.4**	<6.15	<6.15
Propene	**3,100**	**103,333**	<1.9	<1.9	<1.9	<1.9	**3.7**	<1.38	**11.6**	**2.96**	<1.38	<1.38	<1.38
Styrene	**1,000**	**33,333**	<1.9	<1.9	<1.9	<1.9	**3.98**	**1.82**	**11**	**66.9**	<1.70	<1.70	<1.70
Tetrachloroethylene	**11**	**367**	<1.9	**45**	<1.9	**84**	**70.2**	**348**	**46.3**	**117**	<2.72	**652**	<2.72
Tetrahydrofuran	**2,100**	**70,000**	<1.9	<1.9	<1.9	<1.9	**5.1**	<1.18	<1.18	**3.63**	<1.18	<1.18	<1.18
Toluene	**5,200**	**173,333**	<1.9	<1.9	**2.2**	**6.7**	**20.7**	<1.51	**2.79**	**24.9**	<1.51	<1.51	<1.51
1,1,1-Trichloroethane	**5,200**	**173,333**	<1.9	**41**	<1.9	<1.9	<2.18	<2.18	<2.18	**6.23**	<2.18	<2.18	<2.18
Trichloroethylene	**0.48**	**16**	<1.9	<1.9	<1.9	**9.8**	<2.14	**32.4**	**3.08**	<2.14	<2.14	**47.8**	<2.14
1,2,4-Trimethylbenzene	**7.3**	**243**	<1.9	<1.9	<1.9	<1.9	**2.22**	<1.96	<1.96	**4.93**	<1.96	<1.96	<1.96
m&p-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<3.47	<3.47	**4.88**	**19.4**	<3.47	**6.34**	<3.47
o-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<1.73	<1.73	**1.84**	**8.2**	<1.73	**2.21**	<1.73
Fixed Gasses by D1946 (%)													
Methane	**NE**	**NE**	NA	NA	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Carbon Monoxide	**NE**	**NE**	NA	NA	NA	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Carbon Dioxide	**NE**	**NE**	**0.438**	**2.01**	**0.592**	**0.974**	<0.5	<0.5	<0.5	**0.972**	<0.5	<0.5	<0.5
Oxygen	**NE**	**NE**	**21.9**	**20.3**	**21.7**	**21.4**	**16.7**	**16.8**	**16.4**	**16.8**	**16.8**	NA	NA

1) VISL - Vapor Intrusion Screening Level (calculated by dividing the RSL for residential indoor air by the State approved 3% [0.03] attenuation factor).
RSL = USEPA Indoor Air Regional Screening Level (HQ=0.1 June 2017)
ASC = CDPHE Air Screening Concentrations, Remediation Goals (January 2016)
ND = Not Detected
NE = Not Established
NA = Not Applicable
Only detected analytes shown (detected concentrations are **bold**)

APPENDIX C

VOLUNTARY CLEANUP PROGRAM APPLICATION

VOLUNTARY CLEANUP PROGRAM APPLICATION

Greeley Fishing Pond
East of 31st Street at 1st Avenue
Greeley, Weld County, Colorado
November 8, 2018

Terracon Project No. 21187023

Prepared for:
City of Greeley – Public Works Department
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

Terracon

November 8, 2018

Colorado Department of Public Health and Environment
HMWMD-RP-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Attention: Mr. Fonda Apostolopoulos

Re: Voluntary Cleanup Program Application – Greeley Fishing Pond
East of 31st Street at 1st Avenue
Greeley, Weld County, Colorado
Terracon Project No. 21187023

Dear Mr. Apostolopoulos:

Please find enclosed the Voluntary Cleanup Program (VCP) Application for your review regarding the above-referenced property, the property owner's authorization to submit the Application, and a check for the $2,000 review fee.

Should you have any questions or require additional information, please do not hesitate to contact us at (303) 445-5249. We look forward to your comments and/or approval of this Application.

Sincerely,
Terracon Consultants, Inc.

Michael J. Skridulis
Environmental Department Manager

John C. Graves, P.G.
Senior Principal/Regional Manager

Derek A. Brown, P.E.
Senior Project Engineer

Attachments: Electronic copy on included external drive
CC'ed: Mr. Brian Ward - City of Greeley

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VOLUNTARY CLEANUP PROGRAM APPLICATION
GREELEY FISHING POND
EAST OF 31ST STREET AT 1ST AVENUE
GREELEY, WELD COUNTY, COLORADO

November 8, 2018

Terracon Project No. 21187023

The proposed Greeley Fishing Pond Redevelopment site consists of three adjacent parcels identified as Weld County Assessor Parcel numbers 096121217001 (16.14-acres), 096121201023 (18.72-acres), and 096121100029 (3.79-acres). The parcels are located southeast of the City of Greeley, Weld County, Colorado. The parcels lie on the east side of 31st Street at 1st Avenue and make up the Greeley Fishing Pond and associated open space.

The property is owned by the City of Greeley (City) and has been allocated as future open space by the City of Greeley Public Works Department. The City is planning to convert the property to public open space trails with unrestricted access to the Greeley Fishing Pond.

The scope of services provided by Terracon Consultants, Inc. (Terracon) and other consultants to date include the following reports:

- Phase I Environmental Site Assessment (ESA);
- Phase II Investigation – Initial Data Reporting;
- Asbestos-Containing Materials (ACM) Survey and Interim Stabilization Plan (ISP);
- Additional ACM Sampling for ISP Implementation;
- Implementation of the ISP for ACM;
- Additional ACM Survey;
- Limited Hazardous Materials Investigation;
- Cultural Resources Survey; and,
- Natural Resources Survey.

A summary of each report is included below:

Phase I ESA

The Phase I ESA, dated April 6, 2016 was completed by ERO Resources Corporation (ERO). The ESA findings are summarized on the table below. More detailed site information (i.e., site histories, regulatory records, etc.) is included in the attached appendices.

Historic Land Use	Based on a review of the historical information, the site remained undeveloped and used partially as agricultural use from at least 1937 until approximately 1969 when dirt access roads and water storage ponds were visible, and the stream along the northern boundary of the property was channelized. In 1978 through 1984 additional

	roads were constructed on the property and solid waste piles became visible in the southeast portion of the site. In 1993 Oil and Gas (O&G) improvements were visible. O&G improvements varied from 1993 to 2006. The site is currently undeveloped and vacant.
Recognized Environmental Conditions (RECs)	ERO identified the following Recognized Environmental Concern (REC) associated with the solid waste disposal area observed on the property: • "Because building materials of unknown origin were identified in the materials disposed with the potential for asbestos containing material (ACM) being present in the materials disposed".

Phase II Investigation

Quantum Water & Environment (Quantum) completed Phase II Investigation activities at the property in the First Quarter 2018 (Quantum Project No. 221E-18, Report dated April 3, 2018). The Phase II LSI was completed to assess RECs associated with the Phase I ESA. More detailed site and sampling information is included in the Quantum LSI Report attached as an appendix to this application.

Quantum Phase II LSI information is summarized in the table below.

Soil Information	Four soil borings were advanced on the site and completed as 1-inch groundwater monitoring wells to a maximum depth of approximately 13 feet below ground surface (bgs). The area of the site associated with historical solid waste disposal is underlain primarily by silty sands mixed with solid waste debris and coal ash to boring termination between approximately 12 to 13 feet bgs.
Soil Analytical Results	Arsenic was reported in soil samples BH-02 (4.5 milligrams per kilogram [mg/kg]), BH-03 (4.5 mg/kg), and BH-04 (5.6 mg/kg) above the United States Environmental Protection Agency (US EPA) Residential and Industrial Regional Screening Levels (RSLs) of 0.68 mg/kg and 3.0 mg/kg, respectively. These values are below Colorado Department of Public Health and Environment (CDPHE) background Risk Management Guidance for Evaluating Arsenic. The polycyclic aromatic hydrocarbon (PAH), benzo(a)pyrene (0.48 mg/kg), was reported in soil sample BH-01 at a concentration above EPA Residential and Industrial RSLs. PAHs, benzo(a)anthracene (1,800 mg/kg), benzo(a)pyrene (2,200 mg/kg), benzo(b)fluoranthene (2,300 mg/kg), benzo(k)fluoranthene (990 mg/kg), chrysene (1.800 mg/kg), dibenz(a,h)anthracene (400 mg/kg), fluoranthene (3,400 mg/kg), indeno(1,2,3-cd)pyrene (1,700 mg/kg), and pyrene (3,500 mg/kg) were reported in soil sample BH-04 above their respective EPA RSLs.
Groundwater Information	Four soil borings were advanced on the site and completed as 1-inch groundwater monitoring wells to depths approximately 13 feet bgs. Depth to groundwater was observed between 7.00 (BH-01) and 10.50 (BH-03) feet bgs at the site on February 8, 2018.
Groundwater Analytical Results	Semi volatile organic compounds (SVOCs), benzo(a)anthracene (26 micrograms per liter [µg/L]), benzo(a)pyrene (28 µg/L), benzo(b)fluoranthene (35 µg/L),

	benzo(k)fluoranthene (17 µg/L), chrysene (29 µg/L), dibenz(a,h)anthracene (5 µg/L), and indeno(1,2,3-cd)pyrene (32 µg/L) were reported above CDPHE Reg. 41 in the groundwater sample collected from BH-04. Bis(2-ethylhexyl)phthalate (5.4 µg/L) was reported above CDPHE Reg. 41 in the groundwater sample collected from BH-01.
Soil Vapor Information	Four soil vapor samples were collected from the installed monitoring wells BH-01 through BH-04.
Soil Vapor Analytical Results	Chloroform (2.0 micrograms per meters cubed [µg/m^3]) and tetrachloroethene ([PCE] 45 µg/m^3) were reported at concentrations exceeding EPA RSLs for the soil vapor sample collected from BH-02. Trichloroethene ([TCE] 9.8 µg/m^3) and PCE (84 µg/m^3) were reported at concentrations exceeding EPA RSLs for the soil vapor sample collected from BH-04.

ACM – Related Surveys

Spirit Environmental, LLC (Spirit) and Quantum conducted a friable asbestos-containing material (ACM) bulk sampling survey of the property from between March 7, 2018 and May 8, 2018. Additionally, Spirit prepared an Interim Stabilization Plan (ISP), Plan dated June 5, 2018 for the ACM identified during the initial site surveys. The asbestos results are summarized in the table below. Additional detailed site information (i.e., site histories, regulatory records, etc.) are included in the Reports/Plans included in the attached appendices.

Asbestos	A total of 69 bulk samples were collected during the inspection. Twenty-one of the samples tested positive for the presence of asbestos. Of these 21 samples, 8 of the samples were determined to be “friable”, as assessed by the certified asbestos building inspector (CABI). On March 29, 2018, Spirit/Quantum provided notification to CDPHE of the ACM discovery. On April 3, 2018, representatives from the City, Quantum, and Spirit met on-site with Mr. Brian Long (CDPHE representative) to discuss the layout of the warning fence/signage and initial requirements for the ISP. The ISP was developed on June 5, 2018.

Terracon Consultants, Inc. (Terracon) conducted additional ACM sampling within the designated ISP area of the site on July 3, 2018. The purpose of the inspection was to further delineate the extent of the previously identified friable ACM within the approximate 55-foot by 45-foot area outlined in the ISP. The results are summarized in the table below. Additional detailed site information is included in the Project Addendum in the attached appendices.

Asbestos	Terracon confirmed the two general locations of the friable ACM roofing outlined in the ISP and determined the size of the areas to be covered during the implementation of the ISP could be diminished. Terracon verified the locations for implementation of the ISP and submitted the addendum to CDPHE.

On July 25 and 27, 2018, Terracon conducted oversight of the implementation of the ISP by Region 8 Environmental (R8). Terracon was responsible for oversight of the stabilization and/or

removal of regulated asbestos contaminated soils (RACS) identified in the ISP and Addendum #01 to the ISP. Stabilization activities were conducted by R8 and included:

- Warning fence and signage
- Silt fences
- Removal of RACS from identified areas
- Install geotextile over I15-1 (Area 1), J17-2 & J17-3 (Area 2), H10-5 (Area 3) and O28-2 (Area 4) as shown on Figure 2, Friable ACM Areas
- Fill/cover installed geotextile with six inches of soil in I15-1, J17-2 & J17-3, H10-5 and O28-2, as depicted on Figure 2, Friable ACM Areas

Based on Terracon's final visual inspection performed on July 27, 2018, fill dirt was placed over the geotextile in the required RACS locations in accordance with the ISP. Terracon confirmed that at least six inches of fill soil was placed over the geotextile in each location.

Terracon conducted a supplemental limited asbestos assessment at the property on July 24, 25, and August 6, 2018. The purpose of the investigation was to confirm the findings of previous ACM surveys performed on the property. The results are summarized in the table below. Additional detailed site information is included in the Report in the attached appendices.

Asbestos	Survey activities were initiated with visual observation of the property (within the property line boundary but excluding the previously identified areas surveyed by Quantum/Spirit in the ISP). A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application. Terracon inspectors walked all accessible areas of the property and visually assessed and documented any suspect asbestos-containing building material (ACBM) debris on the property and obtained bulk samples for analysis. Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM. Laboratory analysis confirmed the following asbestos-containing non-friable materials: Red Flooring Material, Gray Mastic, Black Roofing Tar and Felt associated with Gray Mastic, Black Mastic with Silver Coating and Paint, Black Roofing Tar and Felt associated with Black Mastic Based on observations, Terracon considers the ACM debris to be non-RACS. According to CDPHE Solid Waste Regulations, non-friable ACM debris that has not been rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage is considered non-RACS and is therefore exempt from Section 5.5 of the Solid Waste regulations but is subject to the requirement for proper disposal as non-friable asbestos waste.

Limited Hazardous Materials Investigation

Terracon completed a limited hazardous materials investigation in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June

6, 2018. The Investigation was completed to assess and delineate the source of contaminates of concern reported by Quantum and other consultants and to determine VCP applicability of the site based on laboratory analytical and investigatory results. Terracon performed initial investigation activities in August and September, 2018 and additional confirmatory investigation activities in October 2018.

Terracon Hazardous Materials Investigation information is summarized in the table below.

Soil Information	Initially, seven soil borings (SB-01 through SB-07) were advanced on the site and completed as 1-inch or 2-inch groundwater monitoring wells to a maximum depth of approximately 13 feet below ground surface (bgs). Soil borings were advanced to complete additional investigation and delineation of potential impacted soil areas in the vicinity of the historical solid waste disposal area. After receipt of the laboratory analytical results, additional soil borings and groundwater monitoring wells were advanced and installed to complete confirmatory samples (SB-02R and SB-05R) and a background sampling point (SB-08). Lithology encountered was consistent with the reported lithology by Quantum. The area of the site associated with historical solid waste disposal is underlain primarily by silty sands mixed with solid waste debris and coal ash to boring termination between approximately 12 to 13 feet bgs.
Soil Analytical Results	Arsenic was reported in soil samples SB-01, SB-02, SB-04 through SB-06, SB-02R, and SB-05R above the EPA Residential and Industrial RSLs of 0.68 mg/kg and 3.0 mg/kg, respectively. These values are below Colorado Department of Public Health and Environment (CDPHE) background Risk Management Guidance for Evaluating Arsenic. Benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil samples SB-01, SB-02, and SB-03 at concentrations above their respective EPA Residential and/or Industrial RSLs. Benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil sample SB-05 at concentrations above their respective EPA Residential and/or Industrial RSLs. Indeno(1,2,3-cd)pyrene were reported in soil sample SB-07 at a concentration above its EPA Industrial RSL.
Groundwater Information	Five of the soil borings were completed as 1-inch groundwater monitoring wells (MW-01, MW-02, MW-04, MW-05, and MW-07) to depths approximately 13 feet bgs. One soil boring was completed as a 2-inch groundwater monitoring well to approximately 15 feet bgs. Depth to groundwater was observed between 9.8 (MW-04) and 11.30 (MW-02) feet below top of casing (btoc) at the site on August 24, 2018. Three additional monitoring wells were installed at the site as 2-inch monitoring wells in October 2018. Based on initial sampling results reporting elevated SVOCs in 1-inch monitoring wells MW-02 and MW-05, MW-02R and MW-05R were installed to replace the previously existing 1-inch monitoring wells with 2-inch wells which could be properly developed to assist in delineating SVOCs in groundwater at the site. Monitoring well MW-08 was installed as an upgradient baseline sampling location to assist with contaminant delineation.
Groundwater Analytical Results	SVOCs were reported above CDPHE Reg. 41 values in the groundwater samples collected from MW-02 and MW-05. Dibenz(a,h)anthracene (5.29 µg/L), and

	indeno(1,2,3-cd)pyrene (28.3 µg/L) were reported above CDPHE Reg. 41 in the groundwater sample collected from MW-02. Indeno(1,2,3-cd)pyrene (1.03 µg/L) was reported above CDPHE Reg. 41 in the groundwater sample collected from MW-05. SVOCs were not reported above CDPHE Reg 41 in the groundwater samples collected from replacement 2-inch wells MW-02R or MW-05R.
Soil Vapor Information	Five soil vapor samples were collected from soil vapor points the installed next to the monitoring well locations MW-01 through MW-04 and MW-07 (SVP-01 through SVP-04, and SVP-07). The soil vapor points were installed to confirm previously completed soil vapor sampling results from Quantum and to facilitate additional soil vapor sampling for delineation of potential soil vapor concerns. An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory.
Soil Vapor Analytical Results	Chloroform was reported from the soil vapor samples collected from SVP-03 (33 µg/m^3) and SVP-02R (6.13) exceeding the EPA vapor intrusion screening level (VISL) of 4 µg/m^3. Tetrachloroethene ([PCE] 652 µg/m^3) was reported at concentrations exceeding EPA VISL of 367 µg/m^3 for the soil vapor sample collected from SVP-02R. Trichloroethene (TCE) was reported from the soil vapor samples collected from SVP-02 (32.4 µg/m^3) and SVP-02R (47.8 µg/m^3) exceeding the EPA VISL of 16 µg/m^3. Methane was not detected above laboratory detection levels from any of the soil vapor samples collected during this investigation.
Surface Water and Sediment Information	Four surface water (SW-1R and SW-2P through SW-4P) and seven sediment samples (SS-01 through SS-07) were collected at the property to investigate quality of pond water, pond sediment, pond inlet/out bank sediment, and river bank water and sediment to assist in delineation of potential contamination from onsite sources.
Surface Water and Sediment Analytical Results	Although some surface water and sediment samples were reported with levels of analyzed constituents above laboratory detection limits, none of the reported results were in exceedance of their respective regulatory levels.

Cultural and Natural Resources Surveys

Terracon conducted a Cultural Resources Assessment of the project site on August 22, 2018 in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018. The results are summarized in the table below. Additional detailed site information is included in the Report in the attached appendices.

Records Review	According to the Office of Archeology and Historic Preservation's (OAHP's) Compass database, there are two previously recorded resources within the project area, 5WL.6167 and 5WL.3155.1 [Kiowa Creek to Weld Transmission Line, (segment)]. Records indicate that site 5WL.6167 is an isolated find that consists of three pieces of glass and is mapped on the southern project boundary. However, 5WL.6167 could not be relocated during the current study. The segment of Kiowa Creek to Weld Transmission Line (5WL.3155.1) is present within the project boundary.

Archeological Field Assessment	Terracon visually examined the project area using intensive pedestrian survey at 15m intervals. Ground surface visibility (GSV) was approximately 50 to 70 percent throughout the project area due to heavy vegetation. A portion of the southwestern project area has known illegal dumping. The dumping appears to be a series of industrial and domestic waste. The waste includes metal, roofing materials, building materials, and car parts. It is unclear if there are historic-aged resources in this area.

Terracon conducted a Natural Resources Assessment of the project site on August 22, 2018 in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018. The results are summarized in the table below. Additional detailed site information is included in the Report in the attached appendices.

Site Features	The elevation of the site is approximately 4,630 feet (ft) above sea level, and surrounding areas include the town of Greeley, Colorado and numerous privately-owned residential housing, small commercial businesses, and water body features. The climate is semi-arid, with relatively cool winters, and hot summers. Mean annual precipitation is approximately 15.89 inches (in) and average annual temperature is 50° Fahrenheit (F) (NRCS 2018). The geology of the region consists of alluvium material associated with the South Platte River and sedimentary material with aeolian/loess deposits. The site is located in the central high plains of the northern portion of the Colorado Piedmont section of the Great Plains. The site is located within the South Platte watershed. The South Platte River is fed by the Big Thompson River to the South and the Cache la Poudre River to the northeast of Greeley, Colorado. Geography of Weld County consists of dissected plains, valleys, and sand hills.
Wetlands Determination	Survey activities revealed several wetlands locations on the subject property. Locations and details are outlined in this Application and included in the Natural Resources Report attached in Appendix D. Per the inventory of the site, resource document review, and site visit observations, 12.82 acres of functional wetlands exist on the property. Surface hydrology is present in these areas and flowing water was observed flowing towards South Platte River to the northeast. As such, there is a hydrologic nexus from the wetlands to a waters of the United States (WOTUS) or relatively permanent waters (RPWs). It is Terracon's conclusion that wetlands on the site are likely jurisdictional; therefore, may be regulated by the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA). The USACE; however, has the final authority for jurisdiction under the CWA.
Protected Species	No federally listed threatened and endangered (T&E) species were observed during the field survey. During the site visit, Terracon personnel completed reconnaissance of up to a ½ mile from the project site to evaluate the presence or absence of wildlife. No raptor, migratory birds, or songbirds were observed within the vicinity. Impact to Migratory Birds of Concern are expected to be minimal. Terracon reviewed Colorado Parks & Wildlife GIS data to view the most up-to-date layers for raptor nest locations as well as additional habitat layers. The area is included in bald eagle summer and winter forage area. A known and documented bald eagle nest is located 1.4 miles northeast of the project site (CPW 2018).

Health and Safety

Based on the anticipated development activities and impacts identified during the site assessments, the following exposure pathways are or will be complete or reasonably anticipated to be completed during the implementation of the development and or remedial activities:

- Soil Dermal Contact (Soil $_{Derm}$);
- Soil Ingestion (Soil $_{Ing}$); and,
- Soil Vapor Inhalation (Soil $_{Inh}$).

The proposed Remedial Action Plan (RAP) for the site considers action to mitigate and reduce long-term exposures to site contaminants and includes the following:

- Abatement and/or excavate and relocate ACM into isolation areas and contain under vegetative cover;
- Engineered vegetative and soil cover; and,
- Institutional controls including, but not limited to an environmental covenant for the impacted portion of the property.

VOLUNTARY CLEANUP PROGRAM APPLICATION
GREELEY FISHING POND
EAST OF 31ST STREET AT 1ST AVENUE
GREELEY, WELD COUNTY, COLORADO
November 8, 2018
Terracon Project No. 21187023

1.0 GENERAL INFORMATION

The City of Greeley (City) is proposing to redevelop the Greeley Fishing Pond site as discussed in the Executive Summary. Terracon Consultant's Inc. (Terracon) has prepared this Voluntary Cleanup Program (VCP) Application (Application) for the management of potentially environmentally impacted media.

Implementation of the procedures outlined in this document will result in the protection of public health and the environment during the redevelopment activities.

ITEM	DESCRIPTION
Site Address	East of 31st Street at 1st Avenue Greeley, Weld County, Colorado
Site Area	Total area – 38.65 acres
Parcel Number(s)	096121217001, 096121201023, and 096121100029
Current Land Use	Vacant
Current Zoning	Medium Density Industrial (I-M) and Agricultural (A)
Current Ground Cover	The western portion of the site consists of the Greeley fishing pond. The remainder of the site is an undeveloped vacant lot with natural vegetation.
Topography	The property is located at an approximate elevation of 4,630 feet above sea level. Surface geology in the area is characterized by alluvial deposits of sand and gravel underlain by claystone, shale, sandy shale, and sandstone of the Cretaceous-era Laramie formation (Colton 1978). According to the U.S. Geological Survey (USGS), depth to the uppermost ground water beneath the property and vicinity is less than 5 feet below ground surface (bgs) (Hillier et al. 1979). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the east-northeast, toward the South Platte River (USGS 2013). Based on the topography and field observations, the expected flow direction of the uppermost ground water is to the east-northeast, toward the South Platte River.
Proposed Construction	The City plans to convert the property to be used as a public park and natural open space with access to the Greeley Fishing Pond and inclusion of newly developed public walking trails.

ITEM	DESCRIPTION
Property Owner	The City of Greeley Public Works Department 1001 9th Avenue Greeley, Colorado 80631
Owner Representative	Brian Ward, P.E., P.M.P. Public Works Project Manager 1001 9th Avenue Greeley, Colorado 80631 P: (970) 350-9357 Email: Brian.Ward@greeleygov.com
Prepared For	Colorado Department of Public Health and Environment HMWMD-RP-B2 Attn: Mr. Fonda Apostolopoulos 4300 Cherry Creek Drive South Denver, Colorado 80246-1530 P: (303) 692-3411
Contact Person	Terracon Consultants, Inc. Michael J. Skridulis/Environmental Department Manager 1831 Lefthand Circle Longmont, Colorado 80501 P: (303) 454-5249 Email: Mike.Skridulis@terracon.com

2.0 PROGRAM INCLUSION

Based upon discussions with Fonda Apostolopolous with CDPHE VCP, it is our understanding that this site will be managed under the CDPHE's VCP.

For VCP eligibility, the following criteria must be met for the above-mentioned property. An answer "No" to Question 1 or "Yes" to any of Questions 2 through 6 would disqualify this property from the program.

CRITERIA	YES / NO
Is the applicant the owner or the owner's designated representative of the property?	Yes
Is the property listed or proposed for listing on the National Priorities List of Superfund Sites established under the Federal Act (CERCLA)?	No
Is the property the subject of corrective action under orders or agreement issued pursuant to provisions of Part 3 of Article 15 of this Title or the federal RCRA of 1976, as amended?	No
Is the property subject to an order issued by or an agreement (including permits) with the Water Quality Control Division pursuant to Part 6 of Article 8 of this Title?	No
Is the property a facility that has or should have a permit or interim status pursuant to Part 3 of Article 15 of this Title (RCRA Subtitle C) for treatment, storage, or disposal of hazardous waste?	No

CRITERIA	YES / NO
Is the property subject to the provisions of Colorado Revised Statutes, Part 5 of Article 20 of Title 8 (Underground Storage Tanks)?	No

Based on conversations with CDPHE, the responses to VCP criterium questions, and the attached letter authorizing Terracon to complete the VCP, Terracon believes that the site is eligible for the VCP.

3.0 HISTORICAL INVESTIGATIONS

The following site investigations have been completed for the site. The finding from these investigations are summarized in this Application.

GREELEY FISHING POND		
REPORT	**DATE**	**ATTACHMENT**
Phase I ESA, ERO Resources Corporation	04-06-2015	Appendix A
Phase II Investigation – Initial Data Reporting, Quantum Water & Environment	04-03-2018	Appendix B
Interim Stabilization Plan for Regulated Asbestos Contaminated Soil, Spirit Environmental	06-05-2018	Appendix C
Addendum #01 to Interim Stabilization Plan for RACS, Terracon	07-09-2018	Appendix C
Oversight of Interim Stabilization Activities of Regulated Asbestos-Containing Soils, Terracon	08-06-2018	Appendix C
Limited Asbestos Assessment, Terracon	08-21-2018	Appendix C
Cultural resources Assessment, Terracon	10-25-2018	Appendix D
Natural Resources Assessment, Terracon	10-31-2018	Appendix D
Limited Hazardous Materials Investigation, Terracon	10-29-2018	Appendix D
Materials Management Plan, Terracon	10-16-2018	Appendix E

4.0 ENVIRONMENTAL ASSESSMENT

4.1 Qualifications of Professionals

Qualified environmental professionals were involved in the preparation of the Terracon Prepared ACM Reports, Cultural and Natural Resources Assessments, Limited Hazardous Materials Investigation, Materials Management Plan (MMP), and this VCP Application. Resumes of all personnel that participated in preparing these Terracon documents are included in Appendix F.

4.2 Phase I Environmental Site Assessment

As previously discussed, ERO Resources Corporation (ERO) completed the Phase I Environmental Site Assessment (ESA) for the property on April 6, 2015. A summary of the Phase I ESA findings including the RECs is provided below.

The ERO Phase I ESA identified the following RECs in connection with the site:

On-Site REC

- Solid waste disposal on the property– Because building materials of unknown origin were identified in the materials disposed with the potential for asbestos containing materials being present in the materials disposed. This constitutes a REC to the Subject Property.

Several areas of solid waste disposal were observed on the southeast portion of the property. Items observed generally included inert materials including concrete, clay tile, scrapped cars, asphalt shingles and other building materials, scrap wood and metal, and flood-related debris. No indications of hazardous substances or petroleum products were observed within the material disposed. ERO was not able to assess the soil conditions beneath the solid waste disposal sites. Additional concrete rubble was observed around the bases of the overhead powerline poles on the property.

4.3 Limited Site Investigations

Limited Site Investigations were completed by Quantum and Terracon on separate occasions, in general accordance with ASTM E1903-11 for the site's to evaluate potential impacts to soil, groundwater, and soil vapor associated with the aforementioned off-site RECs. A summary of the Phase II LSI findings are provided below.

Quantum Water & Environment (Quantum) completed Phase II Limited Site Investigation (LSI) activities at the property in the First Quarter 2018 (Quantum Project No. 221E-18, Report dated April 3, 2018). A summary of the Phase II LSI activities is provided below.

- Four soil borings were advanced on the site and completed as 1-inch groundwater monitoring wells to a maximum depth of approximately 13 feet below ground surface (bgs). The area of the site associated with historical solid waste disposal is underlain primarily by silty sands mixed with solid waste debris and coal ash to boring termination between approximately 12 to 13 feet bgs.
  - Arsenic was reported in soil samples BH-02 (4.5 milligrams per kilogram [mg/kg]), BH-03 (4.5 mg/kg), and BH-04 (5.6 mg/kg) above the United States Environmental Protection Agency (US EPA) Residential and Industrial Screening Levels (RSLs) of 0.68 mg/kg and 3.0 mg/kg, respectively. These values are below Colorado Department of Public Health and Environment (CDPHE) background Risk Management Guidance for Evaluating Arsenic.
  - The polycyclic aromatic hydrocarbon (PAH), benzo(a)pyrene (0.48 mg/kg), was reported in soil sample BH-01 at a concentration above EPA Residential and Industrial RSLs.

- PAHs, benzo(a)anthracene (1,800 mg/kg), benzo(a)pyrene (2,200 mg/kg), benzo(b)fluoranthene (2,300 mg/kg), benzo(k)fluoranthene (990 mg/kg), chrysene (1.800 mg/kg), dibenz(a,h)anthracene (400 mg/kg), fluoranthene (3,400 mg/kg), indeno(1,2,3-cd)pyrene (1,700 mg/kg), and pyrene (3,500 mg/kg) were reported in soil sample BH-04 above their respective EPA RSLs.

- Four soil borings were advanced on the site and completed as 1-inch groundwater monitoring wells to depths approximately 13 feet bgs. Depth to groundwater was observed between 7.00 (BH-01) and 10.50 (BH-03) feet bgs at the site on February 8, 2018.
  - Semi volatile organic compounds (SVOCs), benzo(a)anthracene (26 micrograms per liter [µg/L]), benzo(a)pyrene (28 µg/L), benzo(b)fluoranthene (35 µg/L), benzo(k)fluoranthene (17 µg/L), chrysene (29 µg/L), dibenz(a,h)anthracene (5 µg/L), and indeno(1,2,3-cd)pyrene (32 µg/L) were reported above CDPHE Reg. 41 in the groundwater sample collected from BH-04.
  - Bis(2-ethylhexyl)phthalate (5.4 µg/L) was reported above CDPHE Reg. 41 in the groundwater sample collected from BH-01.

- Four soil vapor samples were collected from the installed monitoring wells BH-01 through BH-04.
  - Chloroform (2.0 micrograms per meters cubed [µg/m^3]) and tetrachloroethene ([PCE] 45 µg/m^3) were reported at concentrations exceeding EPA RSLs for the soil vapor sample collected from BH-02.
  - Trichloroethene ([TCE] 9.8 µg/m^3) and PCE (84 µg/m^3) were reported at concentrations exceeding EPA RSLs for the soil vapor sample collected from BH-04.

Terracon completed a limited hazardous materials investigation in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018. The Investigation was completed to assess and delineate the source of contaminates of concern reported by Quantum and other consultants and to determine VCP applicability of the site based on laboratory analytical and investigatory results. Terracon completed soil, groundwater, soil vapor, surface water, and sediment sampling activities to confirm and further delineate contaminants of concern and to assist the City with site characterization and develop remedial strategies for the property. A summary of the Investigation activities is provided below.

- Initially, seven soil borings (SB-01 through SB-07) were advanced on the site and completed as 1-inch or 2-inch groundwater monitoring wells to a maximum depth of approximately 13 feet below ground surface (bgs). Soil borings were advanced

to complete additional investigation and delineation of potential impacted soil areas in the vicinity of the historical solid waste disposal area. After receipt of the laboratory analytical results, additional soil borings and groundwater monitoring wells were advanced and installed to complete confirmatory samples (SB-02R and SB-05R) and a background sampling point (SB-08). Lithology encountered was consistent with the reported lithology by Quantum. The area of the site associated with historical solid waste disposal is underlain primarily by silty sands mixed with solid waste debris and coal ash to boring termination between approximately 12 to 13 feet bgs.

- Arsenic was reported in soil samples SB-01, SB-02, SB-04 through SB-06, SB-02R, and SB-05R above the EPA Residential and Industrial RSLs of 0.68 mg/kg and 3.0 mg/kg, respectively. These values are below Colorado Department of Public Health and Environment (CDPHE) background Risk Management Guidance for Evaluating Arsenic.
- Benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil samples SB-01, SB-02, and SB-03 at concentrations above their respective EPA Residential and/or Industrial RSLs.
- Benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil sample SB-05 at concentrations above their respective EPA Residential and/or Industrial RSLs.
- Indeno(1,2,3-cd)pyrene were reported in soil sample SB-07 at a concentration above its EPA Industrial RSL.

- Five of the soil borings were completed as 1-inch groundwater monitoring wells (MW-01, MW-02, MW-04, MW-05, and MW-07) to depths approximately 13 feet bgs. One soil boring was completed as a 2-inch groundwater monitoring well to approximately 15 feet bgs. Depth to groundwater was observed between 9.8 (MW-04) and 11.30 (MW-02) feet below top of casing (btoc) at the site on August 24, 2018. Three additional monitoring wells were installed at the site as 2-inch monitoring wells in October 2018. Based on initial sampling results reporting elevated SVOCs in 1-inch monitoring wells MW-02 and MW-05, MW-02R and MW-05R were installed to replace the previously existing 1-inch monitoring wells with 2-inch wells which could be properly developed to assist in delineating SVOCs in groundwater at the site. Monitoring well MW-08 was installed as an upgradient baseline sampling location to assist with contaminant delineation.
  - SVOCs were reported above CDPHE Reg. 41 values in the groundwater samples collected from MW-02 and MW-05. Dibenz(a,h)anthracene (5.29 µg/L), and indeno(1,2,3-cd)pyrene (28.3 µg/L) were reported above CDPHE Reg. 41 in the groundwater sample collected from MW-02.
  - Indeno(1,2,3-cd)pyrene (1.03 µg/L) was reported above CDPHE Reg. 41 in the groundwater sample collected from MW-05.

- SVOCs were not reported above CDPHE Reg 41 in the groundwater samples collected from replacement 2-inch wells MW-02R or MW-05R.

- Five soil vapor samples were collected from soil vapor points installed next to the monitoring well locations MW-01 through MW-04 and MW-07 (SVP-01 through SVP-04, and SVP-07). The soil vapor points were installed to confirm previously completed soil vapor sampling results from Quantum and to facilitate additional soil vapor sampling for delineation of potential soil vapor concerns. An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory. Laboratory analysis detected the presence of the following VOCs:
  - Chloroform was reported from the soil vapor samples collected from SVP-03 (33 µg/m^3) and SVP-02R (6.13) exceeding the EPA vapor intrusion screening level (VISL) of 4 µg/m^3.
  - Tetrachloroethene ([PCE] 652 µg/m^3) was reported at concentrations exceeding EPA VISL of 367 µg/m^3 for the soil vapor sample collected from SVP-02R.
  - Trichloroethene (TCE) was reported from the soil vapor samples collected from SVP-02 (32.4 µg/m^3) and SVP-02R (47.8 µg/m^3) exceeding the EPA VISL of 16 µg/m^3.

- Four surface water (SW-1R and SW-2P through SW-4P) and seven sediment samples (SS-01 through SS-07) were collected at the property to investigate quality of pond water, pond sediment, pond inlet/out bank sediment, and river bank water and sediment to assist in delineation of potential contamination from onsite sources.
  - Although some surface water and sediment samples were reported with levels of analyzed constituents above laboratory detection limits, none of the reported results were in exceedance of their respective regulatory levels.

Soil, water, and soil gas analytical results are summarized on Tables 1, 2, and 3 respectively. A site location map is included as Exhibit 2 and Exhibit 3 and includes soil, groundwater, surface water, and soil vapor sampling locations and apparent groundwater flow direction.

4.4 Asbestos-Containing Materials Surveys

ACM surveys were conducted by Spirit Environmental and Terracon at the property.

Spirit Environmental, LLC (Spirit) and Quantum conducted a friable asbestos-containing material (ACM) bulk sampling survey of the property from between March 7, 2018 and May 8, 2018.

Additionally, Spirit prepared an Interim Stabilization Plan (ISP), Plan dated June 5, 2018 for the ACM identified during the initial site surveys.

From March 7, 2018 through March 9, 2018, a Quantum certified asbestos building inspector (CABI) collected 69 bulk material samples from suspect building materials on the site. The samples were submitted to Reservoirs Environmental in Denver, Colorado for analysis of asbestos content by polarized light microscopy. Twenty-one of the samples tested positive for the presence of asbestos. Of these 21 samples, 8 of the samples were determined to be "friable", as assessed by the CABI. One sample (sample ID N27-4) tested positive for the presence of ACM and was determined to be friable by the CABI. The location of the friable ACM was later determined through a property boundary survey to not be located on the City of Greeley property and, therefore, was not included in the ISP.

The ISP was developed to provide temporary emissions control measures for friable ACM discovered in a solid waste disposal area on the property. The ISP describes the interim measures needed to minimize emissions from friable ACM, prevent unauthorized access and disturbance of friable ACM, and to minimize the spread of contamination from friable ACM.

Terracon conducted additional ACM sampling within the designated ISP area of the site on July 3, 2018. The purpose of the inspection was to further delineate the extent of the previously identified friable ACM within the approximate 55-foot by 45-foot area outlined in the ISP. Terracon Concluded the following:

- Terracon confirmed the two general locations of the friable ACM roofing outlined in the ISP and determined the size of the areas to be covered during the implementation of the ISP could be diminished. Terracon verified the exact locations for implementation of the ISP and submitted the addendum to CDPHE.

On July 25 and 27, 2018, Terracon conducted oversight of the implementation of the ISP by R8. Terracon was responsible for oversight of the stabilization and/or removal of RACS observed generally within in Areas 3, 7 and 8 identified in the ISP and Addendum #01 to the ISP. Stabilization activities were conducted by Region 8 Enviro and included:

- Warning fence and signage
- Silt fences
- Removal of RACS from identified areas
- Install geotextile over Friable ACM Areas
- Fill/cover installed geotextile with six inches of soil in Friable ACM Areas

Based on Terracon's final visual inspection performed on July 27, 2018, fill dirt was placed over the geotextile in RACS locations in accordance with the ISP. Terracon confirmed that at least six inches of fill soil was placed over the geotextile in each location.

Terracon conducted supplemental limited asbestos assessment at the property on July 24, 25, and August 6, 2018. The purpose of the investigation was to confirm the findings of previous ACM surveys performed on the property. The results are summarized in the below.

- Survey activities were initiated with visual observation of the property (within the property line boundary but excluding the previously identified areas surveyed by Quantum/Spirit in the ISP). A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.
- Terracon inspectors walked all accessible areas of the property and visually assessed and documented any suspect asbestos-containing building material (ACBM) debris on the property and obtained bulk samples for analysis.
- Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM. Laboratory analysis confirmed the following asbestos-containing non-friable materials: Red Flooring Material, Gray Mastic, Black Roofing Tar and Felt associated with Gray Mastic, Black Mastic with Silver Coating and Paint, Black Roofing Tar and Felt associated with Black Mastic
- Based on observations, Terracon considers the ACM debris to be non-RACS. According to CDPHE Solid Waste Regulations, non-friable ACM debris that has not been rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage is considered non-RACS and is therefore exempt from Section 5.5 of the Solid Waste regulations but is subject to the requirement for proper disposal as non-friable asbestos waste.

4.5 Cultural and Natural Resources Assessments

Terracon conducted Cultural and Natural Resources Assessments of the project site on August 22, 2018 in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040). The results are summarized in the table below:

Cultural Resources

- The project area lies within the Colorado Piedmont-Great Plains physiographic province of Colorado and is part of the South Platte watershed. Geologically, the formation in which the project area is located is mapped as modern alluvium and gravels and alluviums. The closest water source to the project area is Greeley Pond, which is inside the project area. In terms of present conditions, the proposed project area consists of undeveloped land and has indications of modern dumping.
- Geography of Weld County consists of dissected plains, valleys, and sand hills. Commercial agricultural dominates the region as a result of access to irrigation and water supplies, gently sloping topography, and deep, nutrient rich soil.

- According to OAHP's Compass database, there are two previously recorded resources within the project area, 5WL.6167 and 5WL.3155.1 [Kiowa Creek to Weld Transmission Line, (segment)]. Records indicate that site 5WL.6167 is an isolated find that consists of three pieces of glass and is mapped on the southern project boundary. However, 5WL.6167 could not be relocated during the current study. The segment of Kiowa Creek to Weld Transmission Line (5WL.3155.1) is present within the project boundary.
- Terracon visually examined the project area using intensive pedestrian survey at 15m intervals. Ground surface visibility (GSV) was approximately 50 to 70 percent throughout the project area due to heavy vegetation. A portion of the southwestern project area has known illegal dumping. The dumping appears to be a series of industrial and domestic waste. The waste includes metal, roofing materials, building materials, and car parts. It is unclear if there are historic-aged resources in this area.
- On the basis of the records search and survey of the project area, Terracon identified one historic property, 5WL.3155.1, within the project area. It is Terracon's understanding that 5WL.3155.1 will not be disturbed as a result of this project.

Natural Resources

- The elevation of the site is approximately 4,630 feet (ft) above sea level, and surrounding areas include the town of Greeley, Co and numerous privately-owned residential housing, small commercial businesses, and water body features. The climate is semi-arid, with relatively cool winters, and hot summers. Mean annual precipitation is approximately 15.89 inches (in) and average annual temperature is 50° Fahrenheit (F) (NRCS 2018). The geology of the region consists of alluvium material associated with the South Platte River and sedimentary material with aeolian/loess deposits. The site is located in the central high plains of the northern portion of the Colorado Piedmont section of the Great Plains.
- The site is located within the South Platte watershed. The South Platte River is fed by the Big Thompson River to the South and the Cache la Poudre River to the northeast of Greeley, Colorado. Geography of Weld County consists of dissected plains, valleys, and sand hills. Commercial agricultural dominates the region as a result of access to irrigation and water supplies, gently sloping topography, and deep, nutrient rich soil.
- Per the inventory of the site, resource document review, and site visit observations, 12.82 acres of functional wetlands exist on the property. Surface hydrology is present in these areas and flowing water was observed flowing towards South Platte River to the northeast. As such, there is a hydrologic nexus from the wetlands to a WOTUS or relatively permanent waters (RPWs). It is Terracon's conclusion that wetlands on the site are likely jurisdictional; therefore, may be

regulated by the USACE under Section 404 of the CWA. The USACE; however, has the final authority for jurisdiction under the CWA.

- No federally listed T&E species were observed during the field survey. During the site visit, Terracon personnel completed reconnaissance of up to a ½ mile from the project site to evaluate the presence or absence of wildlife. No raptor, migratory birds, or songbirds were observed within the vicinity. Impact to Migratory Birds of Concern are expected to be minimal. Terracon reviewed Colorado Parks & Wildlife GIS data to view the most up-to-date layers for raptor nest locations as well as additional habitat layers. The area is included in bald eagle summer and winter forage area. A known and documented bald eagle nest is located 1.4 miles northeast of the project site (CPW 2018).
- A screening-level ecological toxicity evaluation was performed using analytical data for the site. Soil, sediment, and surface water data were collected at various locations around the perimeter of the pond, as well as along the South Platte River. To perform the evaluation, ecological toxicity benchmarks for each media were used from the ORNL RAIS website. The selected screening value for each analyte and medium was the minimum RAIS value. For soil/sediment, numerous constituents had concentrations that exceeded ecological benchmarks, however most exceedances were at depths not likely to be regularly contacted by ecological receptors (i.e., wildlife). Additionally, metals concentrations for the site may be at or near designated background concentrations for Weld County, Colorado. For surface water, although data are limited, only three constituents exceeded ecological benchmarks.

4.6 Physical Characteristics of the Site

According to the Phase I completed for the site, the following statements apply to the subject site:

The property is located at an approximate elevation of 4,635 feet above sea level. Surface geology in the area is characterized by alluvial deposits of sand and gravel underlain by claystone, shale, sandy shale, and sandstone of the Cretaceous-era Laramie Formation (Colton 1978). According to the U.S. Geological Survey (USGS), depth to the uppermost ground water beneath the property and vicinity is less than 5 feet below ground surface (bgs) (Hillier et al. 1979). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the east-northeast, toward the South Platte River (USGS 2013). Based on the topography and field observations, the expected flow direction of the uppermost ground water is to the east-northeast, toward the South Platte River.

5.0 APPLICABLE STANDARDS/RISK DETERMINATION

The following standards were used for risk determination at the site:

- The EPA RSLs for industrial soil screening levels (May 2016: Target Cancer Risk (TR) of 1E-6, Hazard Quotient (HQ) or 1.0);
- The CDPHE Groundwater Protection Values (March 2014);
- The CDPHE Regulation 41, Groundwater Quality Standards (December 30, 2016); and,
- CDPHE January 2016 Residential and Industrial Air Screening Concentrations (ASCs) and the June 2017 USEPA Residential and Industrial Indoor Air RSLs, after applying a 3% attenuation factor for the vapor intrusion screening level (VISL) for subslab soil gas per the USEPA OSWER Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015).

After implementation of the remediation plan described below, potential risks to human health or environment on-site will be considered low. The general risk factors are discussed in more detail in the following sections.

5.1 Exposure Pathways and Mitigation

During the environmental assessment activities, soil, groundwater, and soil gas were reported to be environmentally impacted. Terracon performed additional monitoring well installation and groundwater sampling due to constituents of concern being reported above the solubility limits for SVOC's in groundwater. After further investigation, only soil and soil gas were reported to be environmentally impacted as summarized below. Soil borings, groundwater monitoring wells, and soil vapor point locations are outlined on Exhibit 2 and Exhibit 3. Soil, water, and soil gas summaries are provided in Tables 1 through 3, respectively. The associated laboratory analytical data reports for the investigations are included in their respective Final Reports provided in the appendices.

5.1.1 Soil

The maximum concentrations of contaminants reported in soil samples collected at the site that exceed the EPA Industrial RSLs are summarized on the table below.

Contaminant	Maximum Sampled Concentration (mg/kg)	RSL [1] (mg/kg)	Location
Arsenic	6.74	3.0	SB-02 (4-8)
Benzo(b)pyrene	0.796	0.29	SB-01 (4-8)
Dibenz(a,h)anthracene	2.74	0.29	SB-01 (4-8)
Indeno(1,2,3-cd)pyrene	8.46	2.9	SB-01 (4-8)

[1] EPA Industrial RSLs (May 2016: Target Cancer Risk (TR) of 1E-6, Hazard Quotient (HQ) or 1.0)

5.1.2 Soil Gas

The maximum sampled concentrations of contaminants that exceed the EPA VISL are summarized on the table below.

Contaminant	Maximum Sampled Concentration ($\mu g/m^3$)	Residential VISL[1] ($\mu g/m^3$)	Location
Chloroform	33	4	SVP-03
Tetrachloroethene (PCE)	652	367	SVP-02R
Trichloroethene (TCE)	47.8	16	SVP-02R

[1] EPA VISL, OSWER Guidance, June 2015

5.2 Exposure Pathways and Mitigation

Terracon conducted an exposure pathway evaluation and receptor survey for this application. Based on these activities, the following table summarizes the exposure pathways that are or will be complete or reasonable anticipated to be complete during the implementation of the development activities.

Exposure Pathway	Surface Soil	Groundwater	Surface Water	Sediment
Soil – Dermal Contact	X	NA	NA	NA
Soil – Ingestion	X			
Soil – Vapor Inhalation	X			
Soil – Leach to Groundwater	NC			
Soil – Migrating to Surface Water	NC			
Groundwater – Ingestion	NA	NC		
Groundwater – Vapor Inhalation		NC		
Groundwater – Migration to Surface Water		NC		
Surface Water – Dermal Contact		NA	NC	
Surface Water – Ingestion			NC	
Sediment – Dermal Contact			NA	NC
Sediment – Ingestion				NC

NA – Exposure pathway not applicable to the media
NC – Not anticipated to be complete

The following table summarizes the environmentally-impacted media on-site, based on Terracon and other's assessment activities and results.

Environmental Media	Assessment Levels Exceeded?						Type of Impacts
	On-Site			Off-Site			
	Yes	No	Not Sampled	Yes	No	Not Sampled	
Soil	X					X	SVOCs, ACM
Soil Gas	X					X	VOCs
Groundwater		X				X	
Surface Water		X			X		
Sediment		X			X		

For dermal contact with and ingestion of surface and subsurface soils, there is a completed exposure pathway at the site through the exposed soil areas. Currently the site is secured with a barbed wire fence with a locked gate to prevent access to the site by the public. To eliminate this exposure pathway, the soil will need to either be covered/isolated or the impacted soil will need to be removed from the current location to an acceptable location on site or removed entirely from the site and backfilled with acceptable materials. This will be further discussed in the Remedial Action Plan (RAP) under Section 4.3.

During development activities, workers and nearby residents may be exposed to possibly contaminated soil through inhalation of fugitive dust. The use of water and/or reduced construction vehicle speeds to control dust during construction will be used to suppress airborne dust. Excavated soil (if implemented) will be direct loaded into haul trucks when possible to reduce the handling and dust generation. Soil within the beds of the haul trucks will be covered during transportation of soil to the appropriate disposal facility.

The methods to identify, characterize, manage, and dispose of impacted soil materials are described in more detail in the Materials Management Plan (MMP) which is included as Appendix E.

6.0 REMEDIAL ACTION PLAN

The proposed RAP for the site considers no new changes to the current planned development of the site and includes specific remedial tasks that will be implemented to mitigate and reduce long-term exposures to site soil contaminants. The conceptual RAP selected for this site is summarized below.

The proposed RAP for the site considers the planned development of the site as a public park and natural open space with access to the Greeley Fishing Pond and inclusion of newly developed public walking trails and includes specific remedial tasks that will be implemented to mitigate and

reduce long-term exposures to site contaminants. The conceptual RAP selected for this site includes the four primary remedial tasks listed and summarized below.

- **Excavate and Relocate ACM-Impacted Soil and Concrete** – The site conceptual model suggests that ACM impacted material and RACS is present in the historical solid waste disposal area of the site. The objective of this task will be to isolate and compile all ACM to the location of the site to be covered to prevent any future exposure to ACM. of PCBs. ACM will be isolated or removed from the site and for disposal at an approved waste facility.

- **Engineered Vegetative Soil Cover** – An engineered vegetative soil cover will be constructed over the portion of the site associated with the historical solid waste disposal area. The objectives of the vegetative soil cover will be to mitigate the exposure pathway to shallow soil contamination and to reduce exposure of impacted soils based on the proposed future use of the site. The cover fill material will be imported onto the site using clean fill material or beneficial reuse based on acceptance criteria for industrial RSL criteria and observations during excavation, loading and unloading from off-site sources. The cover will be designed as an approximate 2-foot vegetative cover. The cover will have designed slopes and engineering controls to promote vegetation growth, promote positive drainage, reduce infiltration into the underlying materials, and minimize erosion.

- **Groundwater Monitoring Plan** – A groundwater monitoring plan (GWMP) will be developed. The objectives of the GWMP will be to establish baseline groundwater quality, monitor seasonal water level fluctuations, and establish groundwater flow characteristics; monitor the performance of implemented remedial tasks; and monitor long-term groundwater quality at the site.

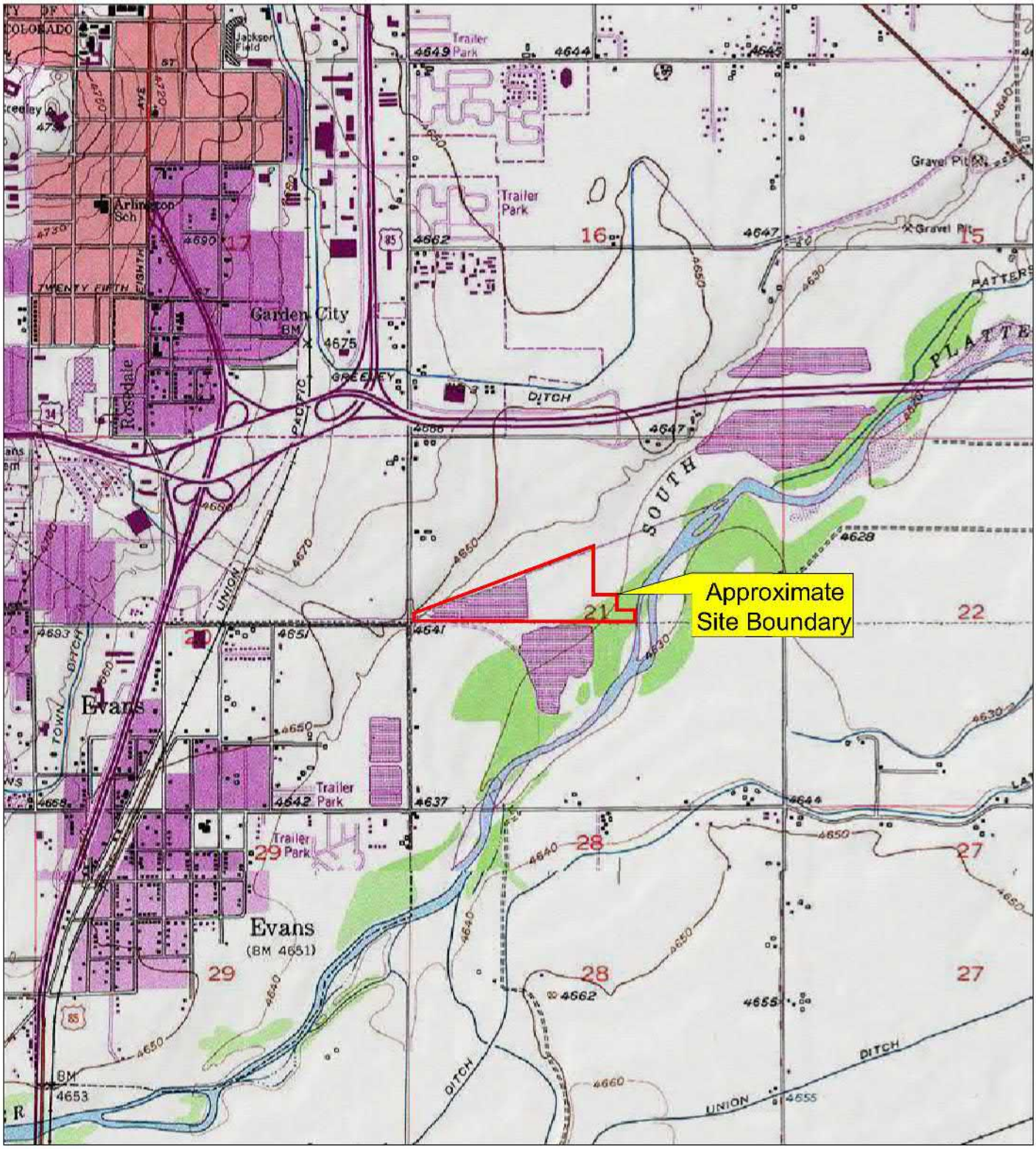
- **Institutional Controls** – To minimize potential exposure, institutional controls (ICs) will be put in place to restrict the soil use at the site by creating an environmental covenant (EC) per Colorado legislative statue SB 145.

The City or City's representative will prepare a design for each task of the RAP. As part of design development, the City or City's representative will meet with stakeholders to develop and refine design criteria for each of these RAP tasks described above. The RAP will be prepared and submitted for review and approval to the VCP.

7.0 SITE CLOSEOUT

Following completion of the RAP, a No Action Determination (NAD) request letter will be submitted to the CDPHE for approval.

EXHIBITS



0 .5 1 MILES

1000 0 1000 2000 3000 4000 5000 FEET

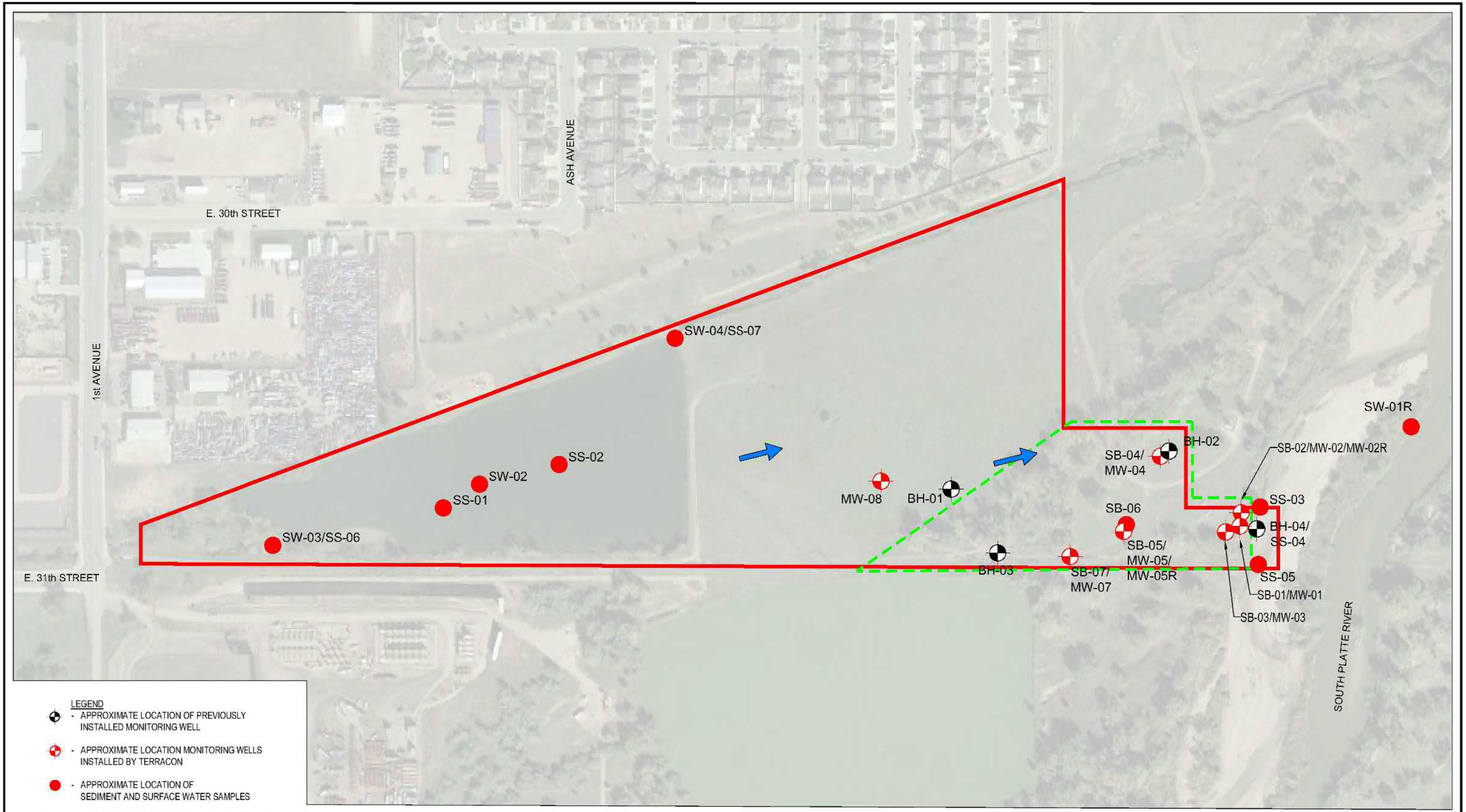
1 .5 0 KILOMETERS 1

1000 0 METERS 1000

APPROXIMATE SCALE

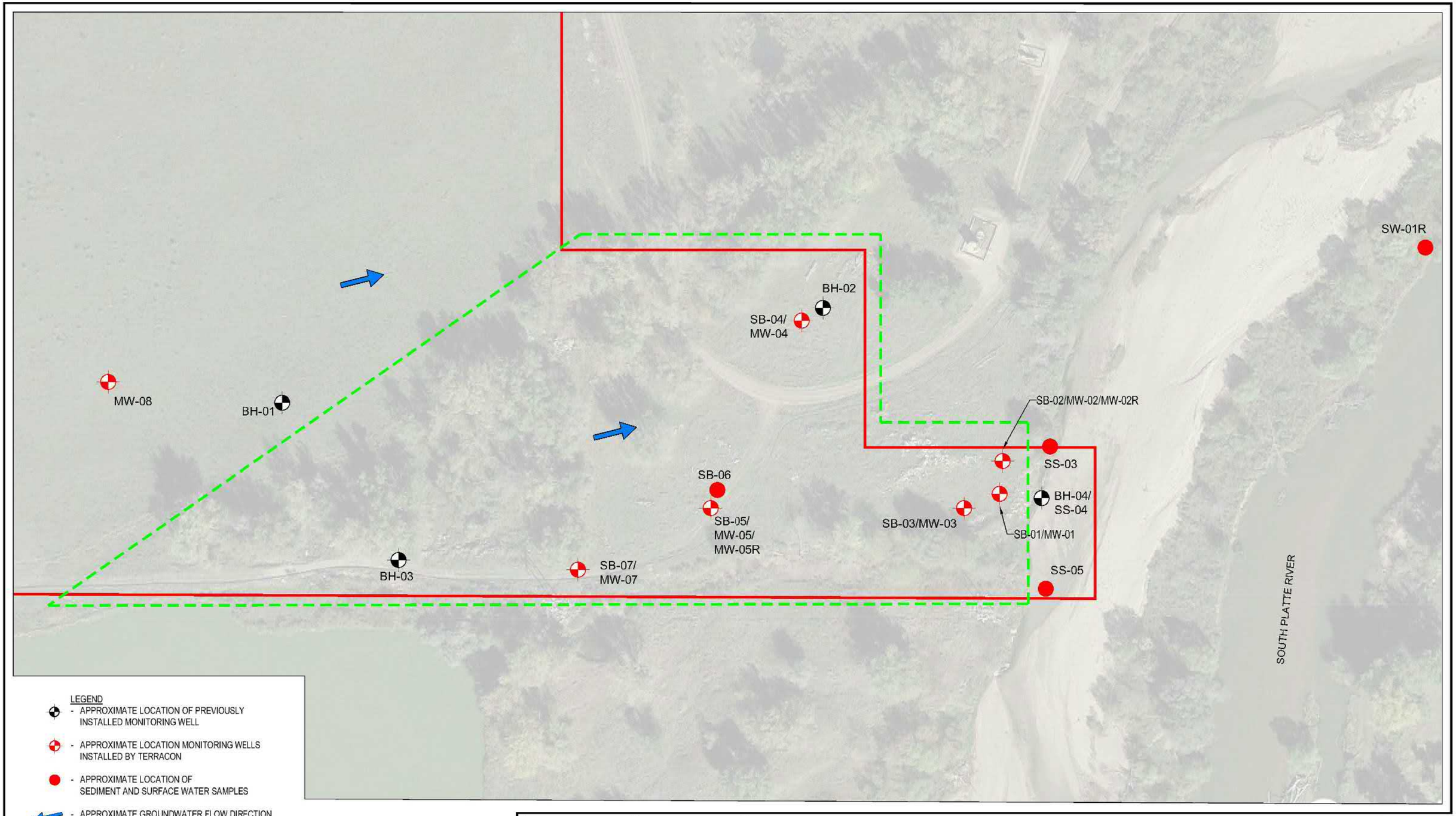
Topographic map image courtesy of the U.S. Geological Survey
Quadrangle includes Greeley, CO (1978)

Project Mngr: MJS	Project No.: 21187023	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP
Drawn By: JAS	Scale: AS-SHOWN	1289 1st Avenue Greeley, CO 80631	GREELEY FISHING POND CITY OF GREELEY 31st STREET AND 1st AVENUE GREELEY, COLORADO
Checked By: MJS	File No.: 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8539	FIG. No. 1
Approved By: JCG	Date: NOVEMBER_2018		



Project Mngr: MJS	Project No. 21187023	Terracon Consulting Engineers and Scientists	SITE DIAGRAM - A
Drawn By: JAS	Scale: AS-SHOWN	1289 1stAvenue Greeley, CO 80631	GREELEY FISHING POND
Checked By: MJS	File No. 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8639	CITY OF GREELEY
Approved By: JCG	Date: NOVEMBER_2018		31st STREET AND 1st AVENUE
			GREELEY, COLORADO

FIG. No. 2



LEGEND

- APPROXIMATE LOCATION OF PREVIOUSLY INSTALLED MONITORING WELL
- APPROXIMATE LOCATION MONITORING WELLS INSTALLED BY TERRACON
- APPROXIMATE LOCATION OF SEDIMENT AND SURFACE WATER SAMPLES
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BOUNDARY OF HISTORICAL SOLID WASTE AREA

N

0 100'

SCALE

Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

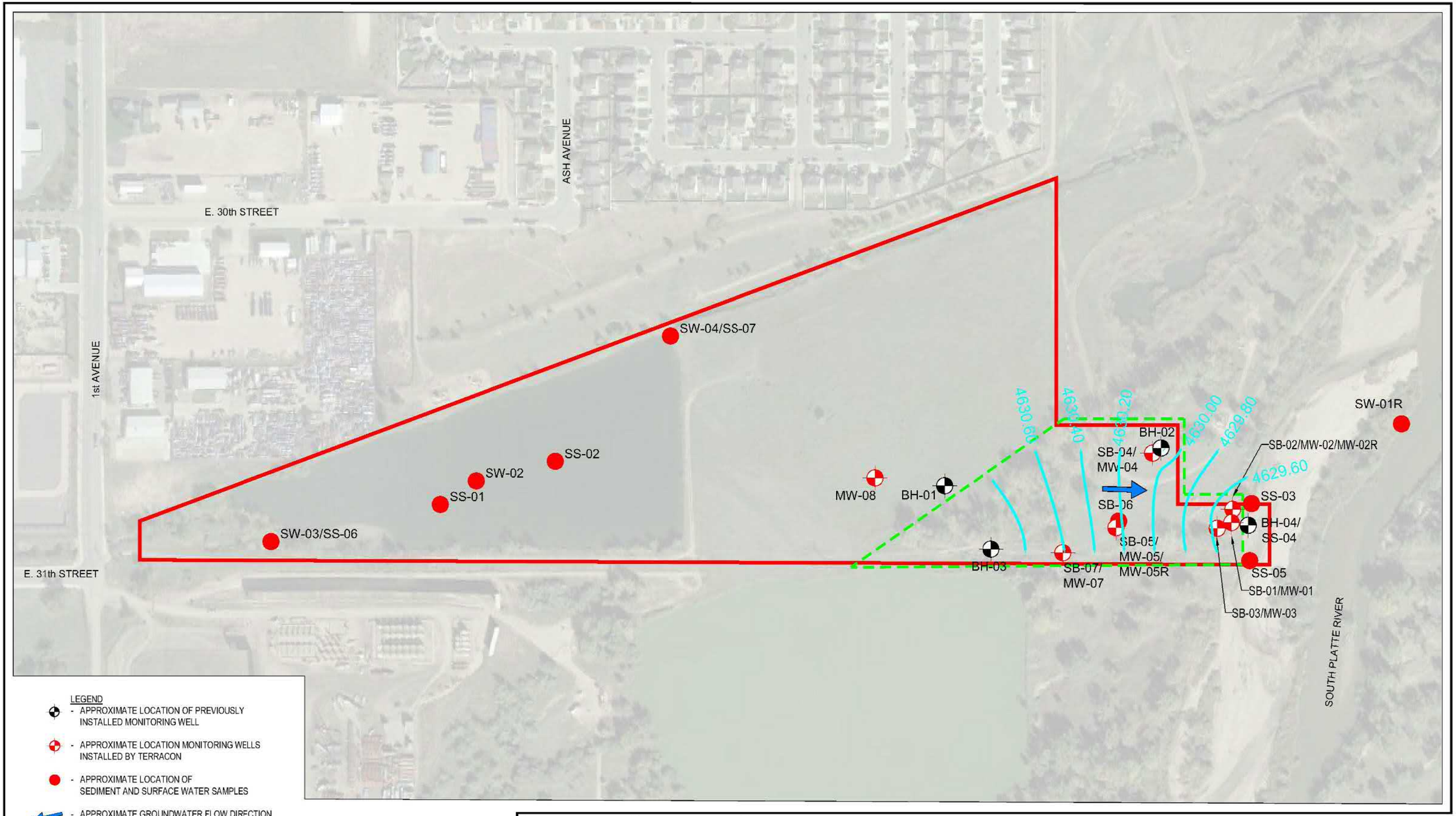
Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

Terracon
Consulting Engineers and Scientists
1289 1stAvenue Greeley, CO 80631
PH. (970) 351-0460 FAX. (970) 353-8639

SITE DIAGRAM - B

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 3



Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

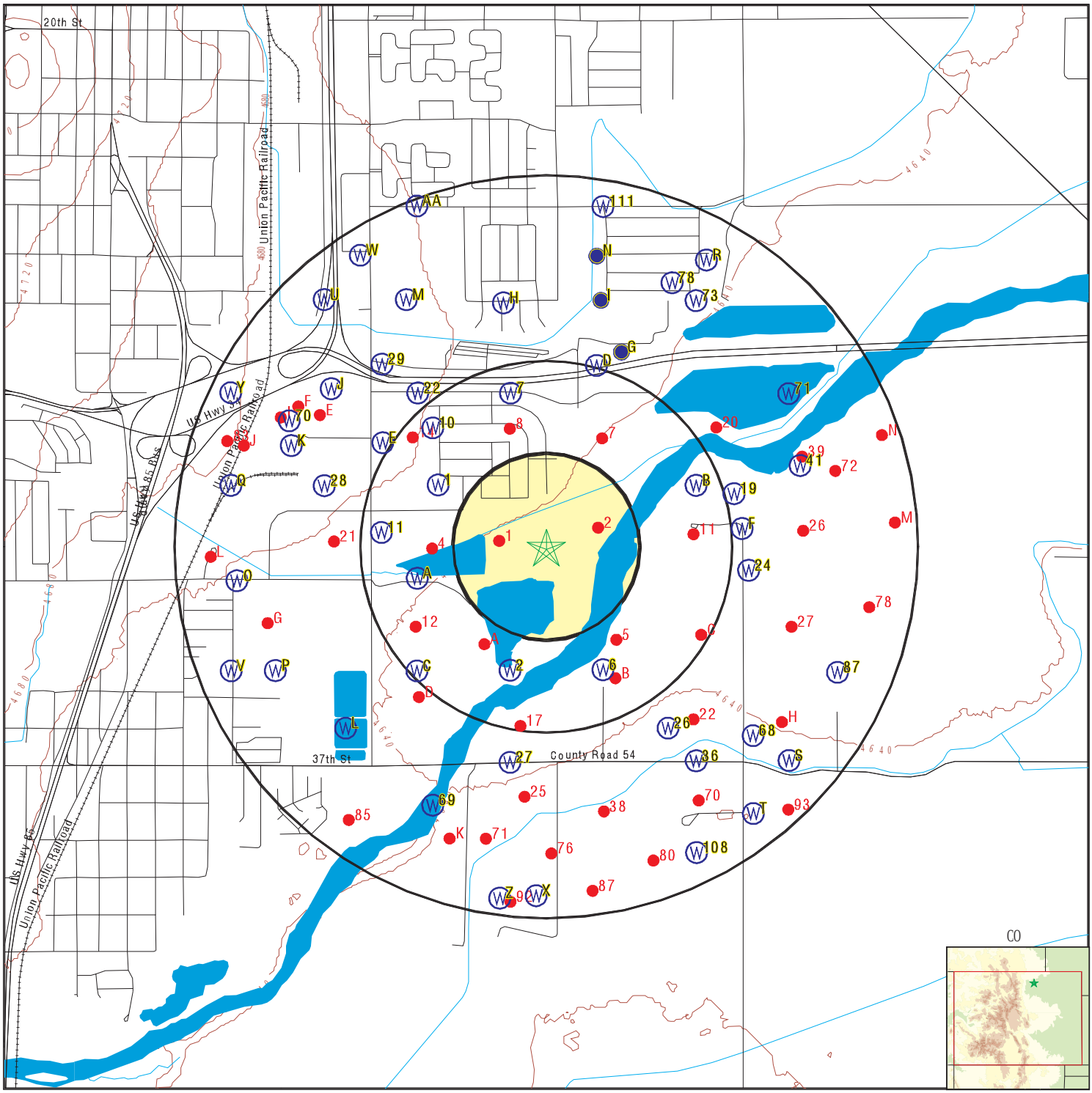
Terracon
Consulting Engineers and Scientists
1289 1stAvenue Greeley, CO 80631
PH. (970) 351-0460 FAX. (970) 353-8639

GROUNDWATER CONTOUR MAP

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 4

PHYSICAL SETTING SOURCE MAP - 4242549.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Oil, gas or related wells

SITE NAME:	Ness Property	CLIENT:	ERO Resources
ADDRESS:	SE Greeley Greeley CO 80631	CONTACT:	Courtney Sockwell
LAT/LONG:	40.3859 / 104.6689	INQUIRY #:	4242549.2s
		DATE:	March 23, 2015 6:22 pm

TABLES

Table 1
Summary of Soil Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID and Depth				SB-01 (4-8)	SB-01 (8-12)	SB-02 (4-8)	SB-02 (8-12)	SB-03 (4-8)	SB-03 (8-12)	SB-04 (4-8)	SB-04 (8-12)	SB-05	SB-06	SB-07 (4-8)	SB-07 (8-12)	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SB-02R (0-4)	SB-02R (4-8)	SB-05R (0-4)	SB-05R (4-8)	SB-08 (0-4)
Collection Date				8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/23/18	8/23/18	8/30/18	8/30/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	10/5/18	10/5/18	10/5/18	10/5/18	10/5/18
Parameter	**Residential RSL**	**Industrial RSL**	**CDPHE GPV**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RCRA Metals (6010B / 7471)																											
Arsenic[1]	0.68	3.0	NE	**2.63**	<0.200	**6.74**	<0.200	<0.200	<0.200	**4.71**	**4.6**	**2.51**	**3.93**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**4.05**	**3.42**	**3.66**	**5.94**	<2.00
Barium	15,000	220,000	NE	**26.9**	**9.44**	**55.3**	**12**	**15.4**	**14.7**	**121**	**77.5**	<0.5	<0.5	**29.7**	**74.4**	**76.6**	**82.9**	**17.5**	**30**	**13.6**	**9.17**	**29.5**	**57.3**	**62.7**	**173**	**104**	**153**
Beryllium	16	230	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.398**	**0.415**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	980	NE	<0.5	<0.5	**0.675**	<0.5	<0.5	<0.5	**0.553**	**0.663**	<0.5	**0.635**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.676**	**0.803**	<0.5
Chromium	NE	NE	NE	**3.27**	**1.33**	**7.14**	**1.88**	**15.4**	**1.96**	**14.3**	**9.81**	**11.2**	**9.98**	**4.29**	**11.5**	**13.2**	**11.8**	**1.55**	**1.84**	<1.0	**1.71**	**4.58**	**6.32**	**7.68**	**11.3**	**9.69**	**20.7**
Lead	400	800	NE	**25.4**	**1.37**	**64.3**	**9.77**	**16**	**7.65**	**120**	**92**	**82.7**	**43.9**	**5.8**	**7.59**	**13.3**	**12.8**	**3.68**	**4.9**	**2.89**	**4.29**	**4.49**	**39.2**	**45.9**	**61.9**	**47.1**	**12.3**
Mercury	11	46	NE	**0.132**	**0.0208**	**0.0939**	**0.024**	**0.044**	**0.0223**	**0.0783**	**0.143**	**0.0339**	**0.165**	<0.02	**0.0763**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.146**	**0.121**	**0.152**	**0.106**	**0.152**
Silver	390	5,800	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**8.97**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	3,100	47,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**11.4**	**52.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	22,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.25**	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	350,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**85.3**	**132**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B) - Not Detected																											
Acetone	61,000	670,000	32	**0.0259**	<0.025	**0.0368**	**0.0539**	<0.025	**0.0334**	**0.0593**	**0.0865**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.0773**	<0.025
Chlorobenzene	280	1,300	5.3	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00922**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00389**	<0.0025
1,4-Dichlorobenzene	2.6	11	7.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0219**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	5.8	25	100	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00278**	<0.0025	**0.0109**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
2-Butanone (MEK)	27,000	190,000	18	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.306	<0.0025
Tetrachloroethene	24	100	1.9	<0.0025	<0.0025	**0.00283**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	4,900	47,000	50	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.00702**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	580	2,500	75	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	**0.00799**	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065
SVOCs (8270C)																											
Acenaphthene	3,600	45,000	1000	**0.0838**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	18,000	230,000	1000	**0.146**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	0.16	2.9	1000	**0.86**	<0.033	**0.189**	**0.0339**	<0.033	<0.033	**0.156**	<0.033	**0.0429**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	0.16	2.9	1000	**1.06**	<0.033	**0.247**	**0.0459**	<0.033	<0.033	**0.192**	<0.033	**0.08**	<0.033	<0.033	<0.033	<0.033	**0.0373**	<0.033	<0.033	<0.033	**0.0359**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(k)fluoranthene	1.6	29	1000	**0.3**	<0.033	**0.103**	<0.033	<0.033	<0.033	**0.0517**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(g,h,i)perylene	NE	NE	NE	**0.274**	<0.033	**0.154**	**0.0349**	<0.033	<0.033	**0.0935**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	0.016	0.29	1000	**0.796**	<0.033	**0.22**	**0.0394**	<0.033	<0.033	**0.149**	<0.033	**0.0522**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Chrysene	16	290	1000	**0.945**	<0.033	**0.231**	**0.0372**	<0.033	<0.033	**0.171**	<0.033	**0.0475**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenz(a,h)anthracene	0.016	0.29	1000	**2.74**	<0.33	**1.15**	**0.259**	<0.33	<0.33	**0.743**	<0.33	**0.207**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Fluoranthene	2,400	30,000	1000	**1.37**	<0.033	**0.331**	**0.0724**	<0.033	<0.033	**0.308**	<0.033	**0.0763**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0513**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Indeno(1,2,3-cd)pyrene	0.16	2.9	1000	**8.46**	**0.188**	**4.08**	**0.904**	<0.033	<0.033	**2.41**	**0.162**	**0.556**	<0.033	<0.033	**0.309**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenanthrene	NE	NE	NE	**0.586**	<0.033	**0.115**	**0.0574**	<0.033	<0.033	**0.131**	<0.033	**0.0472**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Pyrene	1,800	23,000	1000	**1.42**	<0.033	**0.346**	**0.0706**	<0.033	<0.033	**0.286**	**0.0364**	**0.0783**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0512**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenol	19,000	250,000	47	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.67	**1.25**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
Only detected analytes shown (detected concentrations are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
SVOC = Semivolatile Organic Compounds
PCB = Polychlorinated Biphenyl
NA = Not Analyzed

Table 2
Summary of Groundwater Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05	MW-07	SW-1R	SW-2P	SW-3P	SW-4P	MW-02R	MW-05R	MW-08
Collect Date		8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/23/18	8/24/18	8/24/18	8/24/18	10/9/18	10/9/18	10/9/18
Parameter	CDPHE Reg. 41 Groundwater Standard[1]	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dissolved RCRA Metals (6010B/7470A)														
Arsenic	**10**	<10	<10	<10	<10	**4.8**	<10	<10	<10	<10	<10	<10	<10	<10
Barium	**2,000**	**126**	**114**	**122**	**55.1**	NA	**198**	**65.4**	**52.3**	**57.4**	**53.5**	**112**	**92.9**	**46.9**
Cyanide	**200**	NA	NA	NA	NA	**12.8**	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**50**	**13.9**	<10	<10	<10	<10	**12.6**	<10	<10	<10	<10	<10	<10	<10
Zinc	**5,000**	NA	NA	NA	NA	**422**	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B)														
Chlorobenzene	**100**	<1.0	<1.0	<1.0	<1.0	**1.77**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	**140**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.99**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
PAHs (8270)														
Dibenz(a,h)anthracene	**0.0048**	<1.0	**5.29**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-cd)pyrene	**0.0048**	<1.0	**28.3**	<1.0	<1.0	**1.03**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Additional Parameters - mg/L														
Dissolved Solids	**400[2]**	NA	NA	NA	NA	NA	NA	**755**	**379**	**405**	**384**	NA	NA	NA
Suspended Solids	**NE**	NA	NA	NA	NA	NA	NA	**31**	**15.6**	**51.2**	**6.83**	NA	NA	NA
Hardness	**<180[3]**	NA	NA	NA	NA	NA	NA	**427**	**238**	**200**	**279**	NA	NA	NA
Alkalinity	**150**	NA	NA	NA	NA	NA	NA	**204**	**125**	**130**	**127**	NA	NA	NA
Nitrate-Nitrite	**100**	NA	NA	NA	NA	NA	NA	**3.42**	**0.265**	**0.647**	**0.28**	NA	NA	NA
Total Phosphorus	**NE**	NA	NA	NA	NA	NA	NA	**0.352**	<0.1	**0.16**	<0.1	NA	NA	NA

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (December 30, 2016)
2) 400 mg/L or 1.25 times background level, whichever is least restrictive
3) <180 mg/L is considered "very hard" water
Only detected analytes shown (detected concentrations are **bold**)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
NA = Not Analyzed

Table 3
Summary of Soil Gas Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID			BH-01	BH-02	BH-03	BH-04	SVP-01	SVP-02	SVP-03	SVP-04	SVP-07	SVP-02R	SVP-02RB
Collect Date			3/6/2018	3/6/2018	3/6/2018	3/6/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	10/9/2018	10/9/2018
Parameter	**Residential RSL**	**Residential VISL[1]**	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
VOC (TO-15)													
TPH (GC/MS) Low Fraction	**31**	**1,033**	<1.9	<1.9	<1.9	<1.9	**789**	**599**	**418**	**1,580**	<413	NA	NA
Acetone	**32,000**	**1,066,667**	<19	<20	**22**	**30**	**43.4**	**14.1**	**17.9**	**56**	**15.2**	**9.28**	**7.81**
Benzene	**0.36**	**12**	<1.9	<1.9	<1.9	<1.9	**1.86**	<1.28	<1.28	**7.16**	<1.28	<1.28	<1.28
Carbon disulfide	**73**	**2,433**	<1.9	<1.9	<1.9	<1.9	**2.8**	<1.24	**7.23**	**10.2**	<1.24	<1.24	<1.24
Chloroform	**0.12**	**4**	<1.9	2	<1.9	<1.9	<1.95	**3.78**	**33**	**3.4**	<1.95	**6.13**	<1.95
Chloromethane	**94**	**3,133**	<1.9	<1.9	<1.9	<1.9	<0.826	<0.826	<0.826	**2.66**	<0.826	<0.826	**0.916**
Cyclohexane	**630**	**21,000**	<1.9	<1.9	<1.9	<1.9	**3.23**	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
1,3-Dichlorobenzene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<2.40	<2.40	<2.40	**2.63**	<2.40	<2.40	<2.40
cis-1,2-Dichloroethene	**NE**	**NE**	<1.9	<2	<1.9	2	<1.59	**1.99**	<1.59	<1.59	<1.59	**3.04**	<1.59
trans-1,2-Dichloroethene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.59	**3.26**	<1.59	<1.59	<1.59	**5.39**	<1.59
1,4-Dioxane	**0.56**	**19**	<1.9	<1.9	<1.9	<1.9	<1.44	<1.44	<1.44	**3.46**	<1.44	<1.44	<1.44
Ethanol	**NE**	**NE**	<19	<20	**47**	**80**	**73.4**	**21.1**	**16.3**	**23.1**	**9.45**	**7.26**	**7.44**
Ethylbenzene	**1.1**	**37**	<1.9	<1.9	<1.9	<1.9	**3.12**	**1.87**	**12.9**	**29.1**	<1.73	<1.73	<1.73
4-Ethyltoluene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.96	<1.96	<1.96	**4.23**	<1.96	<1.96	<1.96
Trichlorofluoromethane	**NE**	**NE**	<1.9	**5.7**	<1.9	**2.7**	**6.49**	**6.92**	**9.68**	**4.6**	<2.25	**12.4**	<2.25
Dichlorodifluoromethane	**100**	**3,333**	**2.1**	**27**	<1.9	**7.4**	**7.73**	**32.9**	**6.01**	**9.43**	**12.9**	**19.6**	**2.06**
1,2-Dichlorotetrafluoroethane	**NE**	**NE**	<1.9	**8.3**	<1.9	**4.9**	**106**	**567**	**127**	**10.4**	<2.80	**110**	<2.80
Heptane	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	**4.65**	<1.64	<1.64	<1.64	<1.64	<1.64	<1.64
n-Hexane	**730**	**24,333**	<1.9	<1.9	<1.9	<1.9	**5.86**	**2.62**	**5.87**	**4.3**	<1.41	<1.41	**1.58**
Isopropylbenzene	**420**	**14,000**	<1.9	<1.9	<1.9	<1.9	<1.97	<1.97	**2.5**	**5.32**	<1.97	<1.97	<1.97
Methylene Chloride	**100**	**3,333**	**15**	<1.9	<1.9	<1.9	**28.1**	**25.3**	**17.2**	**16.6**	**2.47**	**1.54**	**4.65**
2-Butanone (MEK)	**5,200**	**173,333**	<1.9	<1.9	<1.9	<1.9	**7.65**	<10.2	<10.2	**11.9**	<10.2	<10.2	<10.2
2-Propanol	**210**	**7,000**	<19	<20	<19	**26**	**26.4**	**8.94**	<6.15	**23.4**	**8.4**	<6.15	<6.15
Propene	**3,100**	**103,333**	<1.9	<1.9	<1.9	<1.9	**3.7**	<1.38	**11.6**	**2.96**	<1.38	<1.38	<1.38
Styrene	**1,000**	**33,333**	<1.9	<1.9	<1.9	<1.9	**3.98**	**1.82**	**11**	**66.9**	<1.70	<1.70	<1.70
Tetrachloroethylene	**11**	**367**	<1.9	**45**	<1.9	**84**	**70.2**	**348**	**46.3**	**117**	<2.72	**652**	<2.72
Tetrahydrofuran	**2,100**	**70,000**	<1.9	<1.9	<1.9	<1.9	**5.1**	<1.18	<1.18	**3.63**	<1.18	<1.18	<1.18
Toluene	**5,200**	**173,333**	<1.9	<1.9	**2.2**	**6.7**	**20.7**	<1.51	**2.79**	**24.9**	<1.51	<1.51	<1.51
1,1,1-Trichloroethane	**5,200**	**173,333**	<1.9	**41**	<1.9	<1.9	<2.18	<2.18	<2.18	**6.23**	<2.18	<2.18	<2.18
Trichloroethylene	**0.48**	**16**	<1.9	<1.9	<1.9	**9.8**	<2.14	**32.4**	**3.08**	<2.14	<2.14	**47.8**	<2.14
1,2,4-Trimethylbenzene	**7.3**	**243**	<1.9	<1.9	<1.9	<1.9	**2.22**	<1.96	<1.96	**4.93**	<1.96	<1.96	<1.96
m&p-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<3.47	<3.47	**4.88**	**19.4**	<3.47	**6.34**	<3.47
o-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<1.73	<1.73	**1.84**	**8.2**	<1.73	**2.21**	<1.73
Fixed Gasses by D1946 (%)													
Methane	**NE**	**NE**	NA	NA	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Carbon Monoxide	**NE**	**NE**	NA	NA	NA	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Carbon Dioxide	**NE**	**NE**	**0.438**	**2.01**	**0.592**	**0.974**	<0.5	<0.5	<0.5	**0.972**	<0.5	<0.5	<0.5
Oxygen	**NE**	**NE**	**21.9**	**20.3**	**21.7**	**21.4**	**16.7**	**16.8**	**16.4**	**16.8**	**16.8**	NA	NA

1) VISL - Vapor Intrusion Screening Level (calculated by dividing the RSL for residential indoor air by the State approved 3% [0.03] attenuation factor).
RSL = USEPA Indoor Air Regional Screening Level (HQ=0.1 June 2017)
ASC = CDPHE Air Screening Concentrations, Remediation Goals (January 2016)
ND = Not Detected
NE = Not Established
NA = Not Applicable
Only detected analytes shown (detected concentrations are **bold**)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
10	USGS40000220910	1/4 - 1/2 Mile NW
24	USGS40000220872	1/2 - 1 Mile East
G25	USGS40000220942	1/2 - 1 Mile NNE
I32	USGS40000220955	1/2 - 1 Mile NNE
69	USGS40000220778	1/2 - 1 Mile SSW
N72	USGS40000220966	1/2 - 1 Mile North
N83	USGS40000220981	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	CO5000000422033	1/4 - 1/2 Mile SSW
A3	CO5000000422477	1/4 - 1/2 Mile WSW
A4	CO5000000422478	1/4 - 1/2 Mile WSW
A5	CO5000000422479	1/4 - 1/2 Mile WSW
6	CO5000000422035	1/4 - 1/2 Mile SSE
7	CO5000000423374	1/4 - 1/2 Mile NNW
B8	CO5000000422888	1/4 - 1/2 Mile ENE
B9	CO5000000422889	1/4 - 1/2 Mile ENE
11	CO5000000422706	1/4 - 1/2 Mile West
C12	CO5000000422019	1/4 - 1/2 Mile SW
C13	CO5000000422020	1/4 - 1/2 Mile SW
D14	CO5000000423610	1/4 - 1/2 Mile NNE
E15	CO5000000423146	1/2 - 1 Mile WNW
E16	CO5000000423147	1/2 - 1 Mile WNW
E17	CO5000000423148	1/2 - 1 Mile WNW
D18	CO5000000423633	1/2 - 1 Mile NNE
19	CO5000000422842	1/2 - 1 Mile ENE
F20	CO5000000422719	1/2 - 1 Mile East
F21	CO5000000422723	1/2 - 1 Mile East
22	CO5000000423376	1/2 - 1 Mile NW
G23	CO5000000423685	1/2 - 1 Mile NNE
26	CO5000000421819	1/2 - 1 Mile SE
27	CO5000000421649	1/2 - 1 Mile South
28	CO5000000422885	1/2 - 1 Mile WNW
29	CO5000000423626	1/2 - 1 Mile NW
H30	CO5000000423897	1/2 - 1 Mile NNW
H31	CO5000000423912	1/2 - 1 Mile North
I33	CO5000000423910	1/2 - 1 Mile NNE
I34	CO5000000423911	1/2 - 1 Mile NNE
J35	CO5000000423518	1/2 - 1 Mile NW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
36	CO5000000421664	1/2 - 1 Mile SE
K37	CO5000000423080	1/2 - 1 Mile WNW
K38	CO5000000423081	1/2 - 1 Mile WNW
K39	CO5000000423121	1/2 - 1 Mile WNW
K40	CO5000000423122	1/2 - 1 Mile WNW
41	CO5000000422999	1/2 - 1 Mile ENE
J42	CO5000000423377	1/2 - 1 Mile NW
J43	CO5000000423378	1/2 - 1 Mile NW
L44	CO5000000421817	1/2 - 1 Mile SW
L45	CO5000000421818	1/2 - 1 Mile SW
K46	CO5000000423036	1/2 - 1 Mile WNW
K47	CO5000000423141	1/2 - 1 Mile WNW
K48	CO5000000423142	1/2 - 1 Mile WNW
K49	CO5000000423099	1/2 - 1 Mile WNW
K50	CO5000000423100	1/2 - 1 Mile WNW
K51	CO5000000423112	1/2 - 1 Mile WNW
K52	CO5000000423124	1/2 - 1 Mile WNW
K53	CO5000000423113	1/2 - 1 Mile WNW
K54	CO5000000423114	1/2 - 1 Mile WNW
K55	CO5000000423102	1/2 - 1 Mile WNW
K56	CO5000000423101	1/2 - 1 Mile WNW
K57	CO5000000423072	1/2 - 1 Mile WNW
K58	CO5000000423129	1/2 - 1 Mile WNW
K59	CO5000000423130	1/2 - 1 Mile WNW
K60	CO5000000423108	1/2 - 1 Mile WNW
K61	CO5000000423109	1/2 - 1 Mile WNW
K62	CO5000000423144	1/2 - 1 Mile WNW
K63	CO5000000423145	1/2 - 1 Mile WNW
K64	CO5000000423116	1/2 - 1 Mile WNW
K65	CO5000000423117	1/2 - 1 Mile WNW
K66	CO5000000423140	1/2 - 1 Mile WNW
M67	CO5000000423914	1/2 - 1 Mile NNW
68	CO5000000421788	1/2 - 1 Mile SE
70	CO5000000423230	1/2 - 1 Mile WNW
71	CO5000000423372	1/2 - 1 Mile ENE
73	CO5000000423908	1/2 - 1 Mile NNE
K74	CO5000000423159	1/2 - 1 Mile WNW
K75	CO5000000423160	1/2 - 1 Mile WNW
K76	CO5000000423161	1/2 - 1 Mile WNW
M77	CO5000000423922	1/2 - 1 Mile NNW
78	CO5000000424031	1/2 - 1 Mile NNE
O79	CO5000000422448	1/2 - 1 Mile West
N80	CO5000000424204	1/2 - 1 Mile North
P81	CO5000000422036	1/2 - 1 Mile WSW
P82	CO5000000422016	1/2 - 1 Mile WSW
O84	CO5000000422480	1/2 - 1 Mile West
O85	CO5000000422481	1/2 - 1 Mile West
O86	CO5000000422482	1/2 - 1 Mile West
87	CO5000000422010	1/2 - 1 Mile ESE
Q88	CO5000000422886	1/2 - 1 Mile West
Q89	CO5000000422887	1/2 - 1 Mile West
R90	CO5000000424170	1/2 - 1 Mile NNE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
S91	CO5000000421671	1/2 - 1 Mile SE
S92	CO5000000421672	1/2 - 1 Mile SE
T93	CO5000000421507	1/2 - 1 Mile SE
R94	CO5000000424167	1/2 - 1 Mile NNE
R95	CO5000000424168	1/2 - 1 Mile NNE
R96	CO5000000424169	1/2 - 1 Mile NNE
T97	CO5000000421506	1/2 - 1 Mile SE
U98	CO5000000423919	1/2 - 1 Mile NW
U99	CO5000000423918	1/2 - 1 Mile NW
U100	CO5000000423921	1/2 - 1 Mile NW
U101	CO5000000423920	1/2 - 1 Mile NW
V102	CO5000000422022	1/2 - 1 Mile WSW
V103	CO5000000422021	1/2 - 1 Mile WSW
V104	CO5000000422023	1/2 - 1 Mile WSW
V105	CO5000000422025	1/2 - 1 Mile WSW
V106	CO5000000422024	1/2 - 1 Mile WSW
T107	CO5000000421473	1/2 - 1 Mile SE
108	CO5000000421341	1/2 - 1 Mile SSE
T109	CO5000000421469	1/2 - 1 Mile SE
T110	CO5000000421468	1/2 - 1 Mile SE
111	CO5000000424337	1/2 - 1 Mile North
W112	CO5000000424192	1/2 - 1 Mile NNW
W113	CO5000000424193	1/2 - 1 Mile NNW
X114	CO5000000421123	1/2 - 1 Mile South
X115	CO5000000421122	1/2 - 1 Mile South
Y116	CO5000000423382	1/2 - 1 Mile WNW
Y117	CO5000000423383	1/2 - 1 Mile WNW
Z118	CO5000000421098	1/2 - 1 Mile South
Z119	CO5000000421099	1/2 - 1 Mile South
Z120	CO5000000421100	1/2 - 1 Mile South
AA121	CO5000000424343	1/2 - 1 Mile NNW
AA122	CO5000000424344	1/2 - 1 Mile NNW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	COOG90000078838	1/8 - 1/4 Mile West
2	COOG90000078900	1/8 - 1/4 Mile ENE
A3	COOG90000078588	1/4 - 1/2 Mile SSW
4	COOG90000078817	1/4 - 1/2 Mile West
5	COOG90000078593	1/4 - 1/2 Mile SE
A6	COOG90000078572	1/4 - 1/2 Mile SSW
7	COOG90000079112	1/4 - 1/2 Mile NNE
8	COOG90000079180	1/4 - 1/2 Mile NNW
B9	COOG90000078532	1/4 - 1/2 Mile SSE
B10	COOG90000078524	1/4 - 1/2 Mile SSE
11	COOG90000078860	1/4 - 1/2 Mile East
12	COOG90000078637	1/4 - 1/2 Mile WSW
B13	COOG90000078499	1/4 - 1/2 Mile SSE
14	COOG90000079118	1/4 - 1/2 Mile NW
C15	COOG90000078615	1/4 - 1/2 Mile ESE

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
C16	COOG90000078602	1/4 - 1/2 Mile ESE
17	COOG90000078351	1/4 - 1/2 Mile South
D18	COOG90000078480	1/2 - 1 Mile SW
D19	COOG90000078466	1/2 - 1 Mile SW
20	COOG90000079187	1/2 - 1 Mile NE
21	COOG90000078835	1/2 - 1 Mile West
22	COOG90000078365	1/2 - 1 Mile SE
E23	COOG90000079184	1/2 - 1 Mile WNW
E24	COOG90000079202	1/2 - 1 Mile WNW
25	COOG90000078232	1/2 - 1 Mile South
26	COOG90000078882	1/2 - 1 Mile East
27	COOG90000078635	1/2 - 1 Mile ESE
E28	COOG90000079224	1/2 - 1 Mile WNW
E29	COOG90000079242	1/2 - 1 Mile WNW
E30	COOG90000079226	1/2 - 1 Mile WNW
E31	COOG90000079230	1/2 - 1 Mile WNW
E32	COOG90000079244	1/2 - 1 Mile WNW
E33	COOG90000079237	1/2 - 1 Mile WNW
E34	COOG90000079253	1/2 - 1 Mile WNW
E35	COOG90000079257	1/2 - 1 Mile WNW
E36	COOG90000079261	1/2 - 1 Mile WNW
E37	COOG90000079270	1/2 - 1 Mile WNW
38	COOG90000078162	1/2 - 1 Mile SSE
39	COOG90000079049	1/2 - 1 Mile ENE
F40	COOG90000079274	1/2 - 1 Mile WNW
F41	COOG90000079275	1/2 - 1 Mile WNW
F42	COOG90000079276	1/2 - 1 Mile WNW
F43	COOG90000079272	1/2 - 1 Mile WNW
F44	COOG90000079271	1/2 - 1 Mile WNW
F45	COOG90000079267	1/2 - 1 Mile WNW
F46	COOG90000079268	1/2 - 1 Mile WNW
F47	COOG90000079264	1/2 - 1 Mile WNW
G48	COOG90000078660	1/2 - 1 Mile WSW
G49	COOG90000078650	1/2 - 1 Mile WSW
F51	COOG90000079266	1/2 - 1 Mile WNW
F50	COOG90000079265	1/2 - 1 Mile WNW
F52	COOG90000079259	1/2 - 1 Mile WNW
F53	COOG90000079263	1/2 - 1 Mile WNW
F54	COOG90000079260	1/2 - 1 Mile WNW
H55	COOG90000078341	1/2 - 1 Mile SE
F56	COOG90000079258	1/2 - 1 Mile WNW
I57	COOG90000079227	1/2 - 1 Mile WNW
I58	COOG90000079217	1/2 - 1 Mile WNW
I59	COOG90000079211	1/2 - 1 Mile WNW
I60	COOG90000079225	1/2 - 1 Mile WNW
I61	COOG90000079222	1/2 - 1 Mile WNW
I62	COOG90000079236	1/2 - 1 Mile WNW
I63	COOG90000079232	1/2 - 1 Mile WNW
I64	COOG90000079229	1/2 - 1 Mile WNW
I65	COOG90000079241	1/2 - 1 Mile WNW
I66	COOG90000079243	1/2 - 1 Mile WNW
I67	COOG90000079246	1/2 - 1 Mile WNW
I68	COOG90000079254	1/2 - 1 Mile WNW
H69	COOG90000078380	1/2 - 1 Mile SE
70	COOG90000078212	1/2 - 1 Mile SSE
71	COOG90000078094	1/2 - 1 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
72	COOG90000079024	1/2 - 1 Mile ENE
I73	COOG90000079140	1/2 - 1 Mile WNW
J74	COOG90000079066	1/2 - 1 Mile WNW
K75	COOG90000078096	1/2 - 1 Mile SSW
76	COOG90000078056	1/2 - 1 Mile South
K77	COOG90000078092	1/2 - 1 Mile SSW
78	COOG90000078720	1/2 - 1 Mile East
L79	COOG90000078805	1/2 - 1 Mile West
80	COOG90000078043	1/2 - 1 Mile SSE
J81	COOG90000079096	1/2 - 1 Mile WNW
L82	COOG90000078807	1/2 - 1 Mile West
83	COOG90000079097	1/2 - 1 Mile WNW
L84	COOG90000078803	1/2 - 1 Mile West
85	COOG90000078130	1/2 - 1 Mile SW
L86	COOG90000078798	1/2 - 1 Mile West
87	COOG90000077974	1/2 - 1 Mile South
M89	COOG90000078928	1/2 - 1 Mile East
M88	COOG90000078927	1/2 - 1 Mile East
N90	COOG90000079141	1/2 - 1 Mile ENE
N91	COOG90000079143	1/2 - 1 Mile ENE
92	COOG90000077932	1/2 - 1 Mile South
93	COOG90000078171	1/2 - 1 Mile SE

APPENDIX A
(On External Drive)

Consultants in Natural Resources and the Environment

Denver • Durango • Hotchkiss • Idaho

PHASE I ENVIRONMENTAL SITE ASSESSMENT

THE NESS PROPERTY
SOUTHEAST OF EAST 28TH STREET AND 1ST AVENUE
CITY OF GREELEY AND WELD COUNTY, COLORADO

Prepared for—

City of Greeley
Department of Culture, Parks and Recreation
651 10th Avenue
Greeley, Colorado 80631

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188

April 6, 2015

Per ASTM E1527-13 §4.6, this Phase I ESA is considered valid through: September 19, 2015

ERO Project #6161

ERO Resources Corp.
1842 Clarkson St.
Denver, CO 80218
303.830.1188
www.eroresources.com

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Summary

The City of Greeley's Department of Culture, Parks and Recreation retained ERO Resources Corporation (ERO) to conduct a Phase I Environmental Site Assessment (ESA) for the Ness property southeast of East 28th Street and 1st Avenue in the City of Greeley and unincorporated Weld County, Colorado (hereafter called the property). ERO performed this ESA according to the "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (American Society for Testing Materials E 1527-13 2013) (ASTM 2013). This ESA consists of a review of historical information and federal, state, and local records; interviews with persons knowledgeable of the property; a site reconnaissance; and preparation of this report.

The property consists of two parcels of undeveloped land totaling 23 acres. Historically, the property has been undeveloped, agricultural, and used for oil and gas production and the surrounding area has been undeveloped, agricultural, residential, and used for oil and gas production. Federal, state, and local records indicate no recognized environmental conditions (RECs) associated with the property except for the Schneider #22-21 oil and gas well in the northwest portion of the property. Three oil and gas wells and associated tank batteries were identified southwest and upgradient of the property, one oil and gas well and tank battery was identified downgradient to the northeast of the property, and one leaking underground storage tank site is located about 0.45 mile west of the property.

During the site reconnaissance, ERO inspected the property by walking the perimeter and traversing the interior. Several areas of solid waste disposal were observed on the southeast portion of the property. The items observed generally included: concrete, clay tile, scrapped cars, asphalt shingles and other building materials, scrap wood and metal, and flood-related debris. No indications of hazardous substances or petroleum products were observed within the material disposed. ERO was not able to assess the soil conditions beneath the solid waste disposal site. Additional concrete rubble was observed around the bases of the overhead power line poles on the property. Aside from the Schneider #22-21 oil and gas well and the overhead high-voltage powerline along the south property boundary, no structures were observed on the property at the time of the site reconnaissance. In addition, an approximate 4-foot by 8-foot concrete slab and a well pipe associated with a reported irrigation well were observed in the center of the west parcel (Ness, pers. comm. 2015).

ERO performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527. Any exceptions to, or deletions from, this practice are described in the *Introduction* section of this report. This assessment has revealed no evidence of RECs in connection with the property, except for the solid waste observed on the property which included building materials of unknown origin. ERO recommends removing the solid waste, except for the concrete rubble currently being used for erosion protection, and disposing at a permitted solid waste disposal facility. The material to be removed and the ground beneath the solid waste should be inspected during removal activities for indications of releases of hazardous substances and/or petroleum products. In addition, the reported irrigation well on the property should be properly plugged and abandoned in accordance with the Colorado Division of Water Resources State Engineer's Office standards for plugging, sealing, and abandoning wells. In accordance with the ASTM standard, this ESA is valid if completed within 180 days of the property acquisition or intended transaction.

PHASE I ENVIRONMENTAL SITE ASSESSMENT
THE NESS PROPERTY
SOUTHEAST OF EAST 28TH STREET AND 1ST AVENUE
CITY OF GREELEY AND WELD COUNTY, COLORADO

APRIL 6, 2015

1.0 Introduction

The City of Greeley Department of Culture, Parks and Recreation retained ERO Resources Corporation (ERO) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for the Ness property southeast of East 28th Street and 1st Avenue in the City of Greeley and unincorporated Weld County, Colorado (the property). The area surrounding the property is shown on Figure 1. This report presents the findings, opinions, and conclusions of this Phase I ESA.

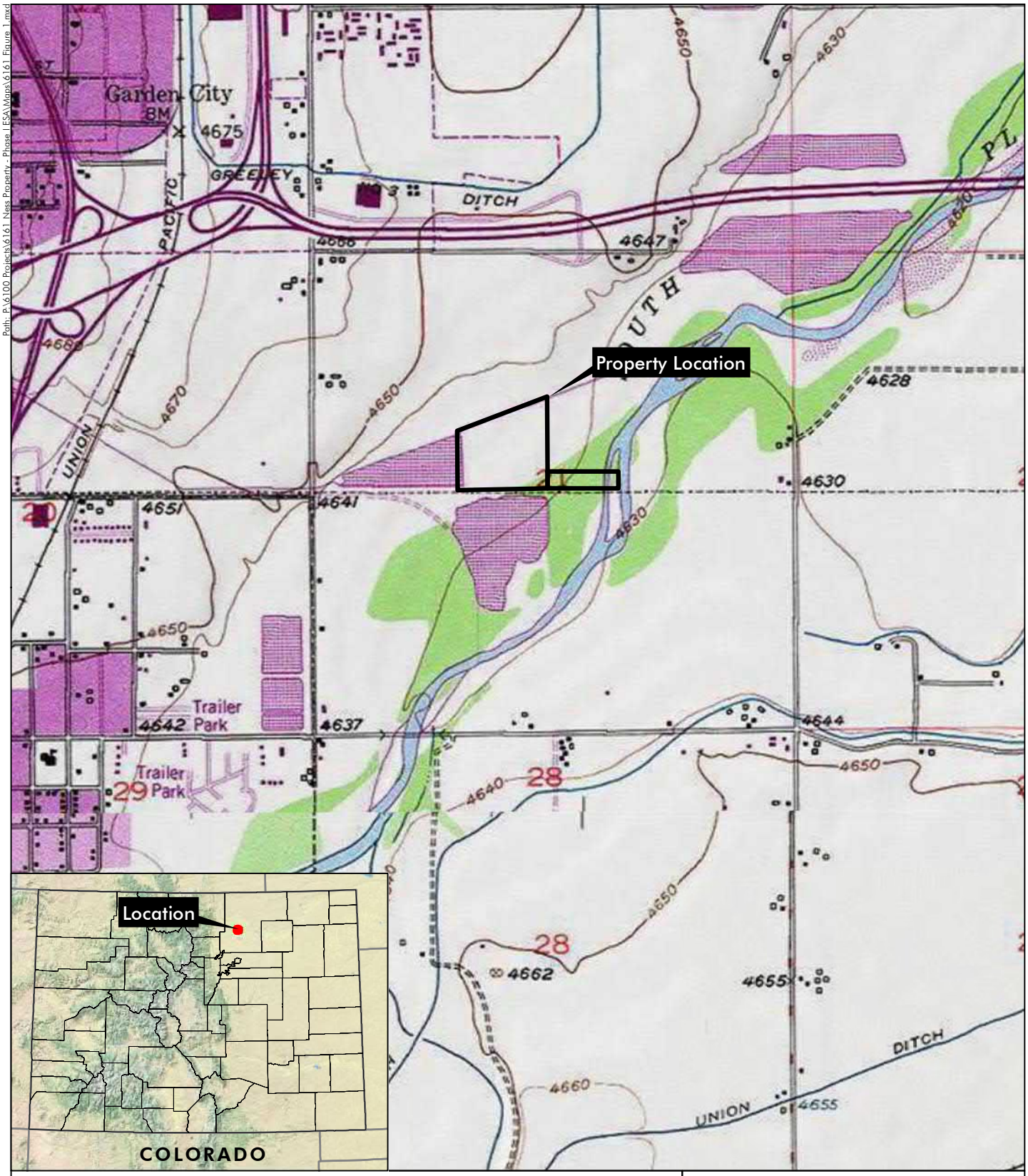
This Phase I ESA was performed to satisfy the Work Scope and contract between the City of Greeley Department of Culture, Parks and Recreation and ERO dated March 16, 2015 (Appendix D). The conclusions in this report are based on limited observations and investigations described herein at the time this Phase I ESA was conducted; future events may alter these findings.

1.1 Location and Legal Description

The property is in the North ½ of Section 21, Township 5 North, Range 65 West of the 6th Principal Meridian in Weld County, Colorado. The property's legal description is included in Appendix B. According to the Weld County Assessor's Office (Weld County), the property is listed as Parcel #096121100002 and a portion of Parcel #096121201023 (Weld County 2015). The parcel located within the City of Greeley (#096121100002) is zoned Medium Density Industrial (I-M) and the parcel in unincorporated Weld County (#096121201023) is zoned Agricultural (A) (City of Greeley Planning 2015; Weld County 2015).

1.2 Site and Vicinity General Characteristics

The property consists of two parcels of undeveloped land totaling 23 acres owned by Marlin Ness. The property is bounded by a water storage pond on the west, undeveloped land and the South Platte River on the east, a water storage pond and undeveloped land on the south, and undeveloped land and a ditch on the north (Figure 2). Adjoining land consists of residential and undeveloped land used for oil and gas production to the north, undeveloped land used for oil and gas production and industrial land to the east, and undeveloped land to the south and west.



Ness Property

Section 21, T5N, R65W; 6th PM
UTM NAD 83: Zone 13N; 528010mE, 4470631mN
Latitude, Longitude: 40.385804°N, 104.669994°W
USGS Greeley, CO Quadrangle
Weld County, Colorado

0 750 1,500 feet

N

Figure 1
Vicinity Map

Prepared for: The City of Greeley
File: 6161 Figure 1.mxd [dlH]
March 30, 2015

ERO Resources Corp.

Figure 2
Site Plan

Prepared for: The City of Greeley
File: 6161 Figure 2.mxd [dlH]
April 2, 2015

ERO Resources Corp.

1.3 Purpose

ERO conducted this Phase I ESA to identify recognized environmental conditions (RECs) associated with the property. RECs may exist when any hazardous substances or petroleum products are present, or are likely to be present, in, on, or at a property due to a release to the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

Three additional conditions indicative of releases of petroleum products or hazardous materials on a property may be identified. These consist of the following:

Controlled recognized environmental condition (CREC) – when a past release of petroleum product or hazardous materials has occurred and has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). This designation does not imply any evaluation or confirmation of the adequacy, implementation, or effectiveness of the controls has been conducted by ERO.

Historical recognized environmental condition (HREC) – when a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority without any required controls.

De minimis conditions – those conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not RECs.

While no ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property, the environmental conditions of the property have been investigated in accordance with ASTM Standard E1527-13, developed to define commercial and customary practices for Phase I ESAs. The Phase I ESA process is not an exhaustive assessment of a property, but is intended to reduce but not eliminate uncertainty regarding the potential for RECs in connection with the property, recognizing the limits of time and cost. In addition, this Phase I ESA was performed to permit the user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations

on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability: that is, the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 U.S.C. Section 9601(35)(B).

1.4 Scope of Work

This Phase I ESA was conducted in accordance with ASTM E1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." Deviations from this practice, if any, are listed in Section 10.0. ERO's Work Scope is included in Appendix D. This ESA generally consists of four components:

- A review of reasonably ascertainable historical and regulatory database records to help identify RECs in connection with the property.
- A site reconnaissance to visually and physically observe the property, the adjoining properties, and the surrounding area.
- Interviews with the user of the ESA, the property owner, and local government officials to help identify RECs associated with the property.
- A report and evaluation of the information collected as part of this ESA that presents ERO's findings, opinions, and conclusions.

1.5 Limitations, Exceptions, and Assumptions

This Phase I ESA was performed in a professional manner using the degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. A lack of evidence of the presence of hazardous substances or petroleum products during this Phase I ESA does not guarantee the absence of such materials; it merely indicates that none were identified within the contracted scope of this Phase I ESA. Unforeseen conditions may significantly affect the ability to make conclusions based solely on the level of effort mutually agreed upon to conduct this Phase I ESA, which may ultimately affect the level of risk. ERO shall not be held responsible for any conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed. The opinions and conclusions in this report are based on commonly known, reasonably ascertainable, publicly available information and site reconnaissance observations described herein at the time this Phase I ESA was conducted. Future events or changes in publicly available information may alter the findings, opinions, and

conclusions of this report. No other warranty, expressed or implied, is made as to the professional opinions included in this report.

The following issues are specifically excluded from this ESA—wetlands, migratory birds, asbestos-containing materials, radon, lead-based paint, lead in drinking water, mold, and ownership of subsurface mineral rights or leases. Aside from those stated in the Work Scope in Appendix D and those listed above, no significant assumptions apply to this Phase I ESA.

1.6 Deviations

This Phase I ESA was conducted with no known deviations from the ASTM Standard Practice for Environmental Site Assessments (ASTM 2013).

1.7 Special Terms and Conditions

No special terms or conditions apply to this Phase I ESA.

1.8 User Reliance

This report is for the use and benefit of the City of Greeley Department of Culture, Parks and Recreation and is not to be used by others without the prior written consent of ERO. No other party shall rely on the information contained herein without the prior written consent of the City of Greeley's Department of Culture, Parks and Recreation or ERO.

2.0 User Provided Information

Mr. Andy McRoberts, the Director of the City of Greeley's Department of Culture, Parks and Recreation, the user of this ESA, completed a User Questionnaire regarding his knowledge of the property. Mr. McRoberts has been associated with the property for about 18 months. The following sections present the information provided by Mr. McRoberts (McRoberts 2015).

2.1 Owner, Property Manager, and Occupant Information

According to Mr. McRoberts, the property is owned by Marlin Ness. There are no current occupants on the property (McRoberts 2015).

2.2 Land Title Records/Environmental Liens or Activity and Use Limitations

The ASTM E-1527-13 practice indicates that it is the responsibility of the user of this Phase I ESA, the City of Greeley's Department of Culture, Parks and Recreation, to identify any environmental liens and activity use limitations (AULs), if any, recorded or filed against the property. Mr. McRoberts was unaware of any environmental liens or AULs associated with the property (McRoberts 2015).

2.3 Actual or Specialized Knowledge

According to Mr. McRoberts, he does not have any actual or specialized knowledge of any uses or incidents on the property that would indicate RECs in connection with the property except for reports from the property owner of a landfill on the property (McRoberts 2015).

2.4 Valuation Reduction for Environmental Issues

According to Mr. McRoberts, the proposed purchase/acquisition price of the property does not reflect a reduction in value below fair market value for reasons of known contamination on the property (McRoberts 2015).

2.5 Commonly Known or Reasonably Ascertainable Information

According to Mr. McRoberts, he is not aware of any commonly known or reasonably ascertainable information within the local community that would indicate RECs in connection with the property except for the reports from the property owner of a landfill on the property (McRoberts 2015).

2.6 Degree of Obviousness

According to Mr. McRoberts, to his knowledge, there is no obvious indication of releases or threatened releases on the property (McRoberts 2015).

2.7 Reason for Performing Phase I

According to Mr. McRoberts, this Phase I ESA is being conducted for property acquisition and landowner liability protection under CERCLA as described in Section 1.3 (McRoberts 2015).

3.0 Records Review

3.1 Physical Setting

The property is located at an approximate elevation of 4,635 feet above sea level. Surface geology in the area is characterized by alluvial deposits of sand and gravel underlain by claystone, shale, sandy shale, and sandstone of the Cretaceous-era Laramie Formation (Colton 1978). According to the U.S. Geological Survey (USGS), depth to the uppermost ground water beneath the property and vicinity is less than 5 feet below ground surface (bgs) (Hillier et al. 1979). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the east-northeast, toward the South Platte River (USGS 2013). Based on the topography and field observations, the expected flow direction of the uppermost ground water is to the east-northeast, toward the South Platte River.

3.2 Current and Future Use of the Property

The property is currently undeveloped land. According to Mr. McRoberts, the property is proposed to be used as a public park and natural open space.

3.3 Structures, Roads, or Other Improvements on the Property

Aside from the Schneider #22-21 oil and gas well in the northwest portion of the property and an overhead high-voltage powerline along the south property boundary, no structures are located on the property. Several unimproved dirt roads cross the property.

3.4 Historical Use Information for the Property and Adjoining Properties

ERO used the following standard historical sources to evaluate current and past uses of the property and adjoining properties:

- Aerial photographs from 1937 to 2014
- Historical topographic maps from 1902 to 2013

Other standard historical sources for the site, such as fire insurance maps, street directories, property tax files, recorded land title records, building department records, or zoning/land use records were not reasonably ascertainable, were not available or, based on ERO's professional experience, the records are unlikely to be sufficiently useful, accurate, or complete and are unlikely to provide significant additional historical information with regard to the property.

3.4.1 Historical Aerial Photographs

Historical aerial photographs from 1937 to 2014 showing the property and surrounding area were reviewed and are discussed below.

1937 Aerial Photograph; Scale: 1 inch = 500 feet

The 1937 aerial photograph shows the west parcel of the property to be used for cultivated agriculture and the east parcel is undeveloped with a portion extending into the South Platte River. No structures are visible on the property. The surrounding area is undeveloped and used for cultivated agricultural fields. A stream is visible flowing to the northeast, toward the South Platte River, along the north property boundary.

1941 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 1941 aerial photograph compared with the previous photograph.

1948 Aerial Photograph; Scale: 1 inch = 750 feet

No significant changes on or adjacent to the property are visible in the 1948 aerial photograph compared with the previous photograph.

1969 Aerial Photograph; Scale: 1 inch = 750 feet

Significant changes to the property and surrounding area visible in the 1969 aerial photograph compared with the previous photograph are as follows:

- An unimproved dirt road is visible accessing the property from the north;
- Water storage ponds are visible adjoining the property to the west and south; and
- The stream along the north property boundary has been channelized.

1978 Aerial Photograph; Scale: 1 inch = 750 feet

Significant changes to the property and surrounding area visible in the 1978 aerial photograph compared with the previous photograph are as follows:

- Additional unimproved dirt roads with additional soil disturbance are visible crossing the east parcel along the river; and
- A four-lane paved highway is visible about 0.25 mile north of the property.

1984 Aerial Photograph; Scale: 1 inch = 500 feet

Significant changes to the property and surrounding area visible in the 1984 aerial photograph compared with the previous photograph are as follows:

- Extensive piles of solid waste are visible on and adjacent to the east portion of the property on both parcels.

1988 Aerial Photograph; Scale: 1 inch = 750 feet

No significant changes to the property are visible in the 1988 aerial photograph compared with the previous photograph. Significant changes to the surrounding area visible in the 1988 aerial photograph compared with the previous photograph are as follows:

- Soil disturbance associated with the Quick #21-13 oil and gas well is visible adjoining the property to the northeast.

1993 Aerial Photograph; Scale: 1 inch = 500 feet

Significant changes to the property and surrounding area visible in the 1993 aerial photograph compared with the previous photograph are as follows:

- A significant area of soil disturbance is visible on the west portion of the property associated with the installation of the Schneider #22-21 oil and gas well; and
- Several areas of soil disturbance associated with oil and gas development and residential development are visible west and south of the property.

1999 Aerial Photograph; Scale: 1 inch = 500 feet

Significant changes to the property and surrounding area visible in the 1999 aerial photograph compared with the previous photograph are as follows:

- An area of soil disturbance is visible in the solid waste disposal areas on the east portion of the property;
- The disturbed area on the west portion of the property is no longer visible and the Schneider #22-21 oil and gas wellhead is visible;
- A water well is visible southeast of the Schneider #22-21 oil and gas well on the west parcel; and
- Oil and gas tank batteries are visible adjoining the property to the west, southwest, and northeast.

2005 Aerial Photograph; Scale: 1 inch = 500 feet

Significant changes to the property and surrounding area visible in the 2005 aerial photograph compared with the previous photograph are as follows:

- A portion of the solid waste in the east portion of the property appears to have been removed;
- The west parcel no longer appears to be used as cultivated agricultural land; and

- Residential development is visible adjoining to the north of the west parcel.

2006 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes to the property are visible in the 2006 aerial photograph compared with the previous photograph. Significant changes to the surrounding area in the 2006 aerial photograph compared with the previous photograph are as follows:

- Excavation for a water storage pond is visible adjoining to the northeast of the property.

2009 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 2009 aerial photograph compared with the previous photograph except several tee boxes and a building are visible adjoining the property to the east associated with the historical driving range on the property.

2011 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 2011 aerial photograph compared with the previous photograph except the tee boxes and building are no longer visible on the property.

2014 Aerial Photograph; Google Earth

No significant changes on or adjacent to the property are visible in the 2014 aerial photograph compared with the previous photograph.

3.4.2 Historical Topographic Maps

Historical USGS topographic maps from 1902 to 2013 showing the property and surrounding area were reviewed and are discussed below.

1902 USGS 15-Minute Series, Greeley, CO; Scale: 125,000

The USGS topographic map from 1902 shows the property and surrounding area to be undeveloped. The South Platte River is visible on and adjoining the east portion of the property.

1950 USGS 7.5-Minute Series, Greeley, CO; Scale: 1:24,000
1958 and 1961 USGS 1° x 2° Series, Greeley, CO; Scale: 1:250,000

The USGS topographic maps from 1950, 1958, and 1961 show the property and surrounding area to be undeveloped. The South Platte River is visible on and adjoining the east portion of the property.

1980 USGS 7.5-Minute Series, Greeley, CO; Scale: 1:24,000

Significant changes to the property and surrounding area on the 1980 topographic map compared with the previous maps are as follows:

- Water storage ponds are shown adjoining the property to the south and west; and
- A high-voltage electrical line is shown along the south property boundary.

2010 and 2013 USGS 7.5-Minute Series, Greeley, CO; Scale: 1:24,000

The USGS topographic map from 2010, with an aerial photographic base from 2009, and the map from 2013, with an aerial photographic base from 2011, show the property as described in the aerials from the same years in Section 3.4.1.

3.5 Previous Environmental Reports

ERO was not provided nor made aware of any previous environmental reports for the property.

3.6 Standard Environmental Records Sources

ERO contracted with a commercial database search company, Environmental Data Resources, Inc. (EDR), to conduct a search of publicly available database records. All ASTM search distance sites are measured from the property boundary.

ERO reviewed initial search results for inaccuracies using both field and mapping data sources. In addition, ERO attempted to locate orphan sites, those that lack adequate location information to map, using zip code, city name, site name, or other information and incorporated into the final database search results. Orphan sites that were found to be beyond the approximate minimum ASTM search distances were removed from the database search report by ERO prior to finalization. Sites identified by the publicly available database record search are discussed in the following sections and assessed as to their potential to be historical, known, or suspect RECs associated with the property. A summary is included in Table 1 and copies of records reviewed are in Appendix B.

Table 1. Summary of publicly available environmental records.

Record Sources	Search Distance (miles)[1]	Property	No. of Sites
Federal NPL site list	1.0	No	0
Federal Delisted NPL site list	0.5	No	0
Federal CERCLIS list	0.5	No	0
Federal CERCLIS NFRAP site list	0.5	No	0
Federal RCRA CORRACTS site list	1.0	No	0
Federal RCRA TSD facilities list	0.5	No	0
Federal RCRA generators list	property and adjoining	No	0
Federal institutional control/engineering control registries	property only	No	0
Federal ERNS list	property only	No	0
State NPL-equivalent sites[2]	1.0	No	0
State CERCLIS-equivalent sites[2]	0.5	No	0
State landfill and/or solid waste disposal site list	0.5	No	0
State leaking storage tank list	0.5	No	1
State registered storage tank list	property and adjoining	No	0
State institutional control/engineering control registries	property only	No	0
State voluntary cleanup sites	0.5	No	0
State Brownfields sites	0.5	No	0

[1]ASTM E1527-13 standard search distances.
[2]In Colorado, the lead agency for NPL/CERCLA lead agency may be either the Environmental Protection Agency (EPA) or Colorado Department of Public Health and Environment (CDPHE).

3.6.1 State Leaking Storage Tank Sites

The Colorado Department of Labor and Employment, Division of Oil and Public Safety (CDLE/OPS) lists no state leaking underground storage tank (LUST) or leaking aboveground storage tank (LAST) sites on the property. One LUST site is located within 0.5 mile of the property:

- The R.R. Donnelly Norwest Inc. site, at 259 30th Street, is located about 0.45 mile west and crossgradient of the property. The site was granted closure by CDLE/OPS on June 16, 1994.

3.7 Additional Environmental Record Sources

3.7.1 Colorado Oil and Gas Conservation Commission Records

ERO reviewed records maintained by the Colorado Oil and Gas Conservation Commission (COGCC), the agency that regulates oil and natural gas exploration and production in Colorado. Table 2 lists oil and gas wells on and adjoining the property and provides a summary of recorded incidences associated with the wells. No notices of alleged violations, spills, remediation, or complaints were recorded in COGCC files for any of the wells (COGCC 2015).

Table 2. COGCC records summary for property wells.

Well (Date Completed)	Incidents (Date)	Incident Description	Documented Resolution
Property Well			
Schneider #22-21 (2/24/1993)	No incidents	NA	NA
Upgradient Wells			
Schneider #1 (5/301985) (Producing)	Two reported releases (4/20/1995 & 10/4/2013)	Approximately 300-gallon release from produced water tank at tank battery reported on 4/20/1995. Unknown amount of produced water lost from tank after being inundated with floodwaters on September 13, 2013.	About 450 cubic yards of soil excavated at the site and disposed off-site at land farm; soil and ground water samples were reportedly nondetect for benzene, toluene, ethylbenzene, and xylene (BTEX); COGCC granted closure. Five surface soil samples and one subsurface soil sample were collected from the tank battery area and only low concentrations of petroleum hydrocarbons were detected in one sample; COGCC granted the site closure on May 28, 2014.

Well (Date Completed)	Incidents (Date)	Incident Description	Documented Resolution
Bragg #1 (12/19/1985) (Producing)	One reported release (2/7/2014)	Approximate 1,600 gallons of produced water lost from tank after being inundated with floodwaters on September 13, 2013.	Five surface soil samples were collected from the tank battery area and only very low concentrations of petroleum hydrocarbons were detected in one sample; COGCC granted the site closure on May 27, 2014.
Bragg #F21-11S (12/3/1991) (Plugged and Abandoned)	No incidents	NA	NA
Bragg PM #F21-11 (2/10/1989) (Producing)	No incidents	NA	NA

3.8 Vapor Encroachment Evaluation

ERO evaluated the sites identified in Section 3.6 with respect to search distance criteria to evaluate potential vapor encroachment in accordance with ASTM E 2600-10, the "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM 2010). No sites identified in the EDR search of publicly available databases are located within the applicable search distance criteria denoting the Area of Concern for vapor encroachment; therefore, a vapor encroachment condition does not exist for the property.

4.0 Site Reconnaissance

4.1 Methodology and Limiting Conditions

Courtney Sockwell, an Environmental Professional with ERO, conducted the site reconnaissance on March 23, 2015. He investigated the entire property by walking the perimeter and traversing the interior. Representative photographs taken during the site reconnaissance are presented in Appendix A.

4.2 General Site Setting

The property is generally undeveloped land with a portion of the east parcel located within the South Platte River. The majority of the property is vegetated with grasses and weeds with a

wooded area in the southeast. The topography in the vicinity of the property is generally flat with a very gentle slope to the east toward the South Platte River. Several unimproved dirt roads were observed to cross the property.

Aside from the Schneider #22-21 oil and gas well on the northwest portion of the property and the overhead high-voltage powerline along the south property boundary, no structures were observed on the property at the time of the site reconnaissance. In addition, an approximate 4-foot by 8-foot concrete slab and a well pipe associated with a reported irrigation well were observed in the center of the west parcel (Ness, pers. comm. 2015).

The adjoining parcels are undeveloped, used for water storage, and residential. In addition, oil and gas wells and tank batteries are located northeast, west, and southwest of the property.

4.2.1 Storage Tanks

No vent pipes, fill ports, tank pits, or other indications of underground storage tanks were observed on the property. No aboveground petroleum storage tanks were observed on the property.

4.2.2 Odors

No strong, pungent, or noxious odors were noted during the site reconnaissance.

4.2.3 Pools of Liquid

No pools of liquid were observed on the property. A portion of the east parcel is located within the South Platte River.

4.2.4 Drums/Containers

Aside from one empty and partially crushed 55-gallon steel drum observed within solid waste on the property, no drums or containers were observed on the property.

4.2.5 Hazardous Substance and Petroleum Products Materials/Waste Use or Storage

No hazardous substances or petroleum products were observed to be used or stored on the property.

4.2.6 Transformers/PCBs

No electrical transformers were observed on the property.

4.3 Exterior Observations

4.3.1 Pits, Ponds, and Lagoons

ERO observed several pit areas on the property, but no ponds or lagoons were observed. Extensive solid waste disposal was observed within the pits on the southeast portion of the property.

4.3.2 Stained Soil or Pavement

No areas of stained soils or pavement were observed on the property.

4.3.3 Stressed Vegetation

No areas of stressed vegetation were observed on the property.

4.3.4 Solid Waste Disposal

Several areas of solid waste disposal were observed on the southeast portion of the property. Items observed generally included inert materials including concrete, clay tile, scrapped cars, asphalt shingles and other building materials, scrap wood and metal, and flood-related debris. No indications of hazardous substances or petroleum products were observed within the material disposed. ERO was not able to assess the soil conditions beneath the solid waste disposal sites. Additional concrete rubble was observed around the bases of the overhead powerline poles on the property.

4.3.5 Wastewater Discharge

ERO observed no sumps, floor drains, trenches, streams, or underground injection system into which wastewater and liquids on and adjacent to the property discharge.

4.3.6 Wells

ERO did not observe any monitoring, domestic, irrigation, injection, abandoned, or other wells on the property except for metal piping and a concrete slab reportedly associated with a historical irrigation well on the west portion of the property. No other indications of a well were

observed. According to the Colorado Division of Water Resources (CDWR), no permitted water wells are located on the property (CDWR 2015).

4.3.7 Process Equipment

No manufacturing, remediation, or other chemical process equipment was observed on the property.

4.3.8 On-site Septic Systems

ERO did not observe any indications of on-site septic systems or cesspools on the property.

5.0 Interviews

5.1 Interview with Owner

Marlin Ness, the current property owner, was interviewed by telephone on March 23, 2015. Mr. Ness indicated that he has owned the property since 2002 and purchased the property from Robert Quick. According to Mr. Ness, the property has been agricultural land with a center-pivot irrigation system and a historical golf driving range on the west parcel. He indicated that the area on and adjacent to the southeast portion of the property has been used as a "farm dump" for disposing concrete and other trash. According to Mr. Ness, leaks have been reported for the oil and gas well adjoining to the northeast. Mr. Ness indicated that a trucking company placed road base on the northeast corner of the west parcel in order to park trucks on the property. Aside from the solid waste disposal on and adjacent to the property and the reported release from the oil and gas well to the northeast, Mr. Ness was unaware of any environmental problems with the property or in the surrounding area (Ness, pers. comm. 2015).

5.2 Interviews with Local Government Officials

5.2.1 Interview with Local Health Department

ERO contacted the Weld County Department of Environmental Health on March 23, 2015 for information that may indicate RECs on or near the property. ERO visited the Weld County Department of Environmental Health on March 27, 2015 and reviewed complaints on file for Section 21, Township 5 North, Range 66 West of the 6th Principal Meridian. Both complaints were associated with an illegal landfill site used for dumping building debris located almost 0.5

mile northeast and downgradient of the property (Weld County Department of Environmental Health 2015).

5.2.2 Interview with Local Fire Department

ERO contacted the Greeley Fire Department on April 1, 2015 for information that may indicate RECs on or near the property. Vicky Barr with the Greeley Fire Department indicated that the department needs a physical address to search their records and that their records include only commercial properties (Barr, pers. comm. 2015).

6.0 Evaluation

6.1 Findings

The property consists of two parcels of undeveloped land totaling 23 acres. Historically, the property has been undeveloped, agricultural, and used for oil and gas production and the surrounding area has been undeveloped, agricultural, residential, and used for oil and gas production.

Federal, state, and local records indicate no RECs associated with the property except for one oil and gas well on the property. Three oil and gas wells and associated tank batteries were identified southwest and upgradient of the property, one oil and gas well and tank battery was identified downgradient to the northeast of the property, and one LUST site is located about 0.45 mile west of the property. Several areas of solid waste disposal were observed on and adjacent to the southeast portion of the property. The items observed generally included inert materials including concrete, asphalt shingles, scrap wood and metal, and flood-related debris. No indications of hazardous substances or petroleum products were observed within the material disposed. ERO was not able to assess the soil conditions beneath the solid waste disposal site. Additional concrete rubble was observed around the bases of the overhead powerline poles on the property. The historical solid waste disposal on and adjacent to the property was confirmed during the interview with the property owner.

6.2 Opinion

A summary of identified findings and ERO's determination if the findings constitute RECs associated with the property is presented in Table 3.

Table 3. Findings and opinion summary.

Finding	REC, CREC, or HREC?	Rationale
Solid waste disposal on the property	REC	Because building materials of unknown origin were identified in the materials disposed with the potential for asbestos containing materials being present in the materials disposed
Schneider #22-21 oil and gas well	No	No on-site storage of oil; no reported releases from the wellhead; and no reported production pits on the property
Adjoining oil and gas wells and tank batteries	No	Two of the three reported releases were associated with flooding in 2013 and all three reported releases were granted closure by COGCC
LUST site west of the property	No	The site is located almost 0.5 mile crossgradient from the property and has received regulatory closure

It is ERO's professional opinion that no RECs are associated with the property except for the solid waste disposed on the property.

Based on the distance of sites with respect to the property and vapor encroachment analysis, it is ERO's professional opinion that a vapor encroachment condition does not exist on the property.

6.3 Data Gap Summary

Summary of Historical Data. Historical data sources are listed below in Table 4 with gaps of greater than five years between sources identified as data gaps. ERO was able to document land use on the property prior to 1940. Because of the consistent land use of the property as agricultural and undeveloped land used for oil and gas production, it is ERO's professional opinion that the data gaps identified in Table 4 do not constitute significant data gaps with respect to this ESA. It is ERO's professional opinion that there are no significant historical data gaps associated with this Phase I ESA.

Table 4. Historical data gap analysis.

Source	Year	Gap	Data Gap
Topographic Map	1902	-	-
Aerial Photograph	1937	35	Yes
Aerial Photograph	1941	4	No
Aerial Photograph	1948	7	Yes
Topographic Map	1950	2	No
Topographic Map	1958	8	Yes
Topographic Map	1961	3	No
Aerial Photograph	1969	8	Yes
Aerial Photograph	1978	9	Yes
Topographic Map	1980	2	No
Aerial Photograph	1984	4	No
Aerial Photograph	1988	4	No
Aerial Photograph	1993	5	No
Aerial Photograph	1999	6	Yes
Aerial Photograph	2005	6	Yes
Aerial Photograph	2006	1	No
Aerial Photograph	2009	3	No
Topographic Map	2010	1	No
Aerial Photograph	2011	1	No
Topographic Map	2013	2	No
Aerial Photograph	2014	1	No

Significant Data Gaps. ERO was able to access all areas of the property, received a User Questionnaire from the ESA User, and interviewed the property owner. In addition, ERO interviewed representatives from the Greeley Fire Department and reviewed files at the Weld County Department of Environmental Health. ERO was also able to review on-line databases maintained by the COGCC, CDWR, and the Weld County Tax Assessor's office. Based on consistent land use on the property and information reviewed as part of this ESA, it is ERO's professional opinion that there are no significant data gaps with respect to this ESA

6.4 Conclusions

ERO performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527 of the Ness property southeast of East 28th Street and 1st Avenue in the City of Greeley and unincorporated Weld County, Colorado. Any exceptions to, or deletions from, this practice are described in the *Introduction* section of this report. This assessment has revealed no evidence of RECs in connection with the property, except for the solid waste observed on the

property which included building materials of unknown origin. ERO recommends removing the solid waste, except for the concrete rubble currently being used for erosion protection, and disposing at a permitted solid waste disposal facility. The material to be removed and the ground beneath the solid waste should be inspected during removal activities for indications of releases of hazardous substances and/or petroleum products. In addition, the reported irrigation well on the property should be properly plugged and abandoned in accordance with the CDWR State Engineer's Office standards for plugging, sealing, and abandoning wells. In accordance with the ASTM standard, this ESA is presumed to be valid if completed within 180 days of the property acquisition or intended transaction.

6.5 Environmental Professionals Statement

"We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 40 CFR 312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Courtney Sockwell
Environmental Professional

Craig Sovka
Environmental Professional

7.0 References

American Society for Testing Materials (ASTM). 2010. "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions." Philadelphia: ASTM E 2600-10.

American Society for Testing Materials (ASTM). 2013. Annual Book of ASTM Standards. "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." Philadelphia: ASTM E 1527-13.

Barr, Vicky. 2015. Greeley Fire Department. Personal communication with Courtney Sockwell, Environmental Professional with ERO Resources Corporation. April 1.

City of Greeley Planning Department (City of Greeley Planning). 2015. Review of on-line zoning map. Available at: http://greeleygov.com/services/planning. Last accessed: March 30.

Colorado Department of Water Resources (CDWR). 2015. Review of on-line database. http://water.state.co.us. Last accessed March 30.

Colorado Oil and Gas Conservation Commission (COGCC). 2015. Review of on-line database. Available at: http://dnrwebmapgdev.state.co.us/mg2012app/. Last accessed: March 30.

Colton, Roger B. 1978. Geological Map of Boulder-Fort Collins-Greeley Area, Colorado. Denver: U.S. Geological Survey Map I-855-G.

Environmental Data Resources (EDR). 2015. EDR Aerial Photo Decade Package, Ness Property SE Greeley, CO 80631. Inquiry #4242549.5. Photo dates: 1937, 1941, 1948, 1969, 1978, 1984, 1988, 1993, 1999, 2005, 2006, 2009, and 2011. March 24.

Environmental Data Resources (EDR). 2015. EDR Certified Sanborn Map Report, Ness Property SE Greeley, CO 80631. Inquiry #4242549.3. March 23.

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Hillier, Donald E. and Paul A. Schneider, Jr. 1979. Depth to the Water Table in the Boulder,-Fort Collins-Greeley Area, Front Range Urban Corridor, Colorado. Denver: U.S. Geological Survey. Map I 855-I.

McRoberts, Andy. Phase I ESA User Representative. 2015. User Questionnaire. Completed on March 13.

Ness, Marlin. 2015. Property Owner. Telephone interview with Courtney Sockwell, Environmental Professional with ERO Resources Corporation. March 23.

U.S. Geological Survey (USGS). Greeley Quadrangle, 1902, 1950, 1958, 1961, 1980. Orthophotographic Quadrangle 2010, 2013. Denver, CO.

Weld County Assessor's Office (Weld County). 2015. Review of on-line mapping application. Available at: http://www.co.weld.co.us/Departments/Assessor/. Last accessed: March 30.

Weld County Department of Environmental Health. 2015. Complaint files reviewed by Courtney Sockwell, Environmental Professional with ERO Resources Corporation. March 27.

APPENDIX A —

SITE PHOTOGRAPHS

Photo 1 - A typical view of building materials observed within the solid waste piles on the property.

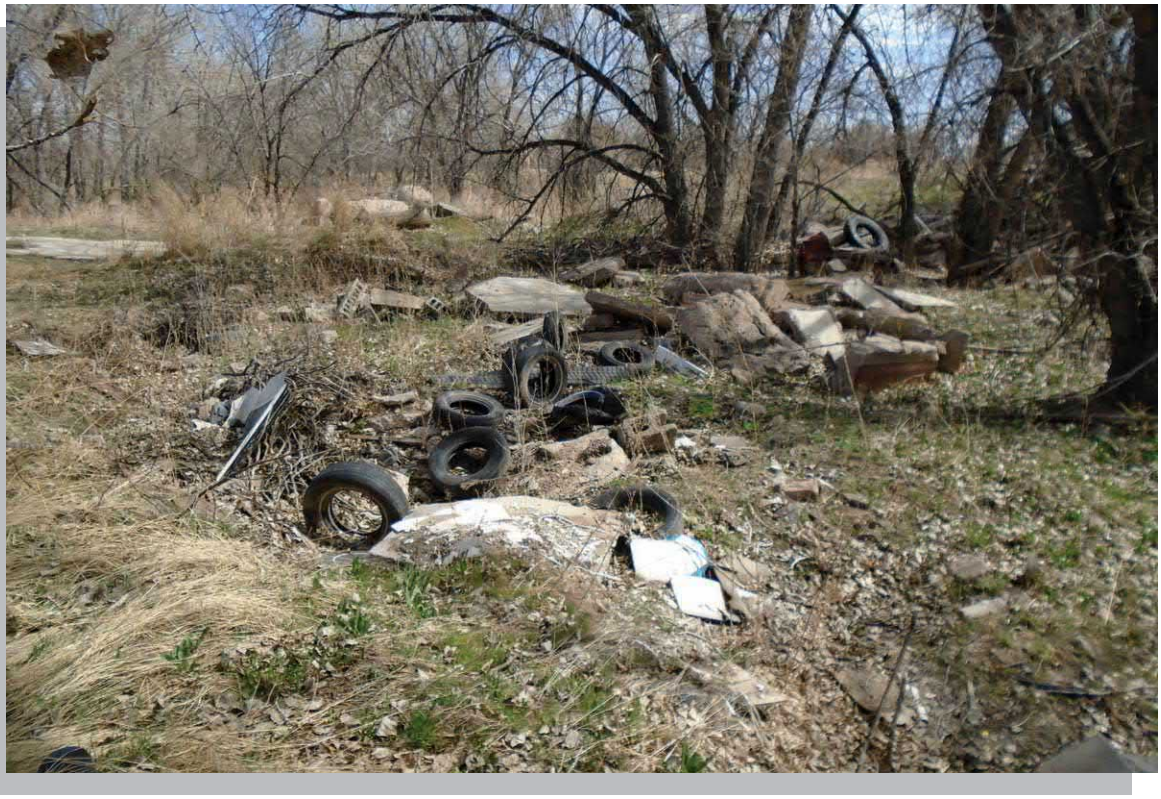


Photo 2 - A typical view of solid waste on the property.

Photo 3 - A typical view of solid waste on the east parcel.

Photo 4 - The east parcel with concrete debris and the oil and gas tank battery adjoining to the northeast.

Photo 5 - Concrete debris observed on the property.

Photo 6 - Typical solid waste observed along the South Platte River.

Photo 7 - The high-voltage overhead powerline and concrete rubble used as erosion control.

Photo 8 - The historical irrigation well on the property.

Photo 9 - The treated wooden poles observed on the southwest portion of the property.

Photo 10 - The Schneider #22-21 oil and gas wellhead on the property.

Photo 11 - The north property boundary, the view is to the east.

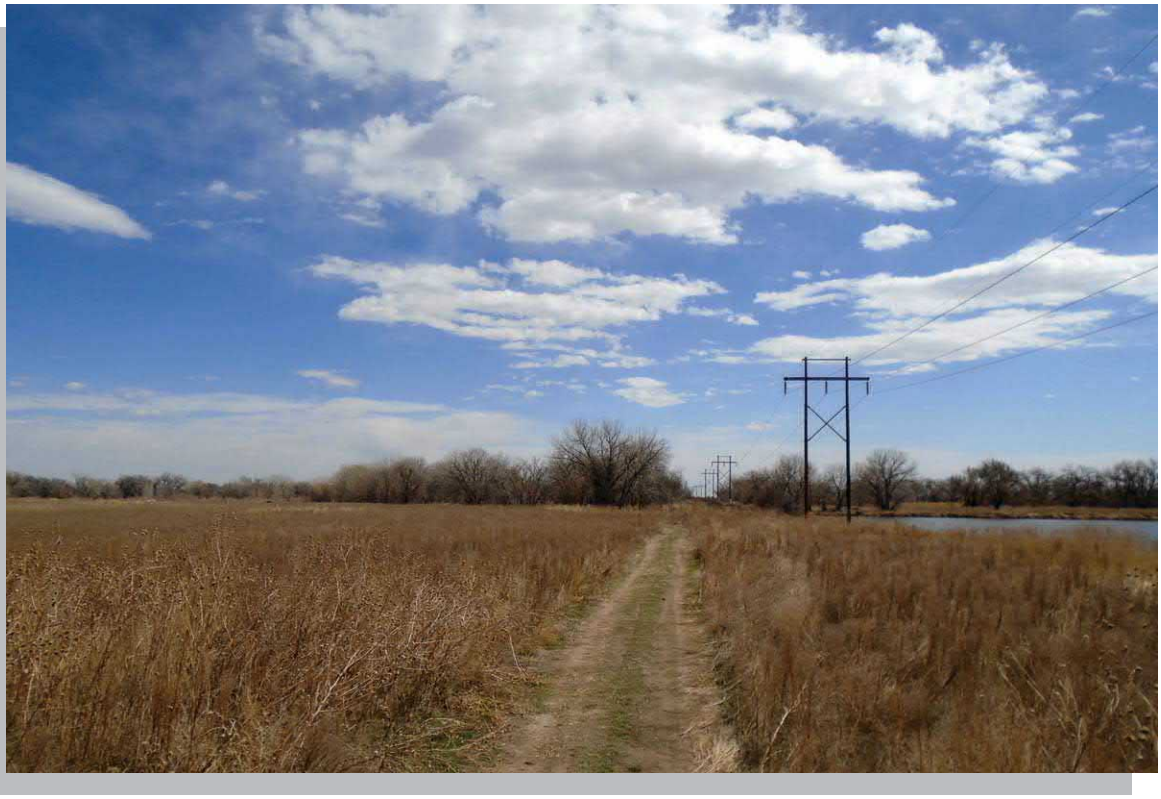


Photo 12 - The dirt road crossing the south portion of the property.

APPENDIX B —

ENVIRONMENTAL RECORDS

Ness Property
SE Greeley
Greeley, CO 80631

Inquiry Number: 4242549.2s
March 23, 2015

The EDR Radius Map™ Report with GeoCheck®

Prepared using the EDR FieldCheck® System

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of the environmental records was conducted by Environmental Data Resources, Inc. (EDR). ERO RESOURCES used the EDR FieldCheck System to review and/or revise the results of this search, based on independent data verification by ERO RESOURCES. The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

SE GREELEY
GREELEY, CO 80631

COORDINATES

Latitude (North):	40.3859000 - 40° 23' 9.24''
Longitude (West):	104.6689000 - 104° 40' 8.04''
Universal Tranverse Mercator:	Zone 13
UTM X (Meters):	528103.6
UTM Y (Meters):	4470431.5
Elevation:	4636 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	40104-D6 GREELEY, CO
Most Recent Revision:	1980
South Map:	40104-C6 LA SALLE, CO
Most Recent Revision:	1975

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20110715
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No sites were identified in following databases.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS ---------- This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Sites & Facilities

State and tribal leaking storage tank lists

LUST TRUST ---------- RAP Site Listing
LAST ---------- Leaking Aboveground Storage Tank Listing
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ---------- Underground Storage Tank Database

AST ---------- Aboveground Tank List
INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

AUL ---------- Environmental Covenants and Environmental Use Restrictions List

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup & Redevelopment Act Application Tracking Report
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
SWRCY ---------- Registered Recyclers Listing
HIST LF ---------- Historical Landfill List
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---------- Clandestine Drug Labs
CDL ---------- Meth Lab Locations
US HIST CDL ---------- National Clandestine Laboratory Register

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
CO ERNS ---------- Spills Database
SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---------- RCRA - Non Generators / No Longer Regulated
DOT OPS ---------- Incident and Accident Data
DOD ---------- Department of Defense Sites
FUDS ---------- Formerly Used Defense Sites
CONSENT ---------- Superfund (CERCLA) Consent Decrees
ROD ---------- Records Of Decision
UMTRA ---------- Uranium Mill Tailings Sites
US MINES ---------- Mines Master Index File
TRIS ---------- Toxic Chemical Release Inventory System

EXECUTIVE SUMMARY

TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
METHANE SITE	Methane Site Investigations - Jefferson County 1980
Methane Investigation	Methane Gas & Swamp Findings
DRYCLEANERS	Drycleaner Facilities
NPDES	Permitted Facility Listing
AIRS	Permitted Facility & Emissions Listing
UMTRA	Uranium Mill Tailings Sites
ASBESTOS	Asbestos Abatement & Demolition Projects
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
PCB TRANSFORMER	PCB Transformer Registration Database
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
LEAD SMELTERS	Lead Smelter Sites
PRP	Potentially Responsible Parties
2020 COR ACTION	2020 Corrective Action Program List
COAL ASH DOE	Steam-Electric Plant Operation Data
Financial Assurance	Financial Assurance Information Listing
MINES	Permitted Mines Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health's Leaking Underground Storage Tank List.

An online review and analysis by ERO RESOURCES of the LUST list,
as provided by EDR, and dated 03/10/2015 has revealed that there is 1 LUST site
within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RR DONNELLEY NORWEST INCORPORA	***259 30TH ST***	***W 1/4 - 1/2 (0.451 mi.)***	***3***	***7***
Status: Closed				

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

An online review and analysis by ERO RESOURCES of the EDR US Hist Auto Stat list,
as provided by EDR, has revealed that there are 2 EDR US Hist Auto Stat sites
within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	201 E 30TH ST	WNW 1/8 - 1/4 (0.174 mi.)	1	7
Not reported	2907 APRICOT AVE	NW 1/8 - 1/4 (0.231 mi.)	2	7

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 4242549.2S

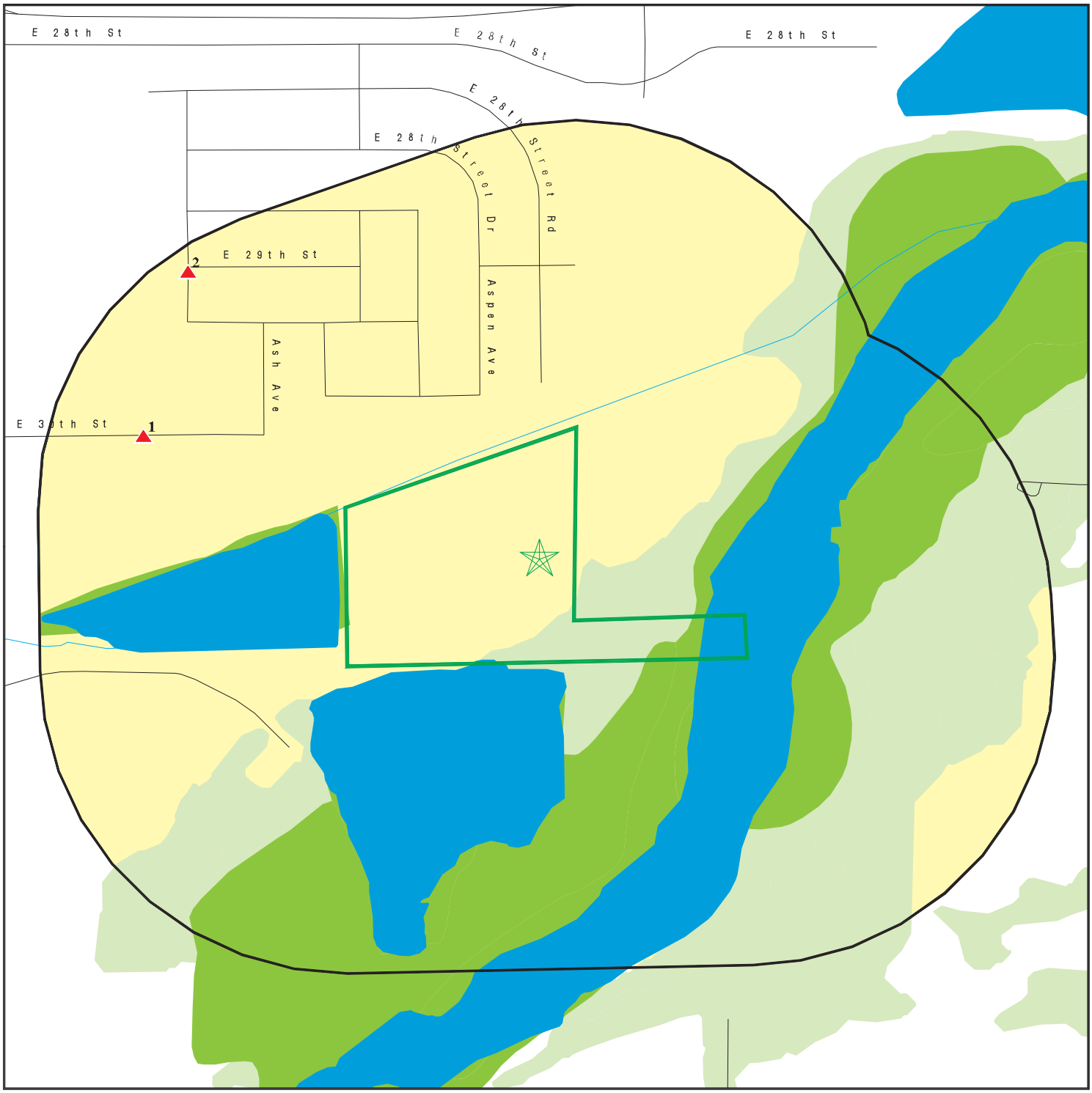
0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ness Property	CLIENT: ERO Resources
ADDRESS: SE Greeley Greeley CO 80631	CONTACT: Courtney Sockwell INQUIRY #: 4242549.2s
LAT/LONG: 40.3859 / 104.6689	DATE: March 23, 2015 6:22 pm

DETAIL MAP - 4242549.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Oil & Gas pipelines from USGS

National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ness Property	CLIENT: ERO Resources
ADDRESS: SE Greeley	CONTACT: Courtney Sockwell
Greeley CO 80631	INQUIRY #: 4242549.2s
LAT/LONG: 40.3859 / 104.6689	DATE: March 23, 2015 6:22 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	N/A		N/A	N/A	N/A	N/A	N/A	N/A
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1
LUST TRUST	0.500		0	0	0	NR	NR	0
LAST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
AUL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CO ERNS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
METHANE SITE	TP		NR	NR	NR	NR	NR	0
Methane Investigation	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
ASBESTOS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	2	NR	NR	NR	2
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

1
WNW
1/8-1/4
0.174 mi.
920 ft.

Relative:
Higher

Actual:
4648 ft.

201 E 30TH ST
GREELEY, CO 80631

EDR US Hist Auto Stat **1015305121**
N/A

EDR Historical Auto Stations:

Name:	WALTS AUTO REPAIR
Year:	2001
Address:	201 E 30TH ST
Name:	WALTS AUTO REPAIR
Year:	2002
Address:	201 E 30TH ST
Name:	WALTS AUTO REPAIR
Year:	2003
Address:	201 E 30TH ST
Name:	WALTS AUTO REPAIR
Year:	2004
Address:	201 E 30TH ST

2
NW
1/8-1/4
0.231 mi.
1219 ft.

Relative:
Higher

Actual:
4656 ft.

2907 APRICOT AVE
GREELEY, CO 80631

EDR US Hist Auto Stat **1015392998**
N/A

EDR Historical Auto Stations:

Name:	THE DENT ERASER & ACCESSORIES
Year:	2007
Address:	2907 APRICOT AVE
Name:	THE DENT ERASER & ACCESSORIES
Year:	2009
Address:	2907 APRICOT AVE

3
West
1/4-1/2
0.451 mi.
2383 ft.

Relative:
Higher

Actual:
4661 ft.

RR DONNELLEY NORWEST INCORPORATED
259 30TH ST
GREELEY, CO 80631

RCRA-CESQG **1000436691**
FINDS **COD109079475**
LUST
UST
AST
AIRS

RCRA-CESQG:

Date form received by agency:	02/06/2012
Facility name:	R R DONNELLEY NORWEST INC
Facility address:	259 30TH ST GREELEY, CO 80631
EPA ID:	COD109079475
Mailing address:	30TH ST GREELEY, CO 80631
Contact:	GREG BEST
Contact address:	259 30TH ST GREELEY, CO 80631
Contact country:	US
Contact telephone:	(970) 350-0799

RR DONNELLEY NORWEST INCORPORATED (Continued) **1000436691**

Contact email: Not reported
EPA Region: 08
Land type: Other land type
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
Owner/operator name: STOCKHOLDERS
Owner/operator address: DATA NOT REQUESTED
DATA NOT REQUESTED, CO 99999
Owner/operator country: US
Owner/operator telephone: (999) 999-9999
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 04/20/2011
Owner/Op end date: Not reported

Owner/operator name: STOCKHOLDERS
Owner/operator address: DATA NOT REQUESTED
DATA NOT REQUESTED, CO 99999
Owner/operator country: Not reported
Owner/operator telephone: (999) 999-9999
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 02/02/1800
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

RR DONNELLEY NORWEST INCORPORATED (Continued) **1000436691**

Historical Generators:
Date form received by agency: 05/04/2011
Site name: R R DONNELLEY NORWEST INC
Classification: Small Quantity Generator

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE(BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 04/20/2011
Site name: R R DONNELLEY NORWEST INC
Classification: Not a generator, verified

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE(BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 10/31/2000
Site name: R R DONNELLEY NORWEST INC
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL

RR DONNELLEY NORWEST INCORPORATED (Continued) **1000436691**

ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE(BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 11/12/1997
Site name: R R DONNELLEY NORWEST INC
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 02/01/2012
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 07/12/2011
Evaluation: FACILITY SELF DISCLOSURE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110001397989

Environmental Interest/Information System
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

Colorado's Department of Public Health & Environment (CDPHE)'s web-based database that allows environmental program managers to edit

RR DONNELLEY NORWEST INCORPORATED (Continued) **1000436691**

their facility locations and allows users to view this information read-only.

OSHA ESTABLISHMENT

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

LUST:

Facility Id:	6835
Status:	**Closed**
Event ID:	3452
Confirmed Release:	06/17/1994
Log Date:	06/17/1994
Facility Id:	6835
Status:	**Closed**
Event ID:	3454
Confirmed Release:	10/12/1990
Log Date:	10/12/1990

CO UST:

Facility ID:	6835

Owner:

Owner Id:	21546
Owner Name:	RR DONNELLEY
Owner Address:	259 30TH ST
Owner City/State/Zip:	GREELEY, CO 80631
Owner County:	WELD
Tank Tag:	6835-1
Tank Status:	Permanently Closed
Date Tank Installed:	05/08/1984
Tank Age:	Not reported
Tank Chemical:	Hazardous Substance
Tank Type:	UST

AST:

Facility ID:	6835

Owner:

Owner Id:	21546
Owner Name:	RR DONNELLEY
Owner Address:	259 30TH ST
Owner City/State/Zip:	GREELEY, CO 80631
Owner County:	WELD
Tank Tag:	6835-2

RR DONNELLEY NORWEST INCORPORATED (Continued) **1000436691**

Tank Status: Currently In Use
Date Tank Installed: 05/27/2009
Tank Age: 5.7902155948757
Tank Contents: LPG
Tank Type: LPG-AG

Tank Tag: 6835-3
Tank Status: Currently In Use
Date Tank Installed: 05/27/2009
Tank Age: 5.7902155948757
Tank Contents: LPG
Tank Type: LPG-AG

CO AIRS:
County/Plant ID: 123-0258
Contact Person: CHARLES K. PHILLIPS
Contact Phone: (970)350-0700
Latitude: 402314.78
Longitude: 1044049.33
SIC Primary: 2741
NAICS Primary: 511199
Unique Emmission Unit ID: 001
Construction Permit Number: 92WE011.CN
Emission Unit Description: LITHO PRINTING PRESSES.CN
Full Pollutant Name: NAPHTHALENE
Site-wide Estimated Emissions: 0.0000000
Site-wide Estimated Emissions Units: Tons Per Year

County/Plant ID: 123-0258
Contact Person: CHARLES K. PHILLIPS
Contact Phone: (970)350-0700
Latitude: 402314.78
Longitude: 1044049.33
SIC Primary: 2741
NAICS Primary: 511199
Unique Emmission Unit ID: 001
Construction Permit Number: 92WE011.CN
Emission Unit Description: LITHO PRINTING PRESSES.CN
Full Pollutant Name: PARTICULATE MATTER < 10 UM
Site-wide Estimated Emissions: 0.0000000
Site-wide Estimated Emissions Units: Tons Per Year

County/Plant ID: 123-0258
Contact Person: CHARLES K. PHILLIPS
Contact Phone: (970)350-0700
Latitude: 402314.78
Longitude: 1044049.33
SIC Primary: 2741
NAICS Primary: 511199
Unique Emmission Unit ID: 001
Construction Permit Number: 92WE011.CN
Emission Unit Description: LITHO PRINTING PRESSES.CN
Full Pollutant Name: PARTICULATE MATTER < 2.5 UM
Site-wide Estimated Emissions: 0.0000000
Site-wide Estimated Emissions Units: Tons Per Year

County/Plant ID: 123-0258

RR DONNELLEY NORWEST INCORPORATED (Continued) **1000436691**

Contact Person:	CHARLES K. PHILLIPS
Contact Phone:	(970)350-0700
Latitude:	402314.78
Longitude:	1044049.33
SIC Primary:	2741
NAICS Primary:	511199
Unique Emmission Unit ID:	001
Construction Permit Number:	92WE011.CN
Emission Unit Description:	LITHO PRINTING PRESSES.CN
Full Pollutant Name:	TOTAL PARTICULATE MATTER
Site-wide Estimated Emissions:	0.0000000
Site-wide Estimated Emissions Units:	Tons Per Year

County/Plant ID:	123-0258
Contact Person:	CHARLES K. PHILLIPS
Contact Phone:	(970)350-0700
Latitude:	402314.78
Longitude:	1044049.33
SIC Primary:	2741
NAICS Primary:	511199
Unique Emmission Unit ID:	001
Construction Permit Number:	92WE011.CN
Emission Unit Description:	LITHO PRINTING PRESSES.CN
Full Pollutant Name:	VOLATILE ORGANIC COMPOUNDS
Site-wide Estimated Emissions:	0.0000000
Site-wide Estimated Emissions Units:	Tons Per Year

Click this hyperlink while viewing on your computer to access
20 additional CO AIRS: record(s) in the EDR Site Report.

Count: 0 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: Department of Public Health & Environment
Telephone: 303-692-3300
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: N/A

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Sites & Facilities

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/04/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/04/2015
Number of Days to Update: 19

Source: Department of Public Health & Environment
Telephone: 303-692-3300
Last EDR Contact: 02/12/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/16/2015
Number of Days to Update: 4

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: 303-318-8521
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

TRUST: Lust Trust Sites

Reimbursement application package. The 1989 Colorado General Assembly established Colorado's Petroleum Storage Tank Fund. The Fund reimburses eligible applicants for allowable costs incurred in cleaning up petroleum contamination from underground and aboveground petroleum storage tanks, as well as for third-party liability expenses. Remediation of contamination caused by railroad or aircraft fuel is not eligible for reimbursement. The Fund satisfies federal Environmental Protection Agency financial assurance requirements. Monies in the Fund come from various sources, predominantly the state environmental surcharge imposed on all petroleum products except railroad or aircraft fuel.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 01/09/2015
Date Made Active in Reports: 02/11/2015
Number of Days to Update: 33

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: 303-318-8521
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

LAST: Leaking Aboveground Storage Tank Listing

A listing of leaking aboveground storage tank sites.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/16/2015
Number of Days to Update: 4

Source: Department of Labor & Employment
Telephone: 303-318-8525
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 01/28/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 32

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/10/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 31

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/16/2015
Number of Days to Update: 4

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: 303-318-8521
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

AST: Aboveground Tank List

Aboveground storage tank locations.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/16/2015
Number of Days to Update: 4

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: 303-318-8521
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 36

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/29/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

AUL: Environmental Real Covenants List

Senate Bill 01-145 gave authority to the Colorado Department of Public Health and Environment to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. When a contaminated site is not cleaned up completely, land use restrictions may be used to ensure that the selected cleanup remedy is adequately protective of human health and the environment.

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/12/2015
Number of Days to Update: 8

Source: Department of Public Health & Environment
Telephone: 303-692-3331
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup & Redevelopment Act Application Tracking Report

The Voluntary Cleanup and Redevelopment Act is intended to permit and encourage voluntary cleanups by providing a method to determine clean-up responsibilities in planning the reuse of property. The VCRA was intended for sites which were not covered by existing regulatory programs.

Date of Government Version: 08/27/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/20/2014
Number of Days to Update: 36

Source: Department of Public Health and Environmental
Telephone: 303-692-3331
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/31/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: No Update Planned

SWRCY: Registered Recyclers Listing
A listing of registered recycler locations in the state of Colorado.

Date of Government Version: 12/15/2014
Date Data Arrived at EDR: 12/18/2014
Date Made Active in Reports: 01/08/2015
Number of Days to Update: 21
Source: Department of Public Health & Environment
Telephone: 303-692-3337
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Varies

HISTORICAL LANDFILL: Historical Landfill List
Abandoned/Inactive Landfills.

Date of Government Version: 01/31/1993
Date Data Arrived at EDR: 04/24/1994
Date Made Active in Reports: 05/30/1994
Number of Days to Update: 36
Source: Department of Public Health & Environment
Telephone: 303-692-3300
Last EDR Contact: 09/05/1996
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 12/01/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 70
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Quarterly

CDL: Meth Lab Locations
Meth lab locations that were reported to the Department of Public Health & Environment.

Date of Government Version: 01/04/2015
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 34
Source: Department of Public Health and Environment
Telephone: 303-692-3023
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 12/01/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 70

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 69

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

CO ERNS: Spills Database

State reported spills.

Date of Government Version: 01/04/2015
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 34

Source: Department of Public Health and Environmental
Telephone: 303-692-2000
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 10/15/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/06/2013
Number of Days to Update: 34

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/03/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 24

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/10/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/06/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 01/29/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/07/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/16/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: EPA
Telephone: (303) 312-6312
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/24/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Biennially

METHANE SITE: Methane Site Investigations - Jefferson County 1980

The objectives of the study are to define as closely as possible the boundaries of methane producing solid waste landfills.

Date of Government Version: 12/31/1980
Date Data Arrived at EDR: 02/13/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 50

Source: Jefferson County Health Department
Telephone: 303-239-7175
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

METHANE INVESTIGATION: Methane Gas & Swamp Findings

The primary objective of this study was to assess methane gas related hazards at selected landfill sites in Colorado. These sites were selected by the Colorado Department of Health following evaluation of responses received from County and Municipal agencies about completed and existing landfills within their jurisdiction.

Date of Government Version: 03/15/1979
Date Data Arrived at EDR: 02/13/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 50

Source: Department of Health
Telephone: 303-640-3335
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DRYCLEANERS: Drycleaner Facilities

A listing of drycleaning facilities.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/16/2015
Number of Days to Update: 6

Source: Department of Public Health & Environment
Telephone: 303-692-3213
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

NPDES: Permitted Facility Listing

A listing of permitted facilities from the Water Quality Control Division.

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 02/03/2015
Date Made Active in Reports: 02/11/2015
Number of Days to Update: 8

Source: Department of Public Health & Environment
Telephone: 303-692-3611
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

AIRS: Permitted Facility & Emissions Listing

A listing of Air Pollution Control Division permits and emissions data.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/16/2015
Number of Days to Update: 6

Source: Department of Public Health & Environment
Telephone: 303-692-3213
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

There were nine uranium mill tailings sites in Colorado designated for cleanup under the federal Uranium Mill Tailings Radiation Control Act. These nine sites, know commonly as UMTRA sites, were remediated jointly by the State of Colorado and the U.S. Department of Energy during the late 1980's and early 1990's. Mill tailings were removed from 8 of the mill sites and relocated in engineered disposal cells. A disposal cell is designed to encapsulate the material, reduce radon emanation, and prevent the movement of water through the material. At one site, Maybell, CO, the tailings were stabilized in-place at the mill site. After remediation of the tailings was completed, the State and DOE began to investigate the residual impacts to groundwater at the mill sites. The groundwater phase of the UMTRA program is on-going.

Date of Government Version: 11/23/2004
Date Data Arrived at EDR: 03/21/2007
Date Made Active in Reports: 05/02/2007
Number of Days to Update: 42

Source: Department of Public Health & Environment
Telephone: 970-248-7164
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

ASBESTOS: Asbestos Abatement & Demolition Projects

Asbestos abatement and demolition projects by the contractor.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/26/2015
Date Made Active in Reports: 03/05/2015
Number of Days to Update: 7

Source: Department of Public Health & Environment
Telephone: 303-692-3100
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Semi-Annually

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

MINES: Permitted Mines Listing

This dataset represents permitted mines in the State of Colorado

Date of Government Version: 09/19/2011
Date Data Arrived at EDR: 12/26/2012
Date Made Active in Reports: 02/01/2013
Number of Days to Update: 37

Source: Division of Reclamation Mining and safety
Telephone: 303-866-3567
Last EDR Contact: 12/26/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 01/20/2015
Date Data Arrived at EDR: 01/22/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 18
Source: Department of Public Health & Environment
Telephone: 303-692-3350
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 01/20/2015
Date Data Arrived at EDR: 01/22/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 18

Source: Department of Public Health & Environment
Telephone: 303-392-3350
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Public Health & Environment in Colorado.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/15/2014
Number of Days to Update: 198

Source: Department of Public Health & Environment
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Labor and Employment, Oil Inspection Section in Colorado.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 185

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ADAMS COUNTY:

Summary Report on Methane Gas Hazards and Surveys Conducted on Domestic and Demolition Landfills in Adams County

As of May 8, 1978, all known landfills or dumping sites in the Adams County area have been surveyed.

Date of Government Version: 05/08/1978
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

ARAPAHOE COUNTY:

A Survey of Landfills in Arapahoe County

A survey of Arapahoe County was conducted from August through November, 1977, of all open and closed landfills and dumpsites in the county. Each of the sites found was classified as domestic or demolition.

Date of Government Version: 12/31/1978
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

BOULDER COUNTY:

Old Landfill Sites

Landfill sites in Boulder county.

Date of Government Version: 05/01/1986
Date Data Arrived at EDR: 11/14/1995
Date Made Active in Reports: 12/07/1995
Number of Days to Update: 23

Source: Boulder County Health Department
Telephone: 303-441-1182
Last EDR Contact: 01/30/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DENVER COUNTY:

Landfills in Denver County

Landfill sites in the city and county of Denver.

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 05/16/2014
Date Made Active in Reports: 06/13/2014
Number of Days to Update: 28

Source: City and County of Denver
Telephone: 303-436-7300
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: No Update Planned

Investigation of Methane Gas Hazards

The purpose of this study was to assess the actual and potential generation, migration, explosive and related problem associated with specified old landfills, and to identify existing and potential problems, suggested strategies to prevent, abate, and control such problems and recommend investigative and monitoring functions as may be deemed necessary. Eight sites determined to be priorities due to population density and potential hazards to population and property were selected by the Colorado Department of Health.

Date of Government Version: 01/01/1981
Date Data Arrived at EDR: 01/29/2013
Date Made Active in Reports: 03/08/2013
Number of Days to Update: 38

Source: City and County of Denver Department of Environmental Health
Telephone: 720-865-5522
Last EDR Contact: 01/15/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DOUGLAS COUNTY:

Douglas County Landfill Key

Landfill sites in Douglas county.

Date of Government Version: 06/12/1991
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PUEBLO COUNTY:

Designated Disposal & Landfill Sites
Only inert materials. Asphalt, cement, dirt & rock unless otherwise specified. These sites are no longer active.

Date of Government Version: 04/30/1990
Date Data Arrived at EDR: 11/16/1995
Date Made Active in Reports: 12/07/1995
Number of Days to Update: 21

Source: Pueblo City-County Health Department
Telephone: 719-583-4300
Last EDR Contact: 11/13/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRI COUNTY:

Tri-County Area Solid Waste Facilities List (Adams, Arapahoe and Douglas Counties)
Closed Domestic Landfills in Adams County, Closed Domestic Landfills in Arapahoe County, Closed Demolition Landfills in Arapahoe County, Closed Domestic Landfills in Douglas County.

Date of Government Version: 10/15/1983
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WELD COUNTY:

Solid Waste Facilities in Weld County
Solid Waste Facilities in Weld County.

Date of Government Version: 12/05/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/07/2015
Number of Days to Update: 26

Source: Weld County Department of Public Health
Telephone: 970-304-6415
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/04/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 05/04/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 08/07/2014
Number of Days to Update: 48

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Listing
Source: Department of Human Services
Telephone: 303-866-5958

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Riparian Vegetation Data
Source: Division of Wildlife
Telephone: 970-416-3360

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

NESS PROPERTY
SE GREELEY
GREELEY, CO 80631

TARGET PROPERTY COORDINATES

Latitude (North):	40.3859 - 40° 23' 9.24''
Longitude (West):	104.6689 - 104° 40' 8.04''
Universal Tranverse Mercator:	Zone 13
UTM X (Meters):	528103.6
UTM Y (Meters):	4470431.5
Elevation:	4636 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	40104-D6 GREELEY, CO
Most Recent Revision:	1980
South Map:	40104-C6 LA SALLE, CO
Most Recent Revision:	1975

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

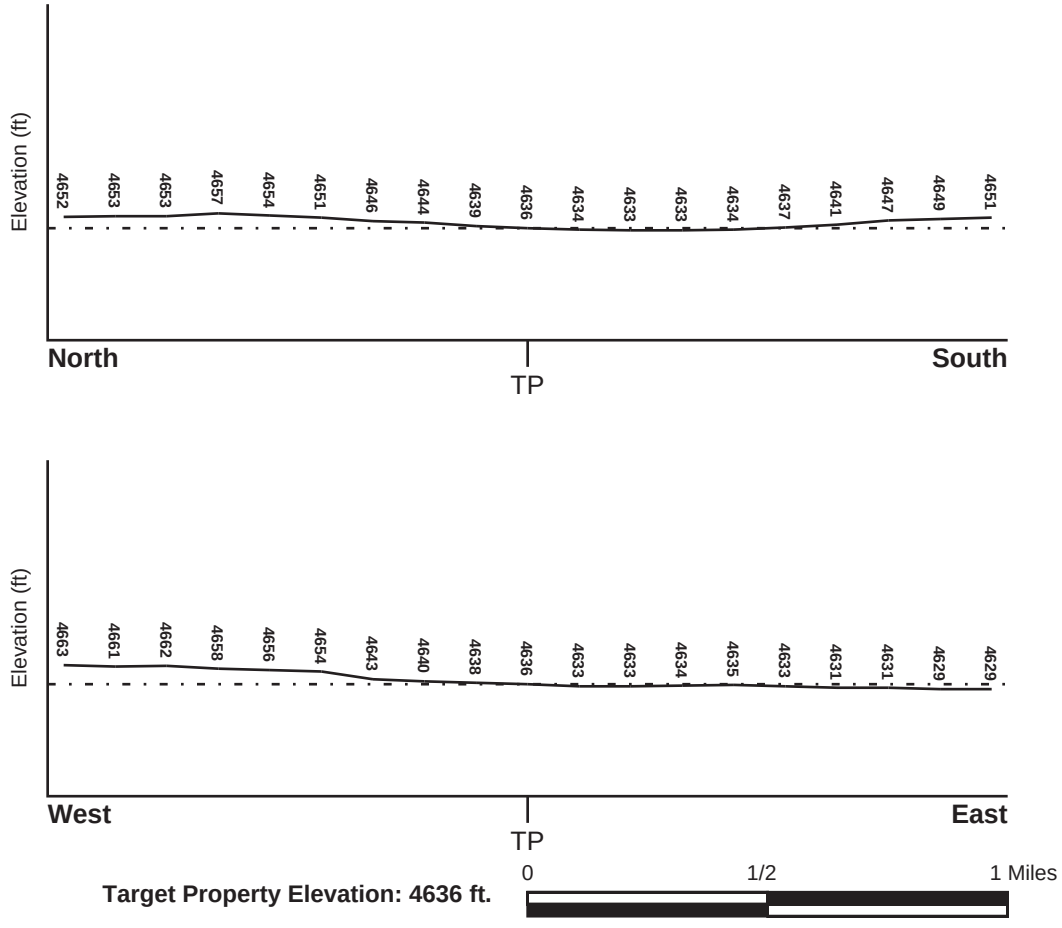
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
WELD, CO	Not Available

Flood Plain Panel at Target Property: Not Reported

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
GREELEY	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

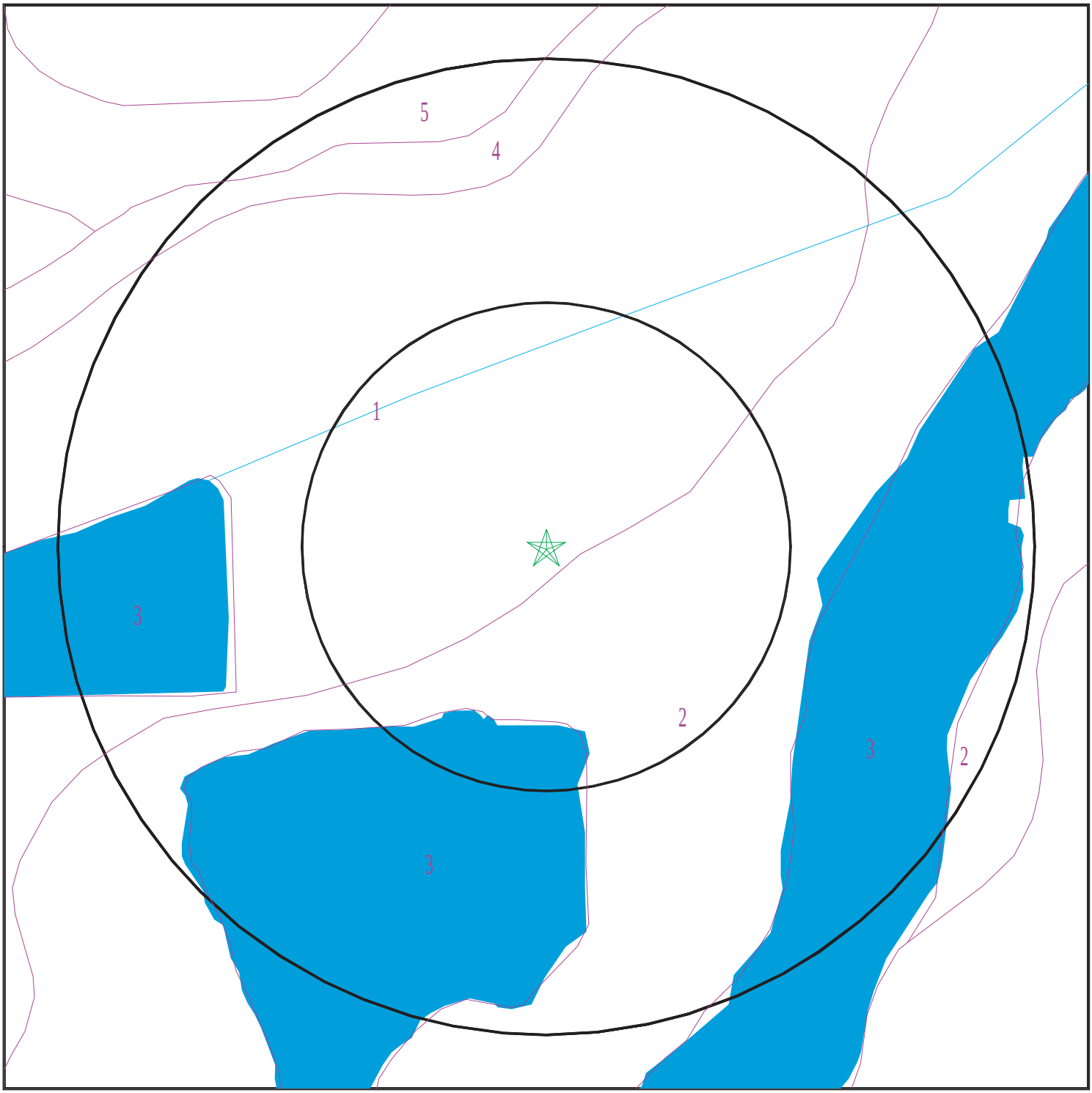
Era:	Mesozoic
System:	Cretaceous
Series:	Navarro Group
Code:	uK4 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4242549.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Ness Property	CLIENT:	ERO Resources
ADDRESS:	SE Greeley Greeley CO 80631	CONTACT:	Courtney Sockwell
LAT/LONG:	40.3859 / 104.6689	INQUIRY #:	4242549.2s
		DATE:	March 23, 2015 6:22 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Aquolls

Soil Surface Texture:

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 38 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	48 inches		Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14.11 Min: 1.411	Max: 8.4 Min: 7.4
2	48 inches	59 inches		Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: Bankard

Soil Surface Texture: sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42.33 Min: 14.11	Max: 8.4 Min: 7.4
2	3 inches	59 inches	stratified gravelly sand to loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 3

Soil Component Name: Water

Soil Surface Texture: sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class:
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 4

Soil Component Name: Ustic Torriorthents

Soil Surface Texture: gravelly sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 42	Max: 7.3 Min: 6.6
2	9 inches	59 inches	gravelly sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 141 Min: 141	Max: 8.4 Min: 7.4

Soil Map ID: 5

Soil Component Name: Otero

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 4	Max: 8.4 Min: 7.4
2	11 inches	59 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 4	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000220890	1/4 - 1/2 Mile WNW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
10	USGS40000220910	1/4 - 1/2 Mile NW
24	USGS40000220872	1/2 - 1 Mile East
G25	USGS40000220942	1/2 - 1 Mile NNE
I32	USGS40000220955	1/2 - 1 Mile NNE
69	USGS40000220778	1/2 - 1 Mile SSW
N72	USGS40000220966	1/2 - 1 Mile North
N83	USGS40000220981	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	CO5000000422033	1/4 - 1/2 Mile SSW
A3	CO5000000422477	1/4 - 1/2 Mile WSW
A4	CO5000000422478	1/4 - 1/2 Mile WSW
A5	CO5000000422479	1/4 - 1/2 Mile WSW
6	CO5000000422035	1/4 - 1/2 Mile SSE
7	CO5000000423374	1/4 - 1/2 Mile NNW
B8	CO5000000422888	1/4 - 1/2 Mile ENE
B9	CO5000000422889	1/4 - 1/2 Mile ENE
11	CO5000000422706	1/4 - 1/2 Mile West
C12	CO5000000422019	1/4 - 1/2 Mile SW
C13	CO5000000422020	1/4 - 1/2 Mile SW
D14	CO5000000423610	1/4 - 1/2 Mile NNE
E15	CO5000000423146	1/2 - 1 Mile WNW
E16	CO5000000423147	1/2 - 1 Mile WNW
E17	CO5000000423148	1/2 - 1 Mile WNW
D18	CO5000000423633	1/2 - 1 Mile NNE
19	CO5000000422842	1/2 - 1 Mile ENE
F20	CO5000000422719	1/2 - 1 Mile East
F21	CO5000000422723	1/2 - 1 Mile East
22	CO5000000423376	1/2 - 1 Mile NW
G23	CO5000000423685	1/2 - 1 Mile NNE
26	CO5000000421819	1/2 - 1 Mile SE
27	CO5000000421649	1/2 - 1 Mile South
28	CO5000000422885	1/2 - 1 Mile WNW
29	CO5000000423626	1/2 - 1 Mile NW
H30	CO5000000423897	1/2 - 1 Mile NNW
H31	CO5000000423912	1/2 - 1 Mile North
I33	CO5000000423910	1/2 - 1 Mile NNE
I34	CO5000000423911	1/2 - 1 Mile NNE
J35	CO5000000423518	1/2 - 1 Mile NW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
36	CO5000000421664	1/2 - 1 Mile SE
K37	CO5000000423080	1/2 - 1 Mile WNW
K38	CO5000000423081	1/2 - 1 Mile WNW
K39	CO5000000423121	1/2 - 1 Mile WNW
K40	CO5000000423122	1/2 - 1 Mile WNW
41	CO5000000422999	1/2 - 1 Mile ENE
J42	CO5000000423377	1/2 - 1 Mile NW
J43	CO5000000423378	1/2 - 1 Mile NW
L44	CO5000000421817	1/2 - 1 Mile SW
L45	CO5000000421818	1/2 - 1 Mile SW
K46	CO5000000423036	1/2 - 1 Mile WNW
K47	CO5000000423141	1/2 - 1 Mile WNW
K48	CO5000000423142	1/2 - 1 Mile WNW
K49	CO5000000423099	1/2 - 1 Mile WNW
K50	CO5000000423100	1/2 - 1 Mile WNW
K51	CO5000000423112	1/2 - 1 Mile WNW
K52	CO5000000423124	1/2 - 1 Mile WNW
K53	CO5000000423113	1/2 - 1 Mile WNW
K54	CO5000000423114	1/2 - 1 Mile WNW
K55	CO5000000423102	1/2 - 1 Mile WNW
K56	CO5000000423101	1/2 - 1 Mile WNW
K57	CO5000000423072	1/2 - 1 Mile WNW
K58	CO5000000423129	1/2 - 1 Mile WNW
K59	CO5000000423130	1/2 - 1 Mile WNW
K60	CO5000000423108	1/2 - 1 Mile WNW
K61	CO5000000423109	1/2 - 1 Mile WNW
K62	CO5000000423144	1/2 - 1 Mile WNW
K63	CO5000000423145	1/2 - 1 Mile WNW
K64	CO5000000423116	1/2 - 1 Mile WNW
K65	CO5000000423117	1/2 - 1 Mile WNW
K66	CO5000000423140	1/2 - 1 Mile WNW
M67	CO5000000423914	1/2 - 1 Mile NNW
68	CO5000000421788	1/2 - 1 Mile SE
70	CO5000000423230	1/2 - 1 Mile WNW
71	CO5000000423372	1/2 - 1 Mile ENE
73	CO5000000423908	1/2 - 1 Mile NNE
K74	CO5000000423159	1/2 - 1 Mile WNW
K75	CO5000000423160	1/2 - 1 Mile WNW
K76	CO5000000423161	1/2 - 1 Mile WNW
M77	CO5000000423922	1/2 - 1 Mile NNW
78	CO5000000424031	1/2 - 1 Mile NNE
O79	CO5000000422448	1/2 - 1 Mile West
N80	CO5000000424204	1/2 - 1 Mile North
P81	CO5000000422036	1/2 - 1 Mile WSW
P82	CO5000000422016	1/2 - 1 Mile WSW
O84	CO5000000422480	1/2 - 1 Mile West
O85	CO5000000422481	1/2 - 1 Mile West
O86	CO5000000422482	1/2 - 1 Mile West
87	CO5000000422010	1/2 - 1 Mile ESE
Q88	CO5000000422886	1/2 - 1 Mile West
Q89	CO5000000422887	1/2 - 1 Mile West
R90	CO5000000424170	1/2 - 1 Mile NNE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
S91	CO5000000421671	1/2 - 1 Mile SE
S92	CO5000000421672	1/2 - 1 Mile SE
T93	CO5000000421507	1/2 - 1 Mile SE
R94	CO5000000424167	1/2 - 1 Mile NNE
R95	CO5000000424168	1/2 - 1 Mile NNE
R96	CO5000000424169	1/2 - 1 Mile NNE
T97	CO5000000421506	1/2 - 1 Mile SE
U98	CO5000000423919	1/2 - 1 Mile NW
U99	CO5000000423918	1/2 - 1 Mile NW
U100	CO5000000423921	1/2 - 1 Mile NW
U101	CO5000000423920	1/2 - 1 Mile NW
V102	CO5000000422022	1/2 - 1 Mile WSW
V103	CO5000000422021	1/2 - 1 Mile WSW
V104	CO5000000422023	1/2 - 1 Mile WSW
V105	CO5000000422025	1/2 - 1 Mile WSW
V106	CO5000000422024	1/2 - 1 Mile WSW
T107	CO5000000421473	1/2 - 1 Mile SE
108	CO5000000421341	1/2 - 1 Mile SSE
T109	CO5000000421469	1/2 - 1 Mile SE
T110	CO5000000421468	1/2 - 1 Mile SE
111	CO5000000424337	1/2 - 1 Mile North
W112	CO5000000424192	1/2 - 1 Mile NNW
W113	CO5000000424193	1/2 - 1 Mile NNW
X114	CO5000000421123	1/2 - 1 Mile South
X115	CO5000000421122	1/2 - 1 Mile South
Y116	CO5000000423382	1/2 - 1 Mile WNW
Y117	CO5000000423383	1/2 - 1 Mile WNW
Z118	CO5000000421098	1/2 - 1 Mile South
Z119	CO5000000421099	1/2 - 1 Mile South
Z120	CO5000000421100	1/2 - 1 Mile South
AA121	CO5000000424343	1/2 - 1 Mile NNW
AA122	CO5000000424344	1/2 - 1 Mile NNW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	COOG90000078838	1/8 - 1/4 Mile West
2	COOG90000078900	1/8 - 1/4 Mile ENE
A3	COOG90000078588	1/4 - 1/2 Mile SSW
4	COOG90000078817	1/4 - 1/2 Mile West
5	COOG90000078593	1/4 - 1/2 Mile SE
A6	COOG90000078572	1/4 - 1/2 Mile SSW
7	COOG90000079112	1/4 - 1/2 Mile NNE
8	COOG90000079180	1/4 - 1/2 Mile NNW
B9	COOG90000078532	1/4 - 1/2 Mile SSE
B10	COOG90000078524	1/4 - 1/2 Mile SSE
11	COOG90000078860	1/4 - 1/2 Mile East
12	COOG90000078637	1/4 - 1/2 Mile WSW
B13	COOG90000078499	1/4 - 1/2 Mile SSE
14	COOG90000079118	1/4 - 1/2 Mile NW
C15	COOG90000078615	1/4 - 1/2 Mile ESE

STATE OIL/GAS WELL INFORMATION

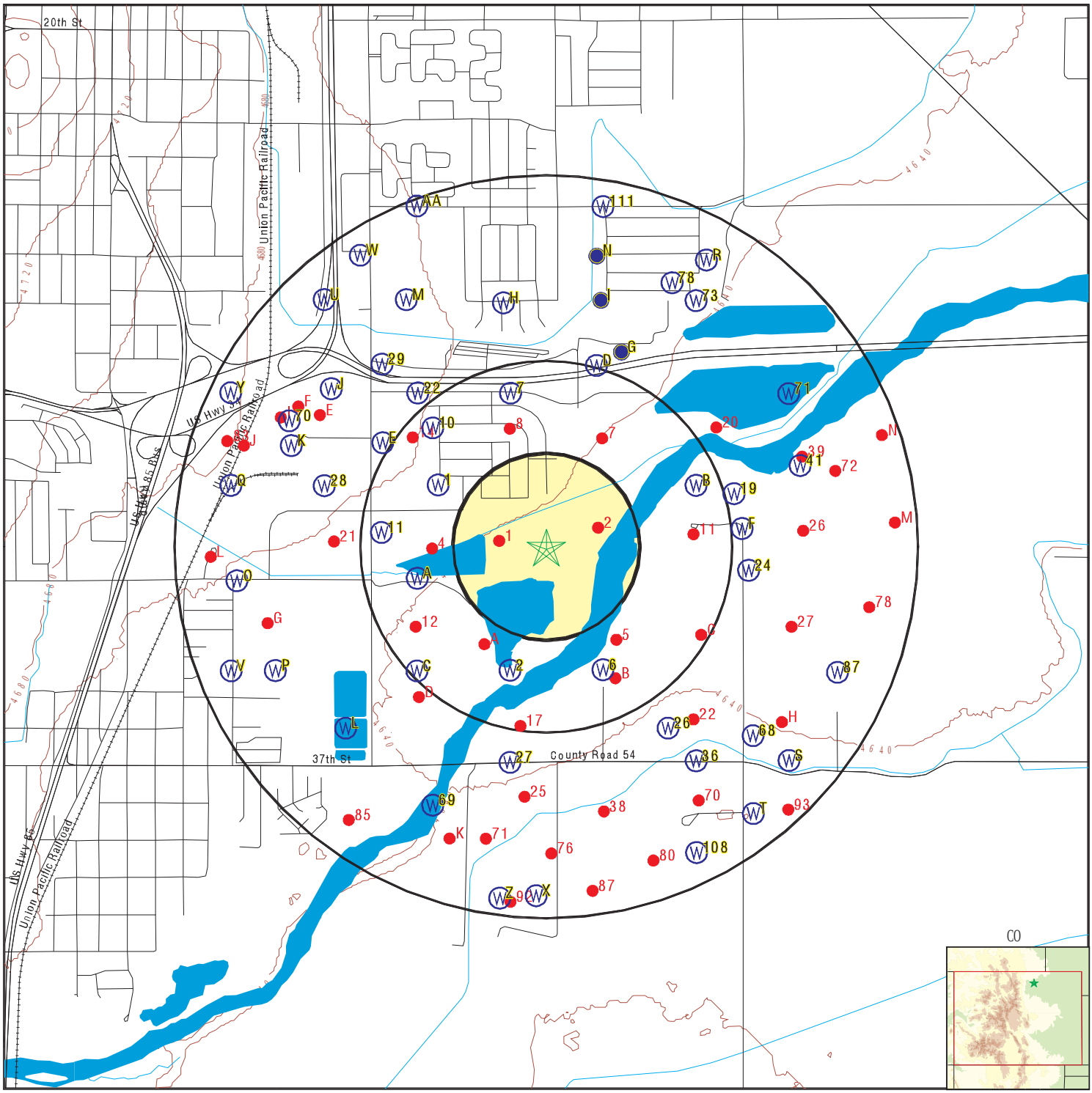
MAP ID	WELL ID	LOCATION FROM TP
C16	COOG90000078602	1/4 - 1/2 Mile ESE
17	COOG90000078351	1/4 - 1/2 Mile South
D18	COOG90000078480	1/2 - 1 Mile SW
D19	COOG90000078466	1/2 - 1 Mile SW
20	COOG90000079187	1/2 - 1 Mile NE
21	COOG90000078835	1/2 - 1 Mile West
22	COOG90000078365	1/2 - 1 Mile SE
E23	COOG90000079184	1/2 - 1 Mile WNW
E24	COOG90000079202	1/2 - 1 Mile WNW
25	COOG90000078232	1/2 - 1 Mile South
26	COOG90000078882	1/2 - 1 Mile East
27	COOG90000078635	1/2 - 1 Mile ESE
E28	COOG90000079224	1/2 - 1 Mile WNW
E29	COOG90000079242	1/2 - 1 Mile WNW
E30	COOG90000079226	1/2 - 1 Mile WNW
E31	COOG90000079230	1/2 - 1 Mile WNW
E32	COOG90000079244	1/2 - 1 Mile WNW
E33	COOG90000079237	1/2 - 1 Mile WNW
E34	COOG90000079253	1/2 - 1 Mile WNW
E35	COOG90000079257	1/2 - 1 Mile WNW
E36	COOG90000079261	1/2 - 1 Mile WNW
E37	COOG90000079270	1/2 - 1 Mile WNW
38	COOG90000078162	1/2 - 1 Mile SSE
39	COOG90000079049	1/2 - 1 Mile ENE
F40	COOG90000079274	1/2 - 1 Mile WNW
F41	COOG90000079275	1/2 - 1 Mile WNW
F42	COOG90000079276	1/2 - 1 Mile WNW
F43	COOG90000079272	1/2 - 1 Mile WNW
F44	COOG90000079271	1/2 - 1 Mile WNW
F45	COOG90000079267	1/2 - 1 Mile WNW
F46	COOG90000079268	1/2 - 1 Mile WNW
F47	COOG90000079264	1/2 - 1 Mile WNW
G48	COOG90000078660	1/2 - 1 Mile WSW
G49	COOG90000078650	1/2 - 1 Mile WSW
F51	COOG90000079266	1/2 - 1 Mile WNW
F50	COOG90000079265	1/2 - 1 Mile WNW
F52	COOG90000079259	1/2 - 1 Mile WNW
F53	COOG90000079263	1/2 - 1 Mile WNW
F54	COOG90000079260	1/2 - 1 Mile WNW
H55	COOG90000078341	1/2 - 1 Mile SE
F56	COOG90000079258	1/2 - 1 Mile WNW
I57	COOG90000079227	1/2 - 1 Mile WNW
I58	COOG90000079217	1/2 - 1 Mile WNW
I59	COOG90000079211	1/2 - 1 Mile WNW
I60	COOG90000079225	1/2 - 1 Mile WNW
I61	COOG90000079222	1/2 - 1 Mile WNW
I62	COOG90000079236	1/2 - 1 Mile WNW
I63	COOG90000079232	1/2 - 1 Mile WNW
I64	COOG90000079229	1/2 - 1 Mile WNW
I65	COOG90000079241	1/2 - 1 Mile WNW
I66	COOG90000079243	1/2 - 1 Mile WNW
I67	COOG90000079246	1/2 - 1 Mile WNW
I68	COOG90000079254	1/2 - 1 Mile WNW
H69	COOG90000078380	1/2 - 1 Mile SE
70	COOG90000078212	1/2 - 1 Mile SSE
71	COOG90000078094	1/2 - 1 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
72	COOG90000079024	1/2 - 1 Mile ENE
I73	COOG90000079140	1/2 - 1 Mile WNW
J74	COOG90000079066	1/2 - 1 Mile WNW
K75	COOG90000078096	1/2 - 1 Mile SSW
76	COOG90000078056	1/2 - 1 Mile South
K77	COOG90000078092	1/2 - 1 Mile SSW
78	COOG90000078720	1/2 - 1 Mile East
L79	COOG90000078805	1/2 - 1 Mile West
80	COOG90000078043	1/2 - 1 Mile SSE
J81	COOG90000079096	1/2 - 1 Mile WNW
L82	COOG90000078807	1/2 - 1 Mile West
83	COOG90000079097	1/2 - 1 Mile WNW
L84	COOG90000078803	1/2 - 1 Mile West
85	COOG90000078130	1/2 - 1 Mile SW
L86	COOG90000078798	1/2 - 1 Mile West
87	COOG90000077974	1/2 - 1 Mile South
M89	COOG90000078928	1/2 - 1 Mile East
M88	COOG90000078927	1/2 - 1 Mile East
N90	COOG90000079141	1/2 - 1 Mile ENE
N91	COOG90000079143	1/2 - 1 Mile ENE
92	COOG90000077932	1/2 - 1 Mile South
93	COOG90000078171	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 4242549.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Oil, gas or related wells

SITE NAME:	Ness Property	CLIENT:	ERO Resources
ADDRESS:	SE Greeley Greeley CO 80631	CONTACT:	Courtney Sockwell
LAT/LONG:	40.3859 / 104.6689	INQUIRY #:	4242549.2s
		DATE:	March 23, 2015 6:22 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CO Radon

Radon Test Results

Zip	Total Sites	Avg	% sites<=4 pCi/L	% sites>4&<10 pCi/L	% sites>=10&<20 pCi/L	% sites>20 pCi/L
80631	15	4.11	46.67	53.33	0.00	0.00

Federal EPA Radon Zone for WELD County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 80631

Number of sites tested: 20

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	2.350 pCi/L	75%	25%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	3.850 pCi/L	55%	45%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Riparian Vegetation Data
Source: Division of Wildlife
Telephone: 970-416-3360

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

State Database: CO Radon
Source: Department of Public Health & Environment
Telephone: 303-692-3090
Radon Study in Colorado

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

Ness Property
SE Greeley
Greeley, CO 80631

Inquiry Number: 4242549.3
March 23, 2015

Certified Sanborn® Map Report

5 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

3/23/15

Site Name:
Ness Property
SE Greeley
Greeley, CO 80631

Client Name:
ERO Resources
1842 Clarkson Street
Denver, CO 80218

EDR Inquiry # 4242549.3

Contact: Courtney Sockwell

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by ERO Resources were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: Ness Property
Address: SE Greeley
City, State, Zip: Greeley, CO 80631
Cross Street:
P.O. # NA
Project: 6160
Certification # 00BA-4EEF-9D04

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results
Certification # 00BA-4EEF-9D04

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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ERO RESOURCES CORPORATION
PHASE I ESA USER QUESTIONNAIRE

This questionnaire has been designed to comply with §6 and §7.3.2 of the ASTM Standard E 1527-13. Please complete and sign this questionnaire for the following property:

A. General Property Information

Site Address/Location:

NESS PROPERTY / SOUTHEAST GREELEY

1) Why is the Phase I being conducted for this property?
Sale (by user) (Purchase (by user)) Exchange CATEX Easement
Baseline Conditions Refinance Confidential Other _____

2) What is the property size? ~23 ACRES

3) How long have you been involved with the property? ~18 MONTHS

4) What is the current use of the property? VACANT LAND, OIL/GAS ON SITE (UNK)

5) Describe the future uses of the property.

TO BE UTILIZED AS A PUBLIC PARK SPACE, NATURAL OPEN SPACE

6) Are there any structures on the property? (Y/N) NO
If so, please list any details of the structures:

Structure Name (Residence, garage, business etc.)	Approx. size (square footage if known)	Accessible? (Y/N)

7) Are you aware of any of the following information about the owner, operator, key site manager, realtor and/or developer of the property:

	Primary Contact	Secondary Contact (if applicable)
Name	MARLIN NESS	MATHEW NESS
		MANAGER OF ADJACENT TRAILER PARK
Address	830 S. 28TH ST	
	GREELEY, CO 80631	
Telephone	970-302-0929 (cell)	970-396-2366

Mobile Phone _____ _____

8) The owner, key site manager, realtor and/or developer of the property may be contacted regarding this Phase I Environmental Site Assessment. Please indicate any potential problems associated with contacting these individuals or entities:

NONE. MR. NESS IS AWARE OF THIS PROCESS

9) Please specify below any other person(s) who is familiar with the property and may be useful to contact.

10) Are you aware of the providers of the following utilities?

Potable Water CITY OF GREELEY (NONE ON SITE)

Sanitary Sewer CITY OF GREELEY (NONE KNOWN ON SITE)

Electricity XCEL ENERGY (NONE KNOWN ON SITE)

Natural Gas ATMOS ENERGY (NONE KNOWN ON SITE)

B. Historical Property Information

11) Do any of the following documents exist?

YES	NO	
	X	Environmental Site Assessment reports
	X	Environmental Audit reports
	X	Environmental permits
		Registration for USTs and aboveground storage tanks
	X	Reports on hydrogeologic conditions on the property and surrounding area
	X	Geotechnical studies
	X	Maps of the property (plats, site maps)
X		Legal description of property
X		Survey of property (PORTION ONLY)

If you answered YES to any of the above, please describe below (use additional sheets, if necessary). Please forward copies of these documents.

→ LEGAL DESCRIPTION ATTACHED

12) Are you aware of any of the following:

YES	NO	
_____	X	Pending, threatened, or past litigation relevant to hazardous substances of petroleum products in, on, or from the property?
_____	X	Pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property?
_____	X	Notices from any governmental entity regarding any possible liability relating to hazardous substances or petroleum products?

If you answered YES to any of the above, please describe below (use additional sheets, if necessary). Please forward information and/or documents relevant to above.

13) Are you aware of any underground or aboveground storage tanks currently or previously located on the property or adjoining properties?

NO

14) Are you aware of any incidents involving hazardous substances or petroleum products on or in the vicinity of the property?

YES	NO
_____	X

If you answered yes, please describe below (use additional sheets, if necessary).

C. All Appropriate Inquiry Information

In order to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownsfields Revitalization Act of 2001, the user must provide the following information (if available) to ERO. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete.

15) Are you aware of any environmental covenants, settlement agreements, deed or zoning restrictions or other encumbrances on the property? If so, please explain.

NO

16) Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law? If so, please explain.

NO

17) Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? If so, please explain.

NO

18) As the user of this ESA, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or adjoining property so that you would have specialized knowledge of the chemical processes used by this type of business? If so, please explain.

NO

19) Does the purchase price being paid for this property reasonable reflect the fair market value of the property? (Y/N) YES

a) If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property? If so, please explain.

20) Are you aware of commonly known or reasonable ascertainable information about the property that would help ERO identify conditions indicative of releases or threatened releases?

YES. PROPERTY OWNER HAS INDICATED THAT THERE IS AN OLD LANDFILL ON A PORTION OF THE PROPERTY. FLOODING OF SEPT/2013 DID

For example, as user: CLEAR SOME AREAS EXPOSING LANDFILL MATERIALS.

a) Do you know the current and past uses of the property?

ASSUME AGRICULTURAL. ALSO AWARE OF A GOLF/DRIVING RANGE OPERATION.

b) Do you know of specific chemicals that are present or once were present at the property?

NO

c) Do you know of spills or other chemical releases that have taken place at the property?

No

d) Do you know of any environmental cleanups that have taken place at the property?

NO, OTHER THAN MINOR FLOOD CLEAN-UP IN 2013

21) As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

ALONG EXPOSURE OF LANDFILL MATERIALS - MOSTLY MASONRY AND CONCRETE DEBRIS VISIBLE.

How many copies of the final report do you need? 2

Please identify any other parties that will rely on this report:

City of Greeley

Questionnaire completed by: ANDREW McROBERTS

Signature: [signature] Date: 3-13-15

If you have any questions about this questionnaire, please call Courtney Sockwell at (303) 830-1188. Please email this information to Courtney Sockwell at csockwell@eroresources.com. The User Questionnaire must be received no later than 5 working days before the project completion date.

ATTACHMENT A

LEGAL DESCRIPTION

The legal description of the subject property is as follows:

PARCEL ONE

Part of Tract F, Schneider Industrial Park, being a portion of the S1/2NW1/4 of Section 21, Township 5 North, Range 65 West of the 6th P.M., City of Greeley, Weld County, Colorado being more particularly described as follows:
Beginning in the Northeast Corner of the S1/2NW1/4 of Section 21, Township 5 North, Range 65 West of the 6th P.M.. (A.K.A. the Northeast Corner of Tract F, Schneider Industrial Park) thence South 00°04'00" West 306.8 Feet to the True Point of Beginning;
Thence South 00°04'00" West 1,008.22 feet;
Thence South 89°38'09" West 998.44 feet;
Thence North 00°06'00" West 646.72 feet;
Thence North 69°45'40" East 1063.43 to the True point of Beginning.
SAID PARCEL CONTAINS 18.931 ACRES.

RESERVING, HOWEVER, unto the Grantor, all subsurface minerals (the "Minerals") underlying the Premises, including but not limited to oil, gas, coal, coalbed methane, hydrocarbons, and metals of every kind and nature (but excluding sand and gravel), together with the right to prospect for, mine, and extract such Minerals within and under the Premises; provided, however, that nothing herein shall be construed as reserving unto Grantor, and Grantor specifically and irrevocably disclaims, waives and releases (1) any right to locate wells, drill sites, mine entrances, pipelines, storage tanks, or other facilities on the Premises, (2) any easement on or over the surface of the Premises for the purpose of prospecting for, mining, extracting, transporting, or storing such Minerals, or (3) any right to extract such Minerals by any surface mining methods or to disturb the surface of the Premises or any improvements thereon in any manner whatsoever.

PARCEL TWO

A PARCEL OF LAND IN LOT B OF RECORDED EXEMPTION NO. 0961-21-01 RECX 12-0111 LOCATED IN THE WEST HALF (W1/2) OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 21, TOWNSHIP 5 NORTH , RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, WELD COUNTY, COLORADO BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT THE CENTER SECTION CORNER OF SAID SECTION 21 AND CONSIDERING THE WEST LINE OF SAID WEST HALF (W1/2) OF THE NORTH EAST (N1/4) TO BEAR NORTH 00°03'58" EAST.
THENCE ALONG SAID WEST LINE NORTH 00°03'58" EAST, 348.01 FEET;
NORTH 89°38'07" EAST, 284.35 FEET;
SOUTH 00°03'58" WEST, 152.99 FEET;
NORTH 89°38'07" EAST, 340.65 FEET;
SOUTH 00°03'58" WEST, 195.02 FEET TO THE SOUTH LINE OF SAID WEST HALF (W1/2) OF THE NORTHEAST QUARTER (N1/4) OF SAID SECTION 21; THENCE ALONG SAID SOUTH LINE SOUTH 89° 38'07" WEST, 625.00 FEET TO THE POINT OF BEGINNING.
SAID PARCEL CONTAINS 3.80 ACRES.

RESERVING, HOWEVER, unto the Grantor, all subsurface minerals (the "Minerals") underlying the Premises, including but not limited to oil, gas, coal, coalbed methane, hydrocarbons, and metals of every kind and nature (but excluding sand and gravel), together with the right to prospect for, mine, and extract such Minerals within and under the Premises; provided, however, that nothing herein shall be construed as reserving unto Grantor, and Grantor specifically and irrevocably disclaims, waives and releases (1) any right to locate wells, drill sites, mine entrances, pipelines, storage tanks, or other facilities on the Premises, (2) any easement on or over the surface of the Premises for the purpose of prospecting for, mining, extracting, transporting, or storing such Minerals, or (3) any right to extract such Minerals by any surface mining methods or to disturb the surface of the Premises or any improvements thereon in any manner whatsoever.


ORIGIN - Property Information Map
E 30th St
1st Ave
ORIGIN - Property Information Map
Information contained on this document remains the property of the City of Greeley. Copying any portion of this map without the written permission of the City of Greeley is strictly prohibited.
Printed: Aug 27, 2014
City of Greeley

Weld County Property Report

Account: R6783742

March 20, 2015

Account Information

R6783742	096121100002	0	Commercial	2015	0644	1	315,197	91,400

PT W2NE4 21-5-65 LOT B REC EXEMPT RECX12-0111

NA	NA	NA	EAST OF HWY 85

830 28 ST	WELD	000000000	21	05	65

Owner(s)

R6783742	NESS MARLIN W	501 E 27TH ST GREELEY, CO 806319781
R6783742	NESS SHIRLEY J	

Document History

3929126	05-02-2013	RE	RECX12-0111	RECX12-0111	0.00	05-02-2013	0
4031693	07-18-2014	QCN	NESS MARLIN W	NESS MARLIN W	0.00	07-17-2014	0
4059104	11-04-2014	SURV	SURVEY	NA	0.00	11-04-2014	0

Building Information

Building 1

R6783742	1	Comm Shed - Utility

1	Commercial	6901	Comm Shed - Utility	Comm Shed - Utility	0	0	0

1	200	0	0	0	0	0	0	0

1	2009	100	1	60	0	

1	0	0	NA

1	NA	Shed	NA	None

Detail: No Details

Valuation Information

Improvement	2235	WAREHOUSE/STORAGE-IMPS	2,105	610	0.000	0
Land	0550	35 AC TO L/T 100 AC	210,672	61,090	42.990	1,872,644
Land	2130	SPECIAL PURPOSE-LAND	102,420	29,700	20.900	910,404

Tax Authorites

644	100	WELD COUNTY	15.800
644	206	SCHOOL DIST #6-GREELEY	37.880
644	301	NORTHERN COLORADO WATER (NCW)	1.000
644	302	CENTRAL COLORADO WATER (CCW)	1.737
644	309	CENTRAL COLORADO WATER SUBDISTRICT (CCS)	1.309
644	519	WESTERN HILLS FIRE	10.089
644	700	AIMS JUNIOR COLLEGE	6.333
644	1050	HIGH PLAINS LIBRARY	3.267

Photo

Sketch

Weld County Property Report

Account: R6779397

March 20, 2015

Account Information

R6779397	096121201023		Commercial	2015	0600	0	123,518	35,820

GR SIP-F PT TRACT F SCHNEIDER INDUSTRIAL PARK BEG NE COR S2NW4 SEC (AKA NE COR TR F) S00D04'W 306.8' TO TPOB S00D04'W 1008.22' TO CEN SEC S89D38'W 995.44' TO SW COR TR F N00D06'W 646.72' N69D45'E 1063.43' TO TPOB

SCHNEIDER INDUSTRIAL PARK	NA	NA	SCHNEIDER IND PK

	NA	NA	21	05	65

Owner(s)

R6779397	NESS MARLIN W	501 E 27TH ST GREELEY, CO 806319781
R6779397	NESS SHIRLEY J	

Document History

2455824	09-15-1995	WD	HOMESTEAD PROPERTIES LTD	QUICK ROBERT G & GWENDOLYN F	2.25	09-15-1995	22,500
2780408	07-13-2000	WD	QUICK ROBERT G & GWENDOLYN F	MCCONNELL LEE W & MELVA	83.50	06-26-2000	835,000
2915699	01-10-2002	PTD	MCCONNELL LEE W & MELVA	QUICK ROBERT G TRUST &	0.00	01-09-2002	0
2981656	08-27-2002	WD	QUICK ROBERT G TRUST & GWENDOLYN TRUST	NESS MARLIN & SHIRLEY J	87.80	08-23-2002	878,000

Building Information

No buildings found.

Valuation Information

Land	0300	VACANT INDUSTRIAL LAND	123,518	35,820	18.930	824,591

Tax Authorites

600	100	WELD COUNTY	15.800
600	206	SCHOOL DIST #6-GREELEY	37.880
600	301	NORTHERN COLORADO WATER (NCW)	1.000
600	411	GREELEY CITY	11.274
600	700	AIMS JUNIOR COLLEGE	6.333
600	1050	HIGH PLAINS LIBRARY	3.267

Photo

COGIS - WELL Information

Scout Card Related Insp. MIT GIS Doc COA Wellbore Orders

Surface Location Data for API # 05-123-16090 Status: PR 9/10/1993

Well Name/No:	SCHNEIDER #22-21 (click well name for production)		
Operator:	PDC ENERGY INC - 69175		
Status Date:	9/10/1993	Federal or State Lease #:	61552
County:	WELD #123	Location:	SENW 21 5N 65W 6 PM
Field:	WATTENBERG - #90750	Elevation:	4,633 ft.
Planned Location	2110 FNL 1816 FWL	Lat/Long: 40.386005/-104.671358	Lat/Long Calculated From Footages
As Drilled Location	Footages Not Available	Lat/Long: 40.386125/-104.671303	Lat/Long Source: Field Measured

Wellbore Data for Sidetrack #00 Status: PR 9/10/1993

Wellbore Permit

Permit #:	921028	Expiration Date:	4/21/1993
Prop Depth/Form:		Surface Mineral Owner Same:	
Mineral Owner:	FEE	Surface Owner:	
Unit:		Unit Number:	
Formation and Spacing:	Code: NB-CD , Formation: NIOBRARA-CODELL , Order: 0 , Unit Acreage: 80, Drill Unit: S2NW		

Wellbore Completed

Completion Date:	2/24/1993		
Measured TD:	7136	Measured PB depth:	7095
True Vertical TD:	0	True Vertical PB depth:	
Casing:	String Type: SURF , Hole Size: 12.25, Size: 8.625, Top: 0, Depth: 375, Weight:		
Cement:	Sacks: 350, Top: 0, Bottom: , Method Grade:		
Casing:	String Type: 1ST , Hole Size: 7.875, Size: 4.5, Top: 0, Depth: 7130, Weight:		
Cement:	Sacks: 0, Top: 0, Bottom: , Method Grade:		

Formation	Log Top	Log Bottom	Cored	DSTs
SUSSEX	4244			
NIOBRARA	6678			
CODELL	7004			

Completed information for formation NB-CD Status: PR 4/2/1993

1st Production Date:	9/10/1993	Choke Size:	2,664.000
Status Date:	4/2/1993	Open Hole Completion:	
Commingled:		Production Method:	

Formation Name:	NIOBRARA-CODELL	Status:	PR
Tubing Size:		Tubing Setting Depth:	
Tubing Packer Depth:		Tubing Multiple Packer:	
Open Hole Top:		Open Hole Bottom:	

No Initial Test Data was found for formation NB-CD .

No Perforation Data was found for formation NB-CD .

APPENDIX C —

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Courtney Sockwell

Environmental Scientist/ Geologist

Courtney has twelve years of experience in the environmental field, working on Phase I and II Environmental Site Assessments (ESAs); site characterization and monitoring; surface and subsurface soil and ground water investigations; contamination excavation; remediation system design, installation, and operation; and solid and hazardous waste management.

Education

B. S. 2000, Stephen F. Austin State University, Double Major in Geology and Environmental Science

CDOT Erosion Control Supervisor Training

CDPHE-WQCD Training for Stormwater Compliance Inspectors

Certifications and Affiliations

1910.120(e) 40-Hour Hazardous Waste Operation and Emergency Response, with Annual 8-Hour Refreshers

Licensure

Listed Environmental Scientist, Colorado Department of Labor and Employment, Division of Oil and Public Safety, Listing No. #6122.

Representative Experience

The City of Boulder, CO Assisted the City of Boulder with characterization and disposal of petroleum contaminated soil associated with a utility project and allowed the utility installation to continue without significant delay.

Dover Industries, Inc., CO Assisted with site characterization and monitoring, source area remediation, excavations, and operation of containment and treatment system for chlorinated hydrocarbon-contaminated ground water.

KB Home of Colorado, Inc. Various Projects, CO Conducted Phase I Environmental Site Assessments (ESAs) and Phase II Site Investigations on numerous parcels within the former Stapleton Airport and other proposed development sites.

FHWA Materials Laboratory Spill Cleanup, CO Waste Specialist for waste management activities associated with Federal Highway Administration's Materials Laboratory Spill Cleanup Project on the Denver Federal Center.

City of Thornton, Various Projects, CO Assists in the management of general environmental services contract with the City of Thornton. Projects have included numerous Phase I and Phase II ESAs for undeveloped open space and various infrastructure improvement projects.

Prairie Waters Project, CO Field manager for environmental site investigations for the City of Aurora's near-term plan for a new water supply source and treatment facilities.

Muller Engineering, Inc. Various Projects, CO Project manager for Phase I and Phase II ESAs for various CDOT and county road construction projects along the Front Range.

General Services Administration, Denver Federal Center, CO Field geologist for numerous site investigations at the Denver Federal Center. Activities included monitoring well installation and sampling, stream flow measurements and sediment sampling, ground water seep measurements, and waste management.

TSH Engineering, Inc. Various Projects, CO Project manager for Phase I and Phase II ESAs for various CDOT and county road construction projects along the Front Range.

UST Removal and Closure, Cortez, CO Project/Field Manager for the removal and closure of two UST's at a public school transportation facility.

The Trust for Public Land, CO Conducted Phase I ESA's for numerous Open Space and Conservation Easement properties within Colorado.

ERO

ERO Resources Corporation
www.eroresources.com

Craig Sovka
Geologist

Craig has 16 years of consulting experience in the environmental field, including Phase I and II environmental site assessments, site characterization and monitoring, surface and subsurface soil and water investigations, and remediation system design, installation, and operation.

Education
B.S. 1992, Geology,
Princeton University

Licensure
Listed Environmental Scientist, Colorado Department of Labor and Employment, Division of Oil and Public Safety, Listing No. #5784

Certifications and Affiliations
OSHA 1910.120(e)
40-hour Hazardous Waste Operations and Emergency Response, with Annual 8-Hour Refreshers

Firefighter I, National Board on Fire Service Professional Qualifications, 1994

Representative Experience

Dover Industries, Inc., Boulder, CO Ground water investigations and operation of containment and treatment system for chlorinated hydrocarbon-contaminated ground water at a manufacturing facility.

City of Aurora, Havana North Environmental Assessment, CO Field manager for a limited Phase I environmental site assessment for 40 parcels across 88 acres. Parcels included commercial, light industrial, and vacant lands with known or suspect contamination.

Power Engineering Company, Denver, CO Field manager for soil and ground water investigations to delineate the source and extent of contamination at a chrome plating facility. Assisted in the design, construction, and operation of an innovative treatment system to remediate hexavalent chromium-contaminated soil and ground water.

Dry Cleaner Investigations and Remediation, CO Field manager for soil and ground water investigations to delineate the source and extent of dry cleaner solvent contamination at several former and active dry cleaner facilities. Designed and implemented in-situ treatment strategies to remediate contaminated soil and ground water.

New Mexico Interstate Stream Commision Pecos River Basin, NM Project manager for site assessments at numerous farm and ranch properties in the Pecos River Basin. The New Mexico Interstate Stream Commission is in the process of acquiring up to 18,000 acres of land and water rights in the river basin and requires an evaluation of environmental conditions prior to purchasing each property.

Colorado Bumper Exchange, Pueblo, CO Project manager for soil and ground water investigations to delineate the source and extent of contamination at a chrome and nickel plating facility.

Vista Ridge Development Corp., CO Field manager for all environmental issues associated with the development of a new 900-acre golf course community in Erie, Colorado. Services included Phase I environmental site assessments on numerous parcels, remediation of oil and gas well production waste, and the preparation and implementation of a Voluntary Cleanup Plan of a 50-year old rifle and skeet shooting range.

St. Joseph Hospital, Denver, CO Project manager for underground storage tank investigations of numerous diesel fuel tanks for the hospital's emergency power generators, including site characterization, oversight of tank removal, and the preparation and implementation of a Corrective Action Plan. Prepared No Further Action Request forms and received closure of all tanks from the regulatory agency.

Foxhoven Tire Center, Sterling, CO Project manager for ground water monitoring and operation and maintenance of a ground water treatment system at a former gasoline service station.

Thompson Gravel Pit, Granby, CO Provided a hydrogeological evaluation for the expansion of an existing gravel mine operation to prove lack of impacts to nearby ground water users. Testified at county hearings.

Rocky's Autos, Adams County, CO Completed soil corings and aquifer testing to model the effects of a subsurface leak from an underground storage tank on downgradient properties.

City and County of Broomfield, CO Phase I and II environmental site assessments at numerous properties purchased by Broomfield for Open Space preservation.

APPENDIX D —

PHASE I ESA WORK SCOPE

WORK SCOPE
PHASE I ENVIRONMENTAL SITE ASSESSMENT

Summary

ERO Resources Corporation (ERO) will conduct a Phase I Environmental Site Assessment[1] (ESA) of the subject property. The ESA will consist of a visual inspection of the subject property, interviews with the property owner, project manager, and key site manager, and a compilation and review of publicly available information from a variety of sources about past and current environmental conditions at the subject property. ERO will provide the Client with a written report including a detailed presentation of findings.

Task 1. Phase I Environmental Site Assessment Tasks

Site reconnaissance. ERO will conduct a visual site reconnaissance of the subject property. The purpose of the inspection is to document recognized environmental conditions. Photographs will be taken as appropriate. ERO will not take any samples during the site reconnaissance. The following issues are specifically excluded from this ESA—wetlands, migratory birds, asbestos-containing materials, radon, lead-based paint, lead in drinking water, mold, and subsurface mineral rights, leases, or ownership.

ERO will document the general site setting, such as current use(s) of the subject property and adjoining properties, and general hydrogeologic and topographic features. A general description of structures and other improvements on the subject property will be provided. ERO will identify the following site conditions, if they are visually or physically observed, during the site reconnaissance—

- The quantity, type, and storage system for hazardous substances and petroleum products in connection with identified uses
- Tanks, containers, drums, barrels, and other systems used for storing hazardous substance and petroleum products not connected to identified uses

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[1] According to ASTM 1527-13: "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."

- Aboveground and underground storage tanks
- Pits, ponds, lagoons and other features potentially used for storage and/or disposal of hazardous substances and petroleum product
- Odors, pools of liquids, stained soils and pavement, and stressed vegetation
- Presence of electrical equipment potentially containing PCBs.

Interviews. ERO will conduct interviews with the ESA user, property owner, site manager and/or other persons with knowledge of the subject property.

File search and regulatory agency review. ERO will conduct a search of records and files from a variety of sources, and compile existing information pertaining to current and past environmental conditions. This search may include the following information, as ERO deems appropriate—

- Topographic, land use, and environmental resource maps
- Aerial photographs
- County and city records
- State and federal databases

Vapor Encroachment Screening. ERO will evaluate the sites identified during the Records Review to evaluate potential vapor encroachment in accordance with ASTM E 2600-10, the "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM 2010). ERO will conduct a Tier 1 Screening using information presented in the Phase I ESA records review to whether a Vapor Encroachment Condition VEC exists, likely exists, or cannot be ruled out for the property. The results of this screening will be included in the Phase I ESA report. No sampling or testing is included with the screening.

Reports and recommendations. Based on the information gathered during the above tasks, ERO will compile the information and findings in a written report for the subject property. The report will contain a detailed presentation of findings, including the site description, records review, site reconnaissance, and conclusions.

Products:

- Draft and final Phase I ESA report.

Assumptions and Conditions

It is important to emphasize that considerable uncertainty is inherent in conducting this type of investigation. The ESA will be completed by qualified environmental

professionals using that degree of care and skill ordinarily exercised under similar circumstances by other environmental professionals practicing in this field. Unforeseen conditions may significantly affect the ability to make conclusions and recommendations based solely on the proposed investigations, which may ultimately affect the level of risk for a given level of investigative effort and cost. The following assumptions and conditions describe some of the possible limitations under this Work Scope.

1. ERO assumes the subject property will not present conditions that may be hazardous to the health and safety of ERO personnel. The presence of visible hazards or contamination may be sufficient cause for ERO to halt work immediately and request a meeting with the Client to discuss to the problem.
2. All work will be conducted according to the provisions given in this Work Scope and in the accompanying Terms and Conditions. No other specifications or guidelines have been agreed to, nor will any such specifications or guidelines be addressed except as will otherwise be according to this Work Scope.
3. Adequate and timely access to the subject property to conduct the ESA is assumed. Written authorization or other arrangements as may be necessary to ensure access by ERO personnel will be provided by the Client.
4. Any conditions, known or suspected to the Client, that may have bearing on these investigations, or to the findings or recommendations made pursuant to this Work Scope, will be disclosed to ERO before initiation of the Work Scope. The Client will make available to ERO any appraisal reports, title histories, engineering reports or other technical reports or information that may pertain to this investigation.
5. All references, statements or recommendations in this Work Scope or in any subsequent written reports to substances being either hazardous or not hazardous are made solely in accordance with or in reference to such official designations made by government agencies or other authorities under applicable laws, regulations, or guidelines. ERO itself makes no claim, warranty or implication as to whether any substance may or may not be hazardous.
6. This Work Scope does not include an assessment of the potential for any particular condition adversely to affect public health.
7. Any laboratory analytical work will be conducted by a laboratory or laboratories under separate contract or subcontract. While ERO will endeavor to select qualified laboratories for sample analysis, ERO will accept no responsibility or liability for laboratory results, quality control or analytical turnaround time.
8. Deviations from these assumptions may result in cost increases or changes in schedule.

9. All site boundaries shown or discussed in the report are approximations based on information supplied by the Client. ERO Resources will accept no responsibility or liability for the accuracy of the site boundaries.
10. The Client will be responsible for completing the user questionnaire, obtaining a map/survey of the subject property, determining property size, and forwarding these items to ERO at least five days before the date of project completion.

APPENDIX B
(On External Drive)

Quantum Water & Environment
1746 Cole Boulevard, Suite 340
Lakewood, Colorado 80401
(720) 524-4294

April 3, 2018

Mr. Brian Ward, P.E.,
Public Works Civil Engineer
City of Greeley
1001 9th Avenue
Greeley, CO 80631

RE: Phase II Investigation – Initial Data Reporting
Greeley Fishing Pond Project
Greeley, CO
Quantum Water & Environment Project Number 221E-18

Dear Mr. Ward,

Quantum Water & Environment (Quantum) on behalf of Spirit Environmental, LLC (Spirit) and the City of Greeley (City) has prepared this summary of completed Phase II investigation tasks at the Greeley Fishing Pond site near the intersection of 31st Street and 1st Avenue in Greeley, Colorado (Figure 1).

BULK MATERIAL TESTING RESULTS

From March 7 through 9, 2018, a Quantum certified asbestos building inspector (CABI) collected 69 bulk material samples from suspect materials within the approximate 5-acre waste disposal area on the east side of the site (Figure 2). The samples were submitted to Reservoirs Environmental for analysis of asbestos content by polarized light microscopy. Twenty-one of the samples contained greater than 1% asbestos (asbestos-containing material [ACM]). Of these 21 samples, 8 of the samples were determined to be "friable", as determined by the CABI. Friable ACM and non-friable ACM with a high probability of fiber release during soil disturbing activities or through weathering is referred to as Regulated Asbestos Contaminated Soil (RACS) by the Colorado Department of Public Health and Environment (CDPHE). Section 5 of the Colorado Solid Waste Regulations (6 CCR 1007-2) regulates the disturbance of RACS and this regulation provides requirements on procedures, methods and institutional controls necessary to prevent exposures and spread of contamination during disturbance. RACS areas where disturbance will occur (either in the interim or remediation phase) are referred to as Regulated Work Areas (RWAs). Only authorized and trained individuals will work in RWAs with proper protective clothing and other control measures. Known ACM areas are depicted on Figure 2. Six of the eight friable ACM materials are in the western wooden portion of the waste disposal area and the remaining two friable ACM materials are in the eastern portion of the waste disposal area.

On behalf of the City, Quantum provided RACS notification to CDPHE on March 29, 2018. On April 3, 2018, representatives from the City, Quantum, and Spirit met on-site with Brian Long (CDPHE) to discuss the layout of the warning fence/signage and initial requirements for the Interim Stabilization Plan.

Interim Stabilization Period

1) During the interim stabilization period, specific control measures are implemented to prevent unauthorized access and disturbance, minimize the potential for accidental exposures, and to minimize the spread of contamination off site and beyond the immediate area. We estimate four to six weeks will be needed to prepare the Interim Stabilization Plan for review and approval by CDPHE. The interim stabilization period is expected to last between one to two years to allow enough time for the permanent remedy to be designed and contracted for construction. The interim control measures should be designed, installed, inspected and maintained by qualified individuals (e.g., CABIs and Air Monitoring Specialists). Spirit/Quantum can assist the City with preparing and implementing the Interim Stabilization Plan that will include the following, at a minimum:

- Warning fence and signage to deter unauthorized access (*Per the April 3rd site meeting with CDPHE, the fence and signage should be constructed within the next week),*
- Erosion control measures to minimize offsite transport of asbestos.
- RACS areas to be covered with a temporary soil cover per Section 5.5 of the Regulations (*Some friable ACM (RACS) areas may be mitigated if the material is small enough to be removed by hand and properly disposed. Additionally, approval from the Army Corps of Engineers may be required for any soil placement or disturbance activities, since with waste disposal area appears to be within a jurisdictional water way).*
- All activities within a RWA will be conducted only by trained personnel.

Permanent Remedy Options

Due to the size of the waste disposal area (approximately 5 acres) and the likely large volume of RACS present, excavation and disposal of RACS at a landfill facility approved to accept this type of waste may be prohibitively expensive. A less costly permanent remedy for the waste disposal area would be to:

1) Voluntarily close the waste disposal area in accordance with the Colorado Solid Waste Regulations (*per a discussion with CDPHE on April 3rd, voluntarily closing the disposal area may avoid a Consent Order from CDPHE).*
2) Discuss with CDPHE the potential to enter the site into the Colorado Voluntary Cleanup Program (VCUP). The VCUP application will include a site characterization and a Corrective Action Plan (CAP). The CAP will include a conceptual plan for the capping of the waste disposal area.
3) An Environmental Covenant with land use restrictions may be needed for the waste disposal area.
4) Design and construct a cap(s) over the waste disposal areas
5) Implement annual operations and maintenance of cap(s)

Although less costly, this remedy may limit the options for reuse or redevelopment of the site.

The design and construction of the permanent cap of the waste disposal area is anticipated now to be implemented within one to two years.

Quantum/Spirit will work with the City and CDPHE to determine a feasible permanent remedy for the ACM present on the site.

SOIL SAMPLING RESULTS

On February 8, 2018 a Quantum Professional Geologist lithologically logged four boreholes (BH-01 through BH-04) advanced by Geoprobe® (direct push) techniques by DrillPro Services at the locations depicted on Figure 3. These boreholes were completed as monitoring wells and groundwater levels were monitored on two separate occasions (February 8, 2018 and March 6, 2018). The borehole logs with monitoring well completion details are in Appendix A attached to this report. The borehole locations and top of casing were surveyed by King Surveyors of Windsor, Colorado on March 15, 2018 (Table 1). Soil boring and monitoring well BH-01 is identified as the presumed upgradient well for this waste disposal area investigation. The remaining borings (BH-02 through BH-04) were advanced within the waste disposal area. The boreholes were completed to depths of 12.44 feet to 12.83 feet. The borehole soil sampling, and soil gas monitoring was completed according to Quantum's Standard Operating Procedure (SOP) 26 Direct Push Technology Drilling and Sampling.

Direct push soil samples provide continuous core soil samples for the length of the borehole. BH-01 encountered sandy silt, and sand. BH-02, encountered waste material from a depth of 4 to 8 feet and was intermixed with silty sand. BH-03 encountered fill to a depth of 6.5 feet with sandy silt, silty clay and sand throughout the rest of the borehole. BH-04 (located near the southeast corner of the property) encountered waste at depth 7 feet with silty sand and sand throughout the rest of the borehole.

One soil sample was collected from each boring based on the visual observations and field-screening for potential volatile organic compounds (VOCs) with a photoionization detector. The soil samples from BH-02 through BH-04 were collected from 0.5 to 1 foot bgs, while the soil sample from BH-01 was collected from 7 feet bgs, near the static water level surface. The samples were shipped overnight under chain-of-custody procedures to ALS Environmental (ALS) in Holland, Michigan for analysis. The samples were analyzed for VOCs (EPA Method 8260B), semi-volatile organic compounds (SVOCs, EPA Method 8270D), Resource Conservation and Recovery Act (RCRA) metals and mercury (EPA Methods 6010C/7471B).

The results of the soil analytical analysis are presented in Table 2.

- Arsenic was identified in BH-02, BH-03 and BH-04 at concentrations above EPA Residential and Industrial Regional Screening Levels (RSLs), but below the CDPHE Arsenic Concentrations in Soil, Risk Management Guidance for Evaluating (July 2014), which establishes an action level of 11 milligrams per kilogram (mg/kg). The CDPHE is expected to accept the higher 11 mg/kg action level for this site. The remaining RCRA metals and mercury were identified at concentrations below the EPA RSLs or were not detected.
- Benzo(a)pyrene was identified at a depth of 7 feet bgs in BH-01 at a concentration exceeding the EPA Residential and Industrial RSLs. Benzo(a)pyrene is a ubiquitous polycyclic aromatic hydrocarbon (PAH) that is associated with coal tar production, construction or building materials containing petroleum-hydrocarbons, and is also associated with oil and gas (O&G) production. There is a known O&G production facility on the site and upgradient of BH-01. The soil sample

was collected from near the water table interface. Soil core from this boring did not contain fill or waste material and this boring is presumed to be hydraulically upgradient of the waste disposal area.

- Nine PAH's (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene) were identified at a depth of 1 foot bgs in BH-04 at concentrations that exceed either or both or both of the EPA RSLs. Pieces of coal-like fragments were observed in the soil core. These coal-like fragments likely contributed to the elevated levels of PAHs identified in the soil sample. BH-04 is located within fill material near the southeast corner of the property (Figure 3).

The soil analysis results are summarized on Figure 4.

SOIL VAPOR SAMPLING RESULTS

Soil vapor samples were collected in evacuated canisters from BH-01, BH-02, BH-03 and BH-04 on March 6 and 7, 2018 according to Quantum's SOP-23 Soil Vapor Sampling. The samples were shipped overnight under chain-of-custody procedures to ALS for analysis of VOCs (EPA Method TO-15) and fixed gases (hydrogen, oxygen, nitrogen, carbon monoxide, methane and carbon dioxide). Soil gas analytical results are summarized in Table 3, are graphically depicted on Figure 5 and are summarized below:

- No methane was detected in any of the soil vapor samples.
- Chloroform and tetrachloroethene (PCE) were identified in soil vapor from BH-02 at concentrations exceeding one or both of the EPA Industrial and Residential RSLs (*application of an attenuation factor likely will cause these results to be below both EPA RSLs. CDPHE allows the use of an attenuation factor [typically 10X to correlate soil vapor concentrations with indoor air concentrations])*.
- Trichloroethene and PCE were identified in soil vapor from BH-04 at concentrations exceeding the EPA Industrial and Residential RSLs (*application of an attenuation factor may cause this result to be below one or both EPA RSLs)*.

GROUNDWATER SAMPLING RESULTS

Temporary monitoring wells were developed and sampled on March 6, 2018 by removing a minimum of 10 casing volumes of groundwater from each well using a weighted bailer. Depth to groundwater measurements were collected from each well using a water level indicator prior to commencement of well development. The static water level occurs in sand and silty sand in BH-01 and BH-03, and within waste material in BH-02 and BH-04. The depth to groundwater data were used to contour the surface of the shallow groundwater at the site. Based on the contours, groundwater flows to the east towards the South Platte River which abuts the eastern property boundary (Figure 7).

Groundwater samples were collected using a dedicated disposable bailer, labeled, placed immediately on ice in a cooler, and shipped overnight under chain-of-custody procedures to ALS for analysis of VOCs (EPA Method 8260B), RCRA 8 Metals (EPA Methods 6020A/7470A), and SVOCs (EPA Method 8270D).

Groundwater analytical detection results are summarized in Table 4, are graphically depicted on Figure 6, and are summarized below:

- The concentration of bis(2-ethylhexl)phthalate was identified in groundwater at BH-01 above the health-based standard, but below the maximum contaminant level set by the federal Safe Drinking Water Act. The CDPHE will establish which action level is appropriate for this site.
- The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-ck)pyrene was reported in the sample collected from downgradient well BH-04 at a concentrations above their respective Colorado Groundwater Standards.
- Various other SVOCs and metals were detected at concentrations below the Colorado Groundwater Standards.

CONCLUSIONS

The following are preliminary conclusions based on the initial data received. These conclusions may be revised as additional data is obtained and evaluated.

Asbestos Sampling Results

As discussed earlier in this letter, the City and its consultants are working to have the fence and warning signs installed within the next week. The Interim Stabilization Plan should be completed within approximately 4 to 6 weeks. The interim period will last between one to two years, and the duration of this period will depend on the length of time needed to obtain an approved final remedy design from CDPHE.

Soil Sampling Results

The benzo(a)pyrene exceedance identified in soil in presumed upgradient BH-01 at a depth of 7 feet bgs can be from an upgradient source (e.g., O&G production) or from the nearby waste disposal area (refer to the groundwater sampling results).

The PAH exceedances identified in soil at downgradient BH-04 at a depth of 1 foot bgs is likely attributed to coal-like waste fragments observed in the soil sample.

We do not anticipate that CDPHE will require delineation of either of these soil impacts.

Groundwater Sampling Results

The concentration of bis(2-ethylhexl)phthalate was identified in groundwater at BH-01 above the health-based standard, but below the maximum contaminant level set by the federal Safe Drinking Water Act. The CDPHE will establish which action level is appropriate for this site. This compound is associated with the manufacture of plasticizers in automotive parts and could be a waste disposal area-related constituent.

Concentrations of seven SVOCs were identified in downgradient monitoring well BH-04 at concentrations exceeding the Colorado Groundwater Standards. These SVOCs are likely waste disposal area-related constituents. The proximity of BH-04 to the nearest downgradient receptor is the adjacent South Platte River. CDPHE will likely request further assessment to determine if groundwater impacts are entering the river.

Mr. Brian Ward
City of Greeley
April 3, 2018

Voluntary Cleanup Program (VCUP) Application
We will provide the requested information separately by April 6th.

RECOMMENDATIONS

Per the Colorado Spill Reporting requirements, we recommend immediately reporting the groundwater exceedances in BH-04 to the Hazardous Materials and Waste Management Division of CDPHE. Based on our previous experiences with sites of this nature, CDPHE will likely allow the site to be closed under either the Solid Waste Program or the VCUP. Entry into the VCUP will be determined by CDPHE based on the site history, site characterization data, and the proposed end use of the property.

We appreciate the opportunity to provide these environmental consulting services on behalf of Spirit and the City. Please contact us at 720-524-4294 or by email at john@quantumwaterco.com if you have any questions or comments.

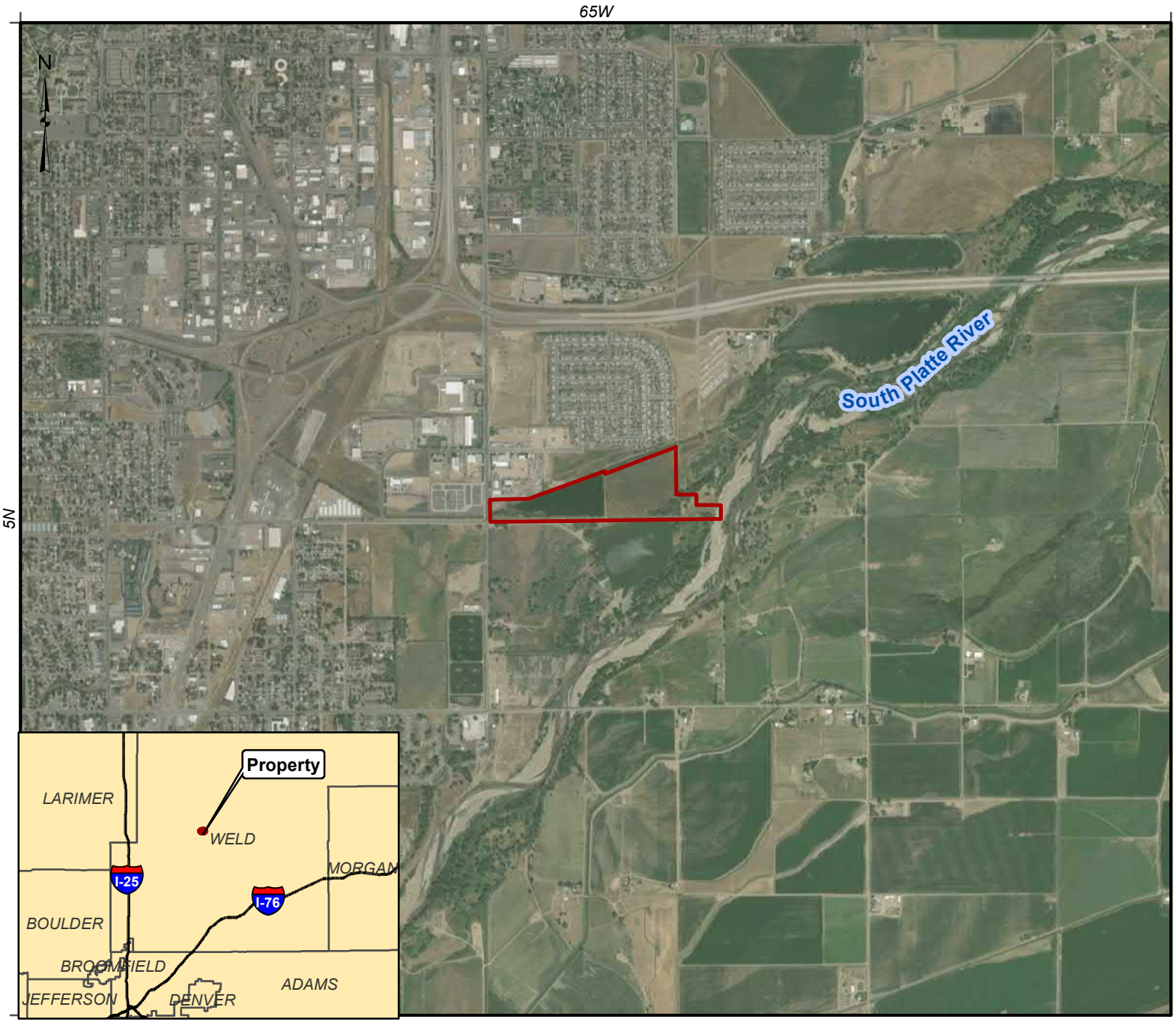
Sincerely,
QUANTUM WATER & ENVIRONMENT

John C. Dellaport, P.E., P.G.
Quantum Environmental Division Manager

Chris Krajicek, P.G.
Project Geologist

Attachments:

Cc: Erin Drake, Spirit Environmental
Eric Bloomer, City of Greeley



MAP LEGEND

Property Boundary

Note: Not a Survey Map

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Figure 1
Site Location

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: TJD
Date: April 3, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 2,000 feet

0 1,000 2,000 4,000 Feet

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MAP LEGEND

- Friable ACM
- Non-Friable ACM
- Non-ACM Samples
- Property Boundary

ACM = Asbestos Containing Materials

Note: Not a Survey Map

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Figure 2
Bulk Material Sampling Locations & Results

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: CK
Date: March 21, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 200 feet

0 100 200 400 Feet

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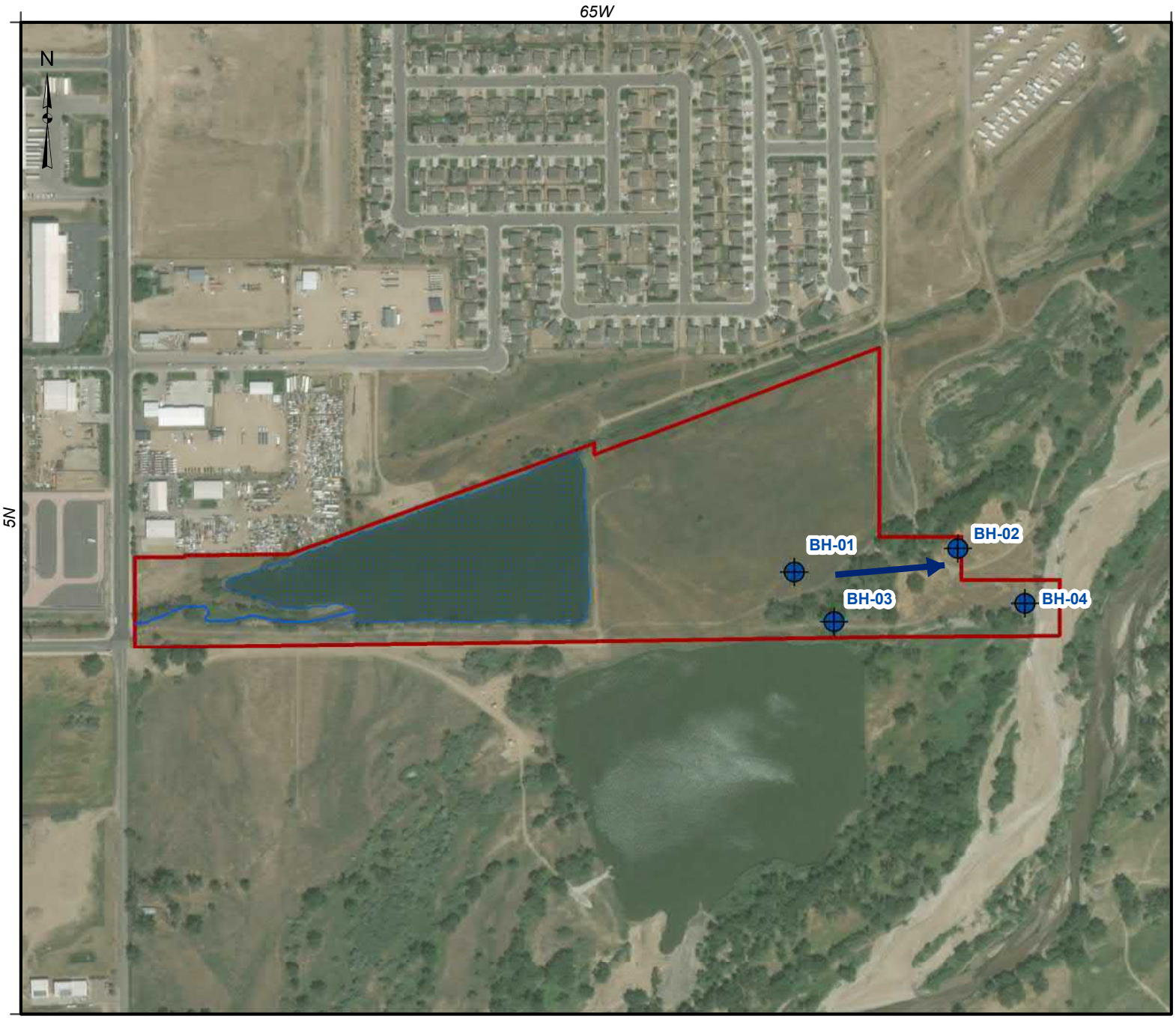

MAP LEGEND

- Monitoring Wells
- Stream Channel
- Pond
- Property Boundary
- Groundwater Flow Direction

Note: Not a Survey Map

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Figure 3
Soil Boring and Monitoring Well Locations

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: TJD
Date: April 2, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 500 feet

0 250 500 1,000 Feet

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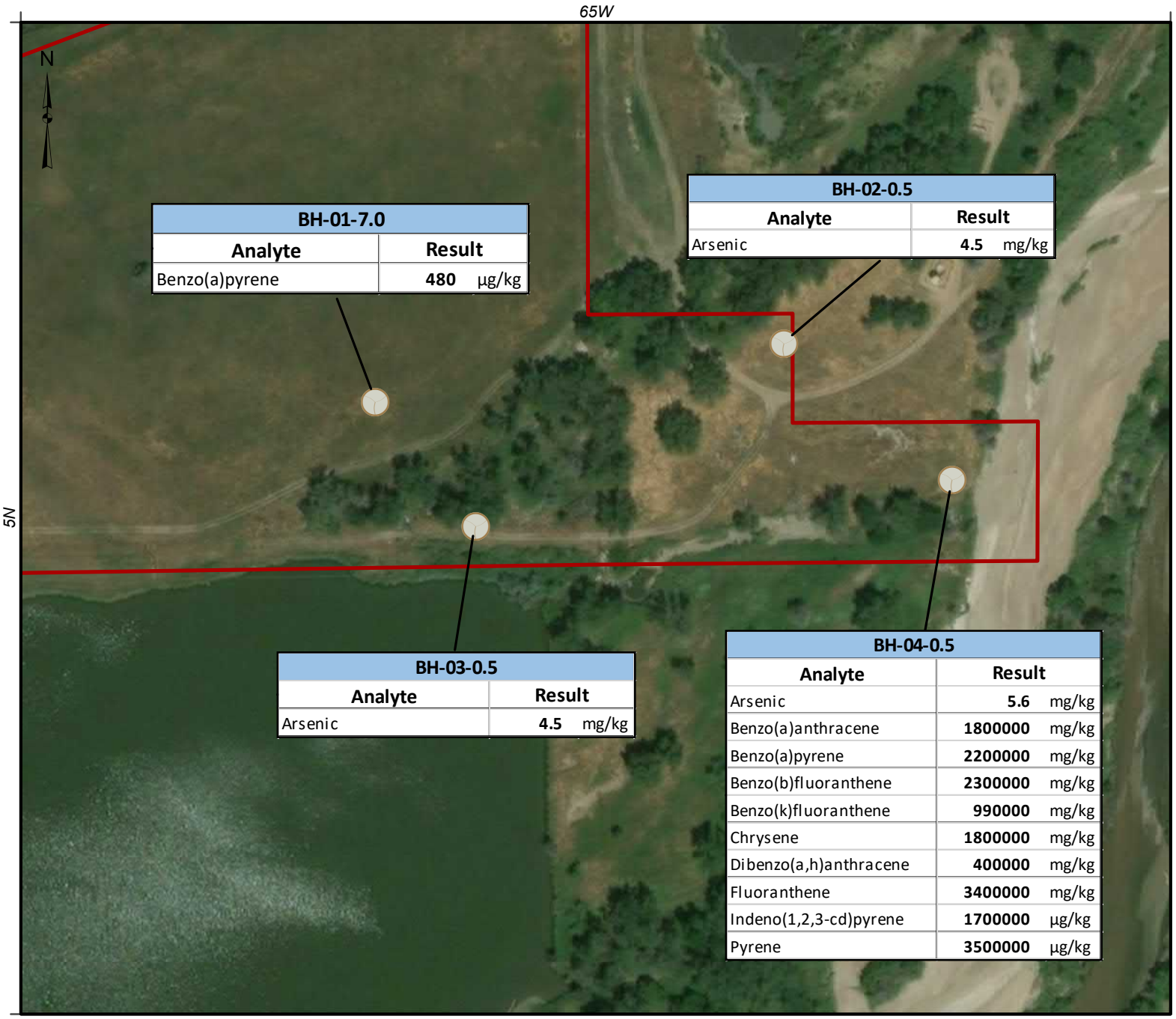

BH-01-7.0	
Analyte	**Result**
Benzo(a)pyrene	**480** µg/kg

BH-02-0.5	
Analyte	**Result**
Arsenic	**4.5** mg/kg

BH-03-0.5	
Analyte	**Result**
Arsenic	**4.5** mg/kg

BH-04-0.5	
Analyte	**Result**
Arsenic	**5.6** mg/kg
Benzo(a)anthracene	**1800000** mg/kg
Benzo(a)pyrene	**2200000** mg/kg
Benzo(b)fluoranthene	**2300000** mg/kg
Benzo(k)fluoranthene	**990000** mg/kg
Chrysene	**1800000** mg/kg
Dibenzo(a,h)anthracene	**400000** mg/kg
Fluoranthene	**3400000** mg/kg
Indeno(1,2,3-cd)pyrene	**1700000** µg/kg
Pyrene	**3500000** µg/kg

MAP LEGEND

Soil Borings

Property Boundary

*Samples collected on 2/8/2018

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram

Note: Not a Survey Map
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Figure 4
Soil Sample Exceedances

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: TJD
Date: April 3, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 200 feet

0 100 200 400 Feet

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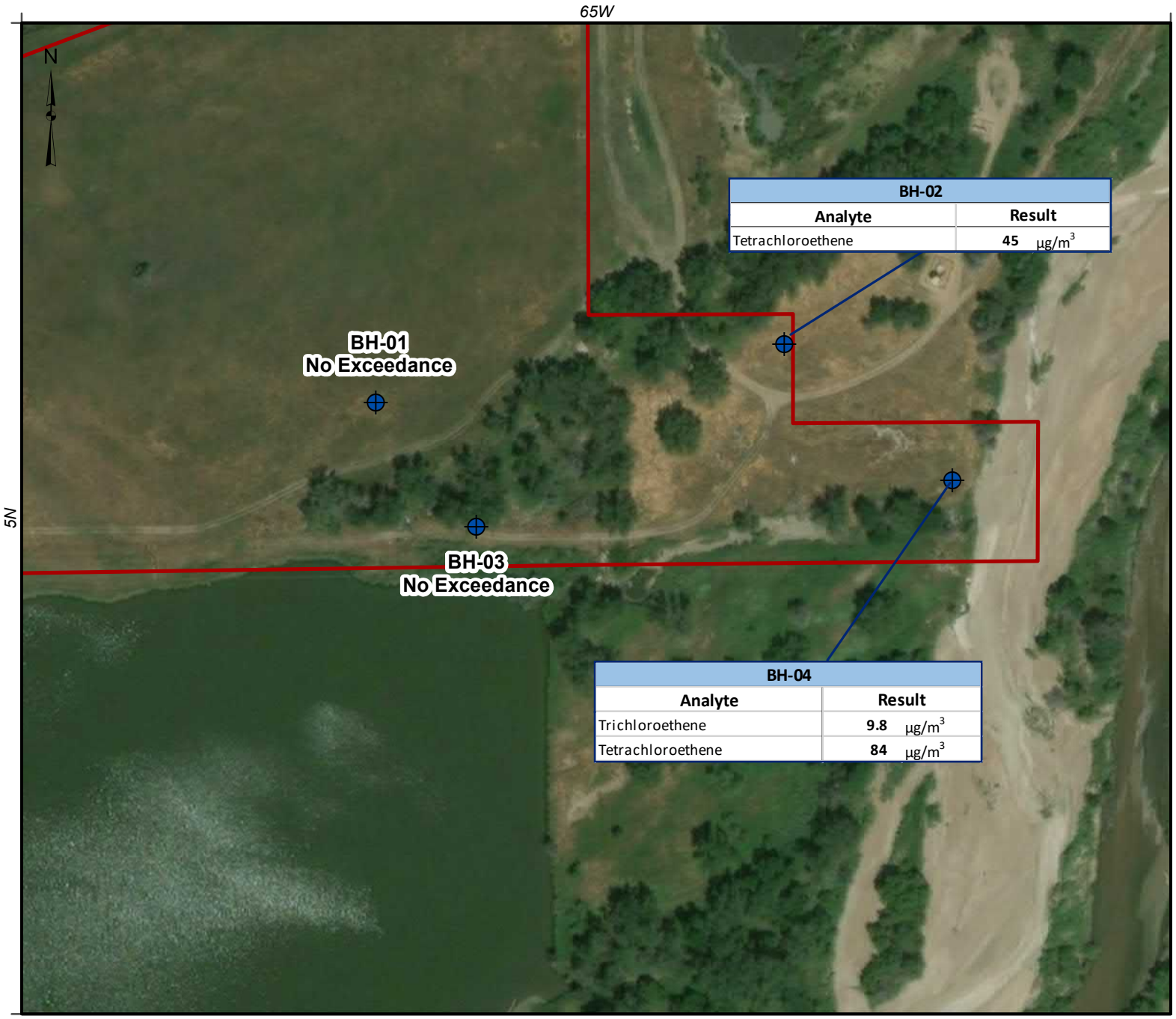

MAP LEGEND

Monitoring Wells

Property Boundary

*Samples collected on 3/6/2018

µg/m^3 = micrograms per cubic meter

Note: Not a Survey Map

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City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 200 feet

0 100 200 400 Feet

Figure 5
Soil Vapor Exceedances

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: TJD
Date: April 3, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

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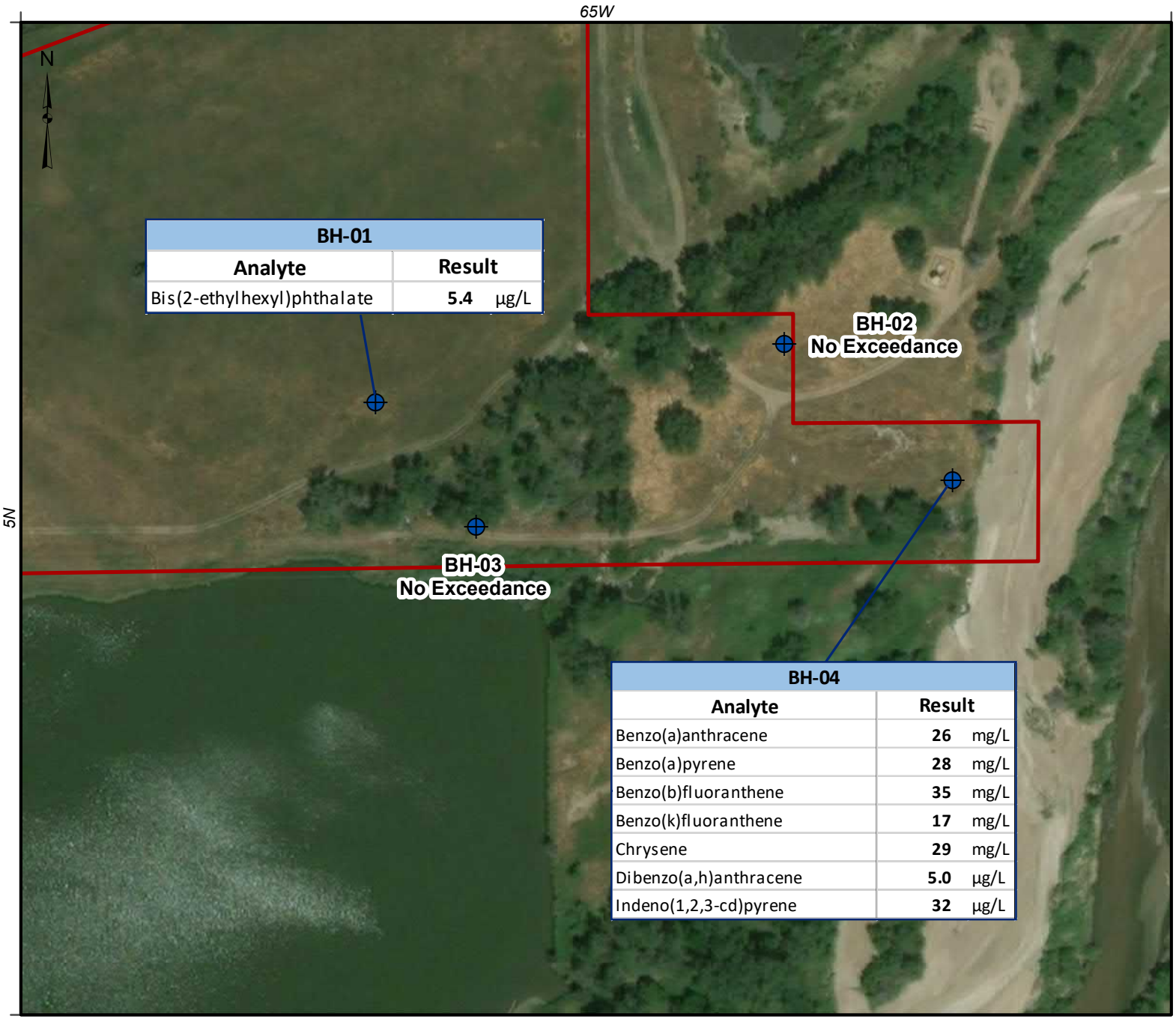

MAP LEGEND

Monitoring Wells

Property Boundary

*Samples collected on 3/6/2018

µg/L = micrograms per liter
mg/L = milligrams per liter

Note: Not a Survey Map
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Figure 6
Groundwater Exceedances

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: TJD
Date: April 3, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 200 feet

0 100 200 400 Feet

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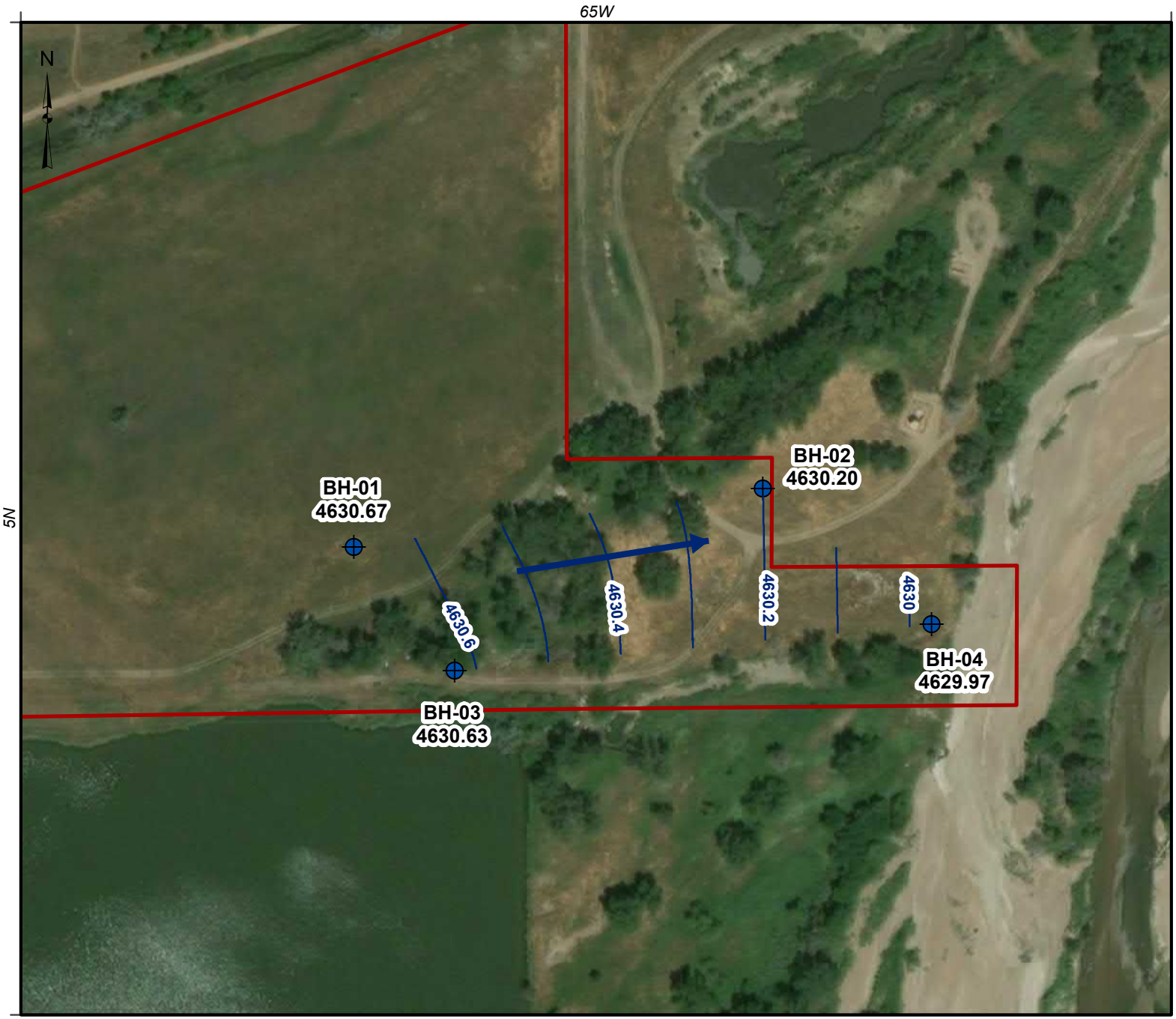

MAP LEGEND

- Monitoring Well
- Property Boundary
- Water Table Contours
- Groundwater Flow Direction

Contour Interval = 0.1 Feet

*All measurements in feet above mean sea level. Measurements taken on 3/6/2018.

Note: Not a Survey Map

G:\PROJECTs_ENV\Greeley_Fishing_Pond\MXDs

Figure 7
Groundwater Contour Map

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: JCD
Date: April 2, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Phase II Environmental Site Assessment

1 in = 200 feet

0 100 200 400 Feet

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Table 1. Monitoring Well Elevations and Depth to Groundwater Measurements

Well/Piezometer No. (well depth below top of casing)	Date of Measurement	Depth to Water (feet below top of casing)	Top of Casing Elevation (feet above MSL)	Ground Surface Elevation (feet above MSL)	Water Depth Below Ground Surface (Feet)	Water Table Elevation (feet above MSL)
BH-01	2/8/2018	7	4637.91	4636.5	4629.5	4630.91
	3/6/2018	7.24			4629.26	4630.67
BH-02	2/8/2018	7.8	4638.13	4636.8	4629	4630.33
	3/6/2018	7.93			4628.87	4630.2
BH-03	2/8/2018	10.5	4640.17	4639.4	4628.9	4629.67
	3/6/2018	9.54			4629.86	4630.63
BH-04	2/8/2018	7.70	4637.46	4636.2	4628.50	4629.76
	3/6/2018	7.49			4628.71	4629.97

NOTES:
MSL = Mean sea level
NM = Not measured

Table 2
City of Greeley Fishing Pond - Soil Sample Results Summary

				Total Metals (SW846 6010C)								Semi VOCs (SW846 8270D)																					VOCs (EPA 8260B)		
Sample ID	**Sample Date**	**Sample Depth (Feet)**	**Constituent**	**Mercury (7471B)**	**Arsenic[3]**	**Barium**	**Cadmium**	**Chromium**	**Lead**	**Selenium**	**Silver**	**2-Methylnaphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo(a)anthracene**	**Benzo(a)pyrene**	**Benzo(b)fluoranthene**	**Benzo(g,h,i)perylene**	**Benzo(k)fluoranthene**	**Bis(2-ethylhexyl)phthalate**	**Butyl benzyl phthalate**	**Carbazole**	**Chrysene**	**Dibenzo(a,h)anthracene**	**Dibenzofuran**	**Fluoranthene**	**Fluorene**	**Indeno(1,2,3-cd)pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**Acetone**	**Chloromethane**	**Methyl acetate**
			Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
			EPA Residential Soil RSL [1]	1.1E+01	6.8E-01	1.5E+04	7.1E+01	1.2E+05	4.0E+02	3.9E+02	3.9E+02	2.4E+05	3.6E+06	NS	1.8E+07	1.1E+03	1.1E+02	1.1E+03	NS	1.1E+04	3.9E+01	2.9E+05	NS	1.1E+05	1.1E+02	7.3E+04	2.4E+06	2.4E+06	1.1E+03	3.8E+03	NS	1.8E+06	6.1E+07	1.1E+05	7.8E+07
			EPA Industrial Soil RSL [1]	4.6E+01	3.0E+00	2.2E+05	9.8E+02	1.8E+06	8.0E+02	5.8E+03	5.8E+03	3.0E+06	4.5E+07	NS	2.3E+08	2.1E+04	2.1E+03	2.1E+04	NS	2.1E+05	1.6E+02	1.2E+06	NS	2.1E+06	2.1E+03	1.0E+06	3.0E+07	3.0E+07	2.1E+04	1.7E+04	NS	2.3E+07	6.7E+08	4.6E+05	1.2E+09
BH-01	2/8/2018	7		0.0038 J	0.57	11	0.094 J	2.5	1.5	0.37 J	<0.42	15	86	150	150	500	**480**	680	310	260	<34	<34	74	440	97	38	1000	60	530	19	480	740	<120	32 J	35 J
BH-02	2/8/2018	0.5		0.094	**4.5**	53	0.57 J	5.9	42	0.93	0.28 J	<34	58	75	160	<34	<34	<34	<34	<34	<34	560	210	<34	<34	<170	280	<34	<34	<34	48	110	<110	<110	73 J
BH-03	2/8/2018	0.5		0.017 J	**4.5**	86	0.58 J	8.7	55	1	0.27 J	4.1 J	5.5 J	7.5	<6.8	12	15	18	13	7.5	36	<34	<34	11	<6.8	<34	25	<6.8	16	22	<6.8	22	48 J	38 J	150 J
BH-04	2/8/2018	0.5		0.17	**5.6**	83	0.9	7	60	0.88	0.32 J	<130000	170000	<130000	<130000	**1800000**	**2200000**	**2300000**	1400000	**990000**	<34	<650000	250000 J	**1800000**	**400000**	<650000	**3400000**	<130000	**1700000**	<130000	710000	**3500000**	<110	<110	41 J

Notes:

Highlighted - Analyte detected above laboratory detection limit

BOLD - Analyte detected above a regulatory limit

mg/kg - Miligrams per kilgram

NS - No standard

VOCs - Volatile organic compounds

< - Indicates concentration shown is laboratory reporting limit

1. EPA Regional Screening Level (RSL) (November, 2017)

2. Colorado Department of Public Health and Environment (CDPHE) Hazardous Materials and Waste Management Division - Groundwater protection Value (March 2014)

3. Standard for arsenic based on CDPHE Arsenic Concentrations in Soil, Risk Management Guidance for Evaluating (July 2014), which sets a limit of 11 mg/kg if a release could not have occurred at a site, based on historical data and process knowledge. Arsenic concentrations bolded indicate exceedance of regulatory concentration are above 11 mg/kg.

J = Estimated Value

Table 3
Greeley Fishing Pond Phase II ESA - Soil Vapor Sample Summary

Sample ID	Consultant/ Sample Date	Constituent	Propylene	Dichlorodifluoromethane (Freon-12)	Freon-114	Ethanol	Acetone	Trichlorofluoromethane (Freon-11)	Isopropyl alcohol	Methylene Chloride	cis-1,2-Dichloroethene	Ethyl Acetate	Chloroform	1,1,1-Trichloroethane	Trichloroethene	Toluene	Tetrachloroethene	d-Limonene	Oxygen*	Nitrogen	Carbon Dioxide
		Unit	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**µg/m³**	**%, v/v**	**%, v/v**	**%, v/v**
		Method	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	TO-15	EPA 3C Mod	EPA 3C Mod	EPA 3C Mod
		EPA Residential RSL[1]	3100	100	NS	NS	32000	NS	210	100	NS	73	0.12	5200	0.48	5200	11	NS			
		EPA Industrial RSL[1]	13000	440	NS	NS	140000	NS	880	1200	NS	310	0.53	22000	3	22000	47	NS			
BH-01	Quantum	3/6/2018	<1.9	2.1	<1.9	<19	<19	<1.9	<19	15	<1.9	8.6	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	21.9	77.6	0.438
BH-02	Quantum	3/6/2018	<2.0	27	8.3	<20	<20	5.7	<20	20	<2.0	<4.1	**2**	41	<2.0	<2.0	**45**	<2.0	20.3	77.7	2.01
BH-03	Quantum	3/6/2018	2.4	<1.9	<1.9	47	22	<1.9	<19	11	<1.9	38	<1.9	<1.9	<1.9	2.2	<1.9	1.9	21.7	77.7	0.592
BH-04	Quantum	3/6/2018	4.3	7.4	4.9	80	30	2.7	26	5.3	2.0	24	<2.0	<2.0	**9.8**	6.7	**84**	3.1	21.4	77.7	0.974

Notes

Highlighted cells	-above laboratory detection limit
BOLD	-value exceeds EPA regional screening level (RSL)

NS - No standard

ug/m^3 - micrograms per cubic meter

< - Indicates concentration shown is laboratory detection limit.

1. EPA Residential and Industrial Air Regional Screening Levels (November 2017).

Table 4
Greeley Fishing Pond Phase II ESA - Groundwater Sample Detections

			Metals					Semivolatile Organic Compounds (SVOC's)												
Sample ID	**Testing Laboratory**	**Constituent**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Lead**	**2-Methylnaphthalene**	**3&4-Methylphenol**	**Acenaphthene**	**Anthracene**	**Benzaldehyde**	**Benzo(a)anthracene**	**Benzo(a)pyrene**	**Benzon(b)fluoranthene**	**Benzo(g,h,i)perylene**	**Benzo(k)fluoranthene**	**Bis(2-ethylhexyl)phthalate**	**Butyl benzyl phthalate**	**Chrysene**
		Unit	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		Method	6020A	6020A	6020A	6020A	6020A	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D
		Colorado Groundwater Standard [1]	0.01	2.0	0.005	0.1	0.05	NS	NS	420	2100	NS	0.0048	0.0048-2[M]	0.0048	NS	0.0048	2.5-6[M]	1400	0.0048
		Sample Date																		
BH-01	ALS	3/6/2018	<0.00087	0.058	0.000081[J]	<0.00065	<0.00033	0.31	40	<0.10	<0.10	2	<0.10	<0.10	<0.10	<0.10	<0.10	**5.4**	6.5	<0.10
BH-02	ALS	3/6/2018	0.0010[J]	0.041	0.000072[J]	<0.00065	0.0019[J]	<0.10	<1.0	<0.10	<0.10	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<1.0	<0.10
BH-03	ALS	3/6/2018	0.0029[J]	0.094	<0.000050	<0.00065	<0.00033	<0.10	<1.0	<0.10	<0.10	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<1.0	<0.10
BH-04	ALS	3/6/2018	0.0020[J]	0.060	0.00030[J]	0.00099[J]	0.0038[J]	<1.0	<10	1.7	5.2	<10	**26**	**28**	**35**	30	**17**	<10	<10	**29**

Notes:

Highlighted - Analyte detected above laboratory detection limit

BOLD - Analyte detected above regulatory limit

J - Result is less than Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.

NS - No standard

M - CDPHE standard for drinking water.

Q - Elevated reporting limit due to high analyte levels

ug/l - micrograms per liter

< - Indicates concentration shown is laboratory detection limit

1. Drinking Water Standard from the Water Quality Control Commission Regulation No. 41: The Basic Standards for Ground Water, Table 1 - Domestic Water Supply - Human Health Standards (December 30, 2016)

Table 4
Greeley Fishing Pond Phase II ESA - Groundwater Sample Detections

Sample ID	Testing Laboratory	Constituent	Dibenzo(a,h)anthracene	Diethyl phthalate	Dimethyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
		Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		Method	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D	8270D
		Colorado Groundwater Standard [1]	0.0048	5600	NS	NS	280	280	0.0048	140	NS	210
		Sample Date										
BH-01	ALS	3/6/2018	<0.10	1.4	0.56 J	6.8	<0.10	<0.10	<0.10	0.38	<0.10	<0.10
BH-02	ALS	3/6/2018	<0.10	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BH-03	ALS	3/6/2018	<0.10	<1.0	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BH-04	ALS	3/6/2018	**5**	<10	<10	<10	42	1.3	**32**	<1.0	19	71

Notes:

Highlighted - Analyte detected above laboratory det

BOLD - Analyte detected above regulatory limit

J - Result is less than Reporting Limit but greater than or equal to the I
Detection Limit and the concentration is an approximate value.

NS - No standard

M - CDPHE standard for drinking water.

Q - Elevated reporting limit due to high analyte levels

ug/l - micrograms per liter

< - Indicates concentration shown is laboratory detection limit

1. Drinking Water Standard from the Water Quality Control Commission Regulation No.
Table 1 - Domestic Water Supply - Human Health Standards (December 30, 2016)

SOIL BORING AND WELL CONSTRUCTION LOG

BOREHOLE NUMBER: BH-01

PROJECT NAME/NUMBER: **Greeley Fishing Pond/221E-18**
LOCATION: **3020 1st Avenue, Greeley, CO**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **Track-mounted Geoprobe 6620DT**
GEOLOGIST: **Chris Krajicek** DRILLER: **Nick Montoya**
DATE BEGUN: **2/8/18** DATE COMPLETED: **2/8/18**

TOTAL BORING DEPTH: **12.83 feet**
TOTAL WELL DEPTH: **12.83 feet**

INITIAL (BGS) AND STATIC WATER LEVEL (BTOC)		
Depth (ft)	7	7.24
Date	2/8/18	3/6/18

DEPTH	STATIC WATER	VOCs (ppm)	RECOVERY (ft)	SOIL SAMPLE	USCS	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL CONSTRUCTION
0.0 – 4.0	▼	0.6	0.6		ML	Sandy Silt: Dry to moist, olive gray, no cohesion; very fine sand, trace subrounded gravel.		STICK UP (+1.35 FEET); BENTONITE CHIP SEAL; 1" O.D. SCH 40 PVC SCREEN
4.0 – 8.0	▼	1.4	1.4		SW	Sand: Dry, yellowish orange, poorly-sorted, fine to coarse, subangular, arkosic alluvium; with about 5% subrounded granitic gravel. Becomes wet at 7 feet bgs. Becomes saturated at 7.8 feet bgs.		SAND 10 X 20 MESH; " O.D. SCH 40 PVC SCREEN
8.0 – 12.0	▼	0.8	0.8		SW			BOTTOM CAP

SOIL BORING AND WELL CONSTRUCTION LOG

BOREHOLE NUMBER: BH-02

PROJECT NAME/NUMBER: **Greeley Fishing Pond/221E-18**
LOCATION: **3020 1st Avenue, Greeley, CO**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **Track-mounted Geoprobe 6620DT**
GEOLOGIST: **Chris Krajicek** DRILLER: **Nick Montoya**
DATE BEGUN: **2/8/18** DATE COMPLETED: **2/8/18**

TOTAL BORING DEPTH: **12.44 feet**
TOTAL WELL DEPTH: **12.44 feet**

INITIAL (BGS) AND STATIC WATER LEVEL (BTOC)		
Depth (ft)	7.8	7.93
Date	2/8/18	3/6/18

DEPTH	STATIC WATER	VOCs (ppm)	RECOVERY (ft)	SOIL SAMPLE	USCS	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL CONSTRUCTION
0.0 – 2.0		1	1.6		ML	Topsoil: Moist, dark gray, silty. Contains grass and roots. Silty Sand: Fill: Dry, light gray, poorly-sorted, fine to coarse, subangular.		STICK UP (+1.15 FEET) BENTONITE CHIP SEAL 1" O.D. SCH 40 PVC SCREEN
2.0 – 4.0								
4.0 – 6.0		1	1			Waste: Glass, deteriorated metal, chunks of wood; intermixed with moist, silty sand.		
6.0 – 8.0	▼				SW	Sand: Saturated, yellowish orange, poorly-sorted, fine to coarse, subangular, arkosic alluvium; with about 5% subrounded granitic gravel. Light gray discoloration with slight petroleum odor from 7.8 to 10.8 feet bgs.		SAND 10 X 20 MESH 1" O.D. SCH 40 PVC SCREEN
8.0 – 10.0		1	2.6					
10.0 – 12.0								BOTTOM

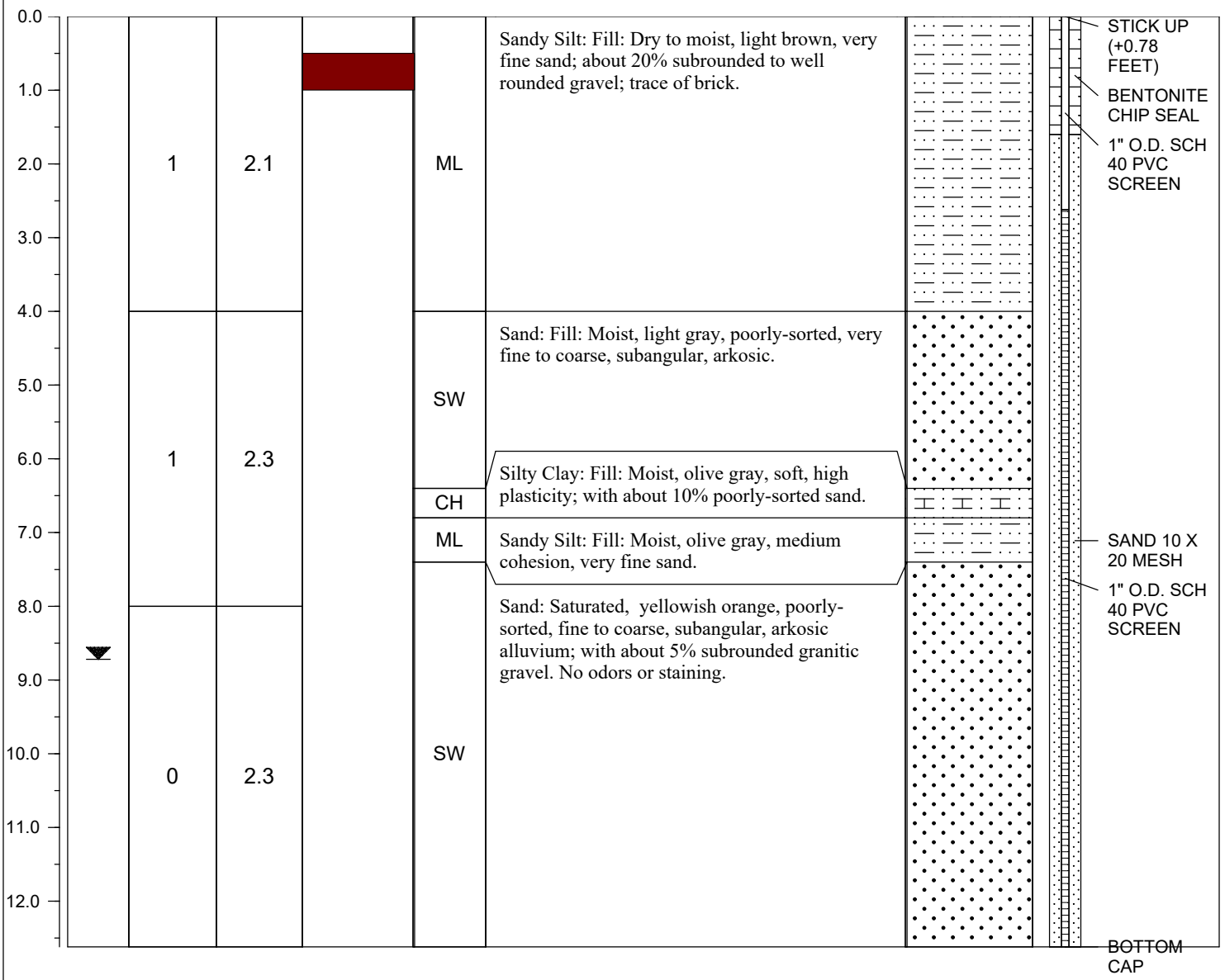
SOIL BORING AND WELL CONSTRUCTION LOG

BOREHOLE NUMBER: BH-03

PROJECT NAME/NUMBER: **Greeley Fishing Pond/221E-18**
LOCATION: **3020 1st Avenue, Greeley, CO**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **Track-mounted Geoprobe 6620DT**
GEOLOGIST: **Chris Krajicek** DRILLER: **Nick Montoya**
DATE BEGUN: **2/8/18** DATE COMPLETED: **2/8/18**

TOTAL BORING DEPTH: **12.62 feet**
TOTAL WELL DEPTH: **12.62 feet**

INITIAL (BGS) AND STATIC WATER LEVEL (BTOC)		
Depth (ft)	10.5	9.54
Date	2/8/18	3/6/18



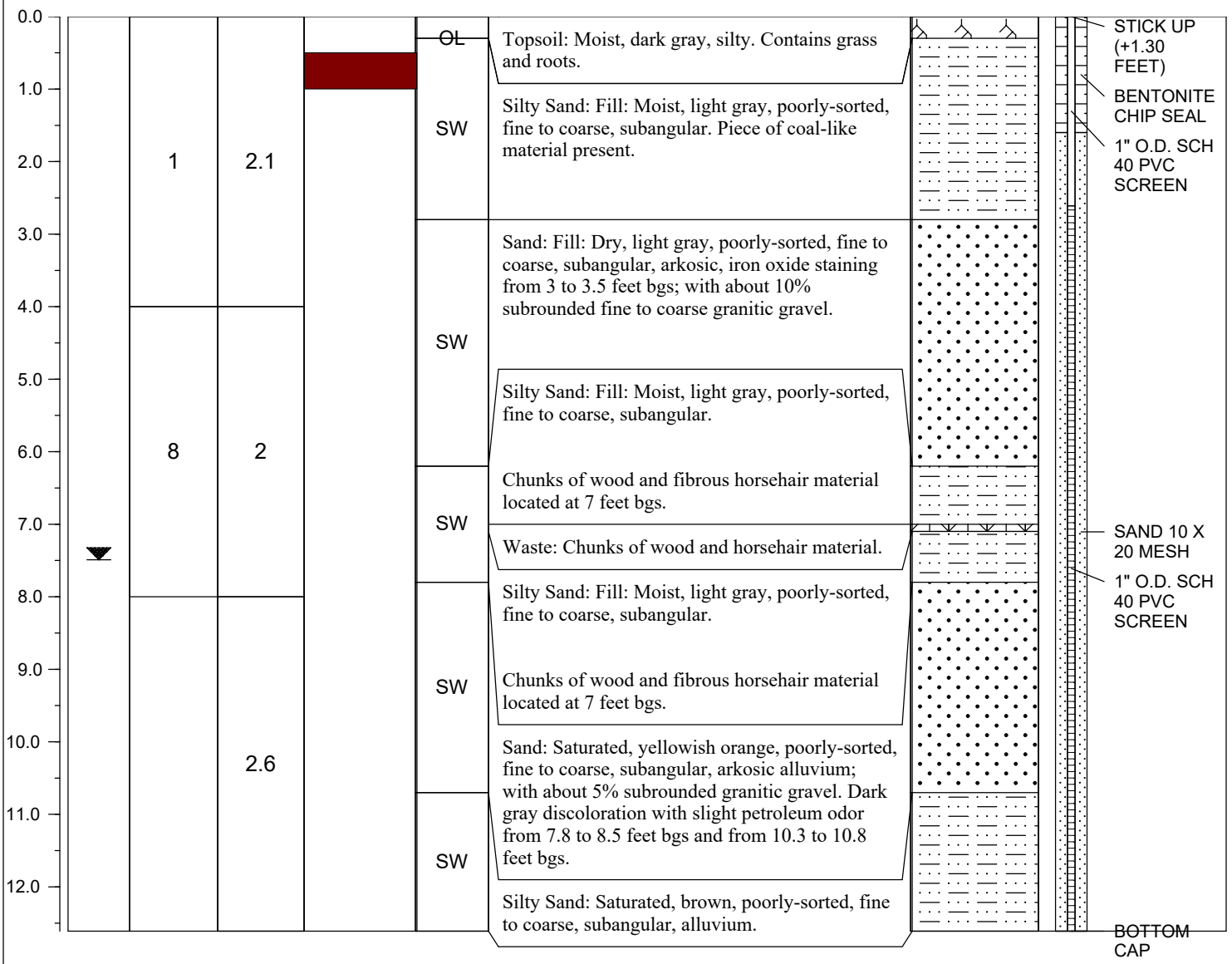
SOIL BORING AND WELL CONSTRUCTION LOG

BOREHOLE NUMBER: BH-04

PROJECT NAME/NUMBER: **Greeley Fishing Pond/221E-18**
LOCATION: **3020 1st Avenue, Greeley, CO**
DRILLING COMPANY: **DrillPro Services, Inc.**
DRILLING METHOD: **Track-mounted Geoprobe 6620DT**
GEOLOGIST: **Chris Krajicek** DRILLER: **Nick Montoya**
DATE BEGUN: **2/8/18** DATE COMPLETED: **2/8/18**

TOTAL BORING DEPTH: **12.61 feet**
TOTAL WELL DEPTH: **12.61 feet**

INITIAL (BGS) AND STATIC WATER LEVEL (BTOC)		
Depth (ft)	7.7	7.49
Date	2/8/18	3/6/18



APPENDIX C
(On External Drive)

June 5, 2018

Mr. Brian Ward, P.E.
Public Works Civil Engineer
City of Greeley
1001 9th Avenue
Greeley, CO 80631

RE: Interim Stabilization Plan for Regulated Asbestos Contaminated Soil
Greeley Fishing Pond Project
Intersection of 1st Avenue and 31st Street, Greeley, CO
Quantum Water & Environment PN: 221E-18
Spirit Reference No.: 18124.00F

Dear Mr. Ward,

On behalf of the City of Greeley, Spirit Environmental, LLC (Spirit) subcontracted Quantum Water & Environment to prepare the attached Interim Stabilization Plan (ISP) for friable asbestos-containing material (ACM) discovered during initial bulk material sampling activities at the above-referenced site from March 7, 2018 through May 9, 2018. Although not required by the Colorado Department of Public Health and Environment, we recommend that the City of Greeley cover the known non-friable ACM areas with fill or conduct regular inspections of these areas to confirm that the ACM is not becoming friable through weathering and/or erosion. It should be noted there is still a potential for airborne emissions of asbestos fibers and the potential for contact or exposure to unauthorized personnel that may inadvertently enter the restricted area. Please contact me the information provided below if you have any questions about the attached document. We appreciate the opportunity to serve the City of Greeley for this project. Thank you for your business.

Sincerely,

Erin A. Drake, MA
Program Manager

Enclosures

Cc: John Dellaport, Quantum Water & Environment
Eric Bloomer, City of Greeley

OFFICE: 720-500-3717
FAX: 281-664-2491

1626 Wazee St, Suite 2A
Denver, CO 80202

spiritenv.com

Final Interim Stabilization Plan

City of Greeley Fishing Pond

Greeley, Colorado

June 5, 2018

PREPARED FOR:

City of Greeley

SPIRIT PROJECT: 18124.00F

FOR SPIRIT ENVIRONMENTAL:

Erin A. Drake, MA, RPA
Program Manager

FOR QUANTUM WATER & ENVIRONMENT:

John C. Dellaport, P.E., P.G.
Quantum Environmental Division Manager

Chris Krajicek, P.G.
Project Geologist

OFFICE: 720-500-3710
FAX: 281-664-2491

1626 Wazee St, Suite 2A
Denver, CO 80004

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Table of Contents

1.0 Introduction

Spirit Environmental (Spirit) and its subcontractor, Quantum Water & Environment (Quantum) has prepared this Interim Stabilization Plan (ISP) on behalf of the City of Greeley (City). The Plan provides temporary emissions control measures for friable asbestos-containing material (ACM) recently discovered in a solid waste disposal area (site) on a City property located east of the intersection of 1st Avenue and 31st Street in Greeley, Colorado. The purpose of this ISP is to describe the interim measures that will be taken to minimize emissions, prevent unauthorized access and disturbance and to minimize the spread of contamination.

This ISP will be reviewed and approved by the City and the Colorado Department of Public Health and Environment (CDPHE) prior to implementation.

2.0 General Site Description

The site is an approximate 5-acre solid waste disposal area which exists on the eastern portion of an approximate 39-acre undeveloped property purchased by the City in 2015. The site is located within Areas 7, 8, and the southern portion of Area 3, as depicted on the Property Overview Map (see Appendix A). The South Platte River abuts the eastern side of the site. According to a 2015 ERO Phase I Environmental Site Assessment of the property, several areas of solid waste disposal were observed on the southeast portion of the property. Debris observed by ERO (2015) and Spirit/Quantum (2018) included concrete, clay tile, scrapped cars, asphalt shingles, sheet vinyl flooring, roofing material, cement board, scrap wood, metal, and several 55-gallon drums.

The property representative is Mr. Brian Ward, P.E., Public Works Civil Engineer with the City. The site is located approximately 1,200 feet east of the intersection of 1st Avenue and 31st Street in Greeley, Colorado.

2.1 Background Information

From March 7, 2018 through March 9, 2018, a Quantum certified asbestos building inspector (CABI) collected 69 bulk material samples from suspect building materials on the site (see Figure 1). The samples were submitted to Reservoirs Environmental in Denver, Colorado for analysis of asbestos content by polarized light microscopy. Twenty-one of the samples tested positive for the presence of asbestos. Of these 21 samples, 8 of the samples were determined to be “friable”, as assessed by the CABI. One sample (sample ID N27-4) tested positive for the presence of ACM and was determined to be friable by the CABI. The location of the friable ACM was later determined through a property boundary survey to not be located on the City of Greeley property and is, therefore, not included in this plan. A summary of the bulk material sampling results is included in Table 1 (Appendix B). Known areas of friable ACM within the Property are depicted on Figure 2 (Appendix B). It is anticipated for this project that the total volume of friable ACM disturbance will be less than the “de minimis project” quantity of one cubic yard, specified in Section 5 of the Colorado Solid Waste Regulations; therefore, less than one cubic yard of friable ACM will not be subject to the regulations. However, if quantities of friable ACM disturbance meet or exceed one cubic yard, the regulated asbestos contaminated soil (RACS) management requirements of Section 5 will apply.

On March 29, 2018, Spirit/Quantum provided notification to CDPHE of the ACM discovery. On April 3, 2018, representatives from the City, Quantum, and Spirit met on-site with Mr. Brian Long (CDPHE representative) to discuss the layout of the warning fence/signage and initial requirements for the ISP.

3.0 Interim Stabilization Plan

This ISP specifies the control measures (i.e., removal or covering) that will be implemented to reduce potential asbestos emissions from the site. A site plan delineating the friable ACM areas is included in Figure 2.

The main sections of the ISP are listed and described below:

- Roles and Responsibilities
- Warning Fence and Signage
- Erosion & Sedimentation Controls
- Emissions Controls
- Inspections and Maintenance

3.1 Roles and Responsibilities

Owner – The City of Greeley Parks and Recreation Department.

Air Monitoring Specialist (AMS) – A representative of the Owner trained and certified, in accordance with the requirements of Air Quality Control Commission Regulation No. 8 (5 CCR 1001-10, Part B), for the collection of air samples to determine airborne particulate and/or asbestos concentrations.

Certified Asbestos Building Inspector (CABI) – A representative of the Owner trained and certified in accordance with Air Quality Control Commission Regulation No. 8 (5 CCR 1001-10, Part B), for the identification of asbestos-containing materials and the collection of samples to determine asbestos content, including qualified Department personnel.

Qualified Project Monitor (QPM) - A representative of the Owner who has the training and/or experience necessary to identify materials suspected of containing asbestos and who has the authority to make prompt decisions relating to the management of such materials, and who meets the training requirements in Section 5.5.3.

Consultant – Spirit Environmental and its subcontractors Quantum and Allstar Environmental. The Consultant has conducted the initial sampling on the site and has prepared this ISP.

Abatement Contractor – A qualified asbestos Abatement Contractor with experience conducting asbestos abatement projects in the State of Colorado. The Abatement Contractor shall install and maintain erosion and sedimentation (E&S) controls, perform hand removal of designated RACS areas, install temporary emissions controls over RACS, perform inspections and maintenance of controls, and submit required documentation.

3.2 Warning Fence and Signage

These access controls have previously been implemented by the City and its Consultant. Perimeter warning fence was installed around the site on April 9, 2018 and warning signage was installed around the site on April 12, 2018.

3.3 Erosion and Sedimentation (E&S) Controls

E&S controls (silt fences) are specified to minimize the transport of asbestos fibers in stormwater runoff from the site. Three lines of silt fences shall be installed and maintained on the site (see Figure 2). Silt fences shall be inspected and maintained as discussed in Section 3.4.3 – Inspections and Maintenance.

3.4 Emissions Controls

Emission controls will consist of misting the ACM and surrounding soils using a hand-held mister or mechanical misting device to mist amended water on ACM and surrounding soils present within the work area. The amended water will consist of 1-ounce polyoxyethylene ester and polyoxyethylene ether solution (1:1 ratio) added to 5 gallons of water and will be applied with the mister using low pressure to avoid dust generation or splattering. Misting will occur prior to and as needed during ACM and soil disturbance to ensure that ACM and surrounding soil is adequately wet, as defined in the CDPHE Solid Waste Regulations.

Friable ACM and surrounding soil will be monitored during disturbance and hand removal activities to ensure that the ACM and soil is adequately wet and no visible emissions are observed from the removal processes. If visible emissions are observed during disturbance, work activities will cease until the ACM and/or soil has been wetted.

Friable ACM and associated soil that is designated to be covered will be wetted using low pressure methods until it is deemed adequately wet, as defined in the CDPHE Solid Waste Regulations, prior to any form of disturbance, placement of geotextile, or covering with fill soil. Geotextile fabric and cover fill will be carefully placed in a manner that minimizes disturbance of the underlying material. If at any point visible emissions are observed, work will cease immediately and the area will be rewetted until it is adequately wet or emission control methods will be evaluated.

3.4.1 Friable ACM to be Removed by Hand

Identified friable ACM and surrounding soil discussed in this Section will be removed in accordance with Section 5 of the regulations. Friable ACM and surrounding soil shall be removed with shovels and packaged, manifested, transported and disposed off-site in accordance with Section 5.5.8 of the CDPHE Solid Waste Regulations and at a facility permitted to accept this type of waste. The Abatement Contractor will adequately wet and remove the friable ACM and twelve (12) inches, in all directions, of surrounding soil or other material from the friable ACM locations identified in this ISP and will adhere to the wetting and other requirements of Section 5.5.7 of the regulations during soil disturbing activities. If additional friable material suspected of containing asbestos is encountered during the removal of the friable ACM and surrounding soil, the material will either be 1) sampled by a CABI to confirm whether the material contains asbestos and managed in accordance with this ISP if it is an ACM, 2) Assumed to be ACM and removed in accordance with this ISP, or 3) Managed in accordance with Section 3.4.2 of this ISP.

Air monitoring is not anticipated to be required during friable ACM removal, provided that the removal will not exceed a duration of two (2) days. Loading and transportation of friable ACM on City property will adhere to Section 5.5.7 of the regulations. No staging or stockpiling of removed friable ACM will be allowed on site without written prior approval from the City. Personnel and equipment decontamination will be performed in accordance with Section 5.5.7 of the regulations. A description of the known friable ACM areas with photographs is provided in Appendix C. The friable ACM areas to be removed by hand are listed below:

- H11-1 – Remove sheet vinyl flooring and surrounding soil.
- J17A-3 – Remove sheet vinyl and surrounding soil.

Areas of hand removal will be visually inspected by a CABI or QPM following removal to confirm that the friable ACM has been adequately removed.

3.4.2 Friable ACM to be Covered

Friable ACM areas designated to be stabilized in place by covering with fill are shown on Figure 2 and Figure 3. Descriptions of the friable ACM areas are provided in Appendix C. The controls specified in this ISP are intended to meet or exceed Section 5.5.4 of the regulations. Covering methods developed for each friable ACM area are based on location, nature of debris and topography of debris area, and anticipated duration of the interim period.

Geotextile fabric will first be placed over the friable ACM areas extending a minimum of two (2) feet horizontally beyond the delineated area for areas designated for fill coverage. A suitable geotextile fabric is Dewitt 4.5oz Non-Woven Geotextile (15' x 300').

Fill suitable for unrestricted use will be placed in a minimum thickness of six (6) inches. The fill will have no free liquids and will be placed without compaction. The Abatement Contractor will extend the limit of fill a minimum of one (1) foot horizontally beyond the geotextile fabric. The delineated friable ACM areas will be completely covered with fill cover extending at least three (3) feet beyond the horizontal limits of delineated friable ACM; additionally, these areas will be covered with six (6) inches of fill as described above. The Abatement Contractor will provide the City with documentation of the fill source and evidence that the fill is uncontaminated. A description of the known friable ACM areas with photographs is provided in Appendix C. The friable ACM area identification numbers (I.D.) and covering methods are listed and discussed below:

- H10-5, I15-1, J17-2/J17-3, and O28-2 – Cover entire area with geotextile overlain by fill cover.

3.4.3 Inspections and Maintenance

Inspections of E&S controls and emissions controls will be performed monthly and following storm events (>0.5-inches of rainfall within a 24-hour period). An individual with project familiarity and having attended the project-specific asbestos-in-soil awareness training will conduct inspections to verify that the controls are functioning as designed; this person will also identify any deficiencies

in the controls' performance. Any deficiencies will be corrected within 48 hours of identification. Specific inspection measures will include the following, at a minimum:

- Warning Fence and Signage – Inspect integrity and presence of access controls.
- Silt fences – Inspect and repair/replace if not performing as designed. Any sediment removed from a silt fence will be sampled by a CABI and analyzed for asbestos content by polarized light microscopy prior to transport and disposal off-site. Sediment testing positive for the presence of asbestos shall be manifested and transported off-site to a landfill facility permitted to accept this type of waste.
- Fill Cover/Geotextile – Verify that the 6-inch minimum thickness of fill is maintained.

Before and after photographs will be taken by the personnel conducting the inspections to document deficiencies in the erosion controls and emissions controls and the repairs made to those controls.

3.4.4 Documentation

Following stabilization activities, the following records, at a minimum, will be submitted to the City documenting the implementation of this ISP:

- CABI/QPM documentation of site activities, stabilization methods, types of friable ACM, and visual inspection clearances of removal areas
- AMS Notes (if applicable)
- Analytical reports (if applicable)
- Certification records for CABIs, AMSs (if applicable), and and/or records demonstrating QPM qualifications
- Records of trainings conducted on site
- Fill documentation
- Manifests for friable ACM and asbestos-contaminated soil disposed off-site
- Monthly inspection reports within 48 hours of inspection.

4.0 Conclusion

Spirit and its subcontractor, Quantum prepared this ISP on behalf of the City of Greeley. This ISP provides temporary emissions control measures for friable ACM recently discovered in a solid waste disposal area on a City property located east of the intersection of 1st Avenue and 31st Street in Greeley, Colorado. This ISP describes the interim measures needed to minimize emissions from friable ACM, prevent unauthorized access and disturbance of friable ACM, and to minimize the spread of contamination from friable ACM. This ISP will be reviewed and approved by the City and the CDPHE prior to implementation. All stabilization activities will be completed within 14 days from the receipt of approval of this stabilization plan from CDPHE..

5.0 Appendices

The following information is included in this section:

Appendix A – Property Overview Map

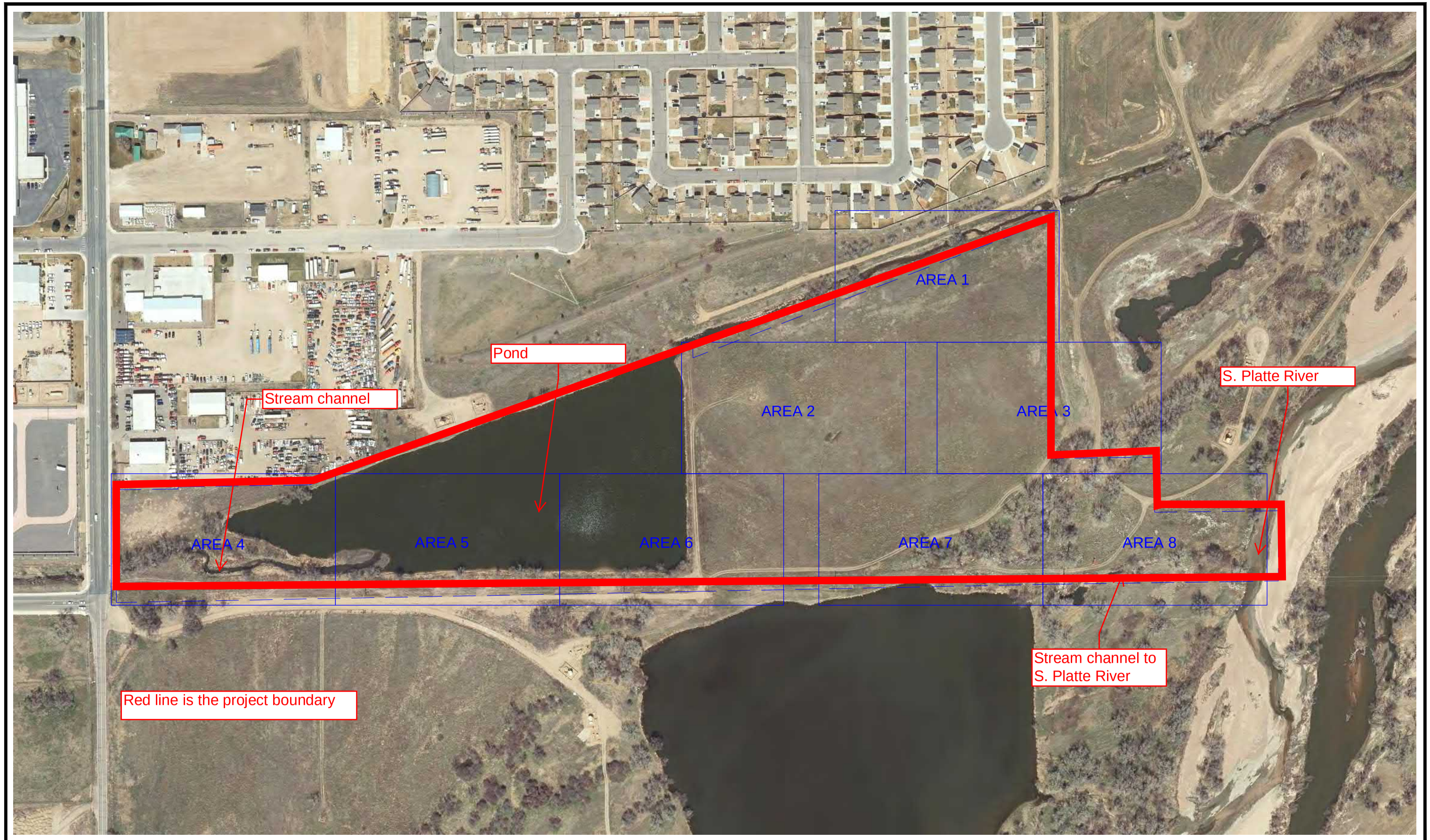
Appendix B – Figures

- Figure 1 – Material Sampling Locations and Results
- Figure 2 – Friable ACM Site Plan
- Table 1 – Bulk Sampling Data Summary

Appendix C – Photos and Descriptions of Friable ACM Areas

Appendix A

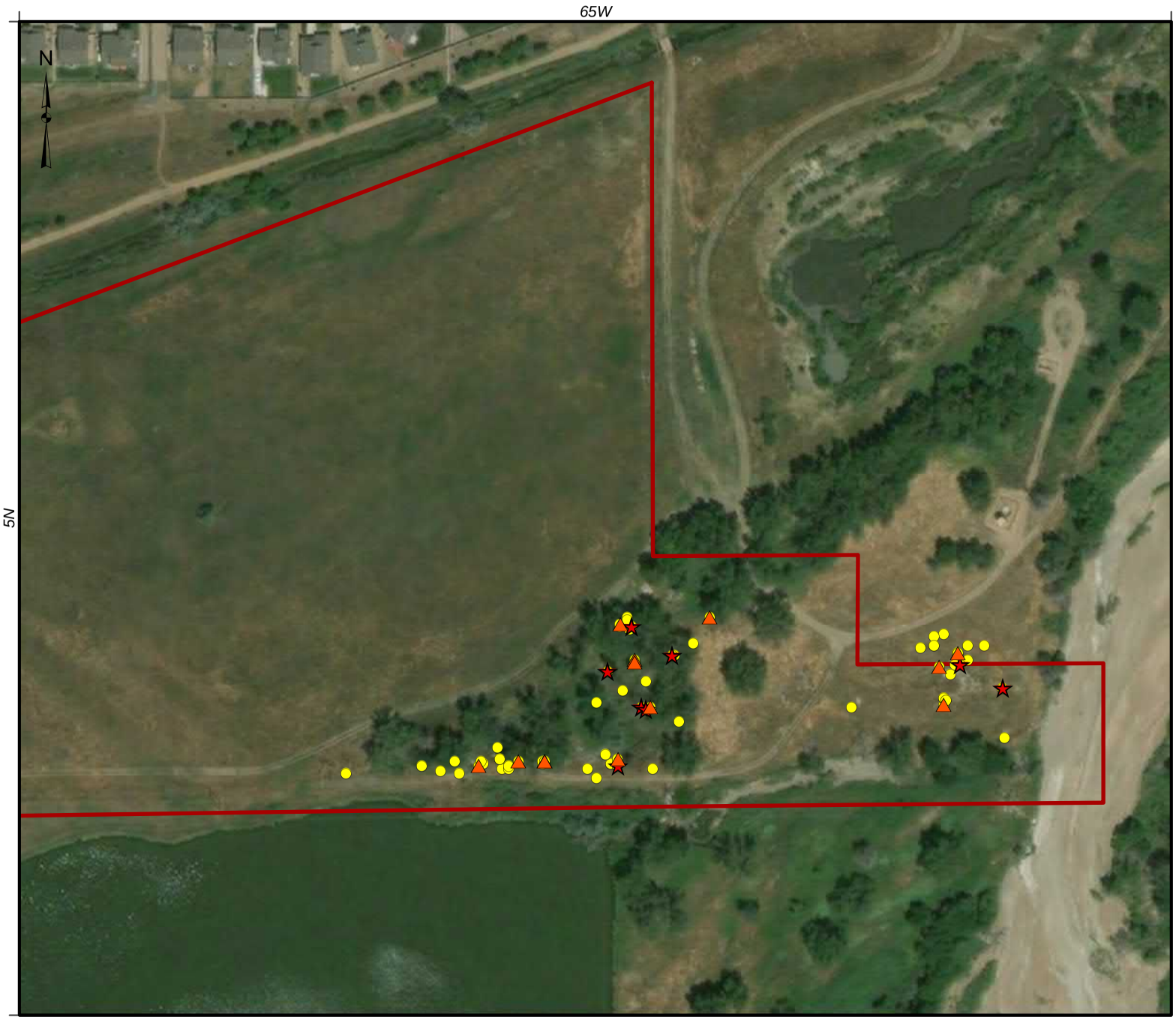
Property Overview Map



Drawing Date: 9/29/2017 7:59:21 AM	Sheet Revisions			CITY OF GREELEY, COLORADO PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION 1001 NINTH AVENUE GREELEY, COLORADO 80631 greeleygov.com/engineering	As Constructed	Area Layouts 1st Avenue Fishing Pond	Project No./Code
Drawing File Name: Site Maps.dwg	Date:	Comments	Init.		No Revisions:		COG: 318 00 060 4631 0000
	10/13/17	Conceptual Site Plan			Revised:		
Horiz. Scale: 1"=250' Vert. Scale: NA					Void:		Sheet Number 4
Designed by: BEW Checked by: N/A							

Appendix B

Figures



MAP LEGEND

- Friable ACM
- Non-Friable ACM
- Non-ACM Samples
- Property Boundary

ACM = Asbestos Containing Materials

Note: Not a Survey Map

G:\PROJECTs_ENV\Greeley_Fishing_Pond\MXDs

Figure 1

Bulk Material Sampling Locations & Results

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: CMK
Date: April 17, 2018

Sources: City of Greeley
Weld County Assessor
ESRI World Imagery

City of Greeley Fishing Pond

Interim Stabilization Plan

1 in = 200 feet

0 100 200 400 Feet

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WATER & ENVIRONMENT
1746 Cole Blvd
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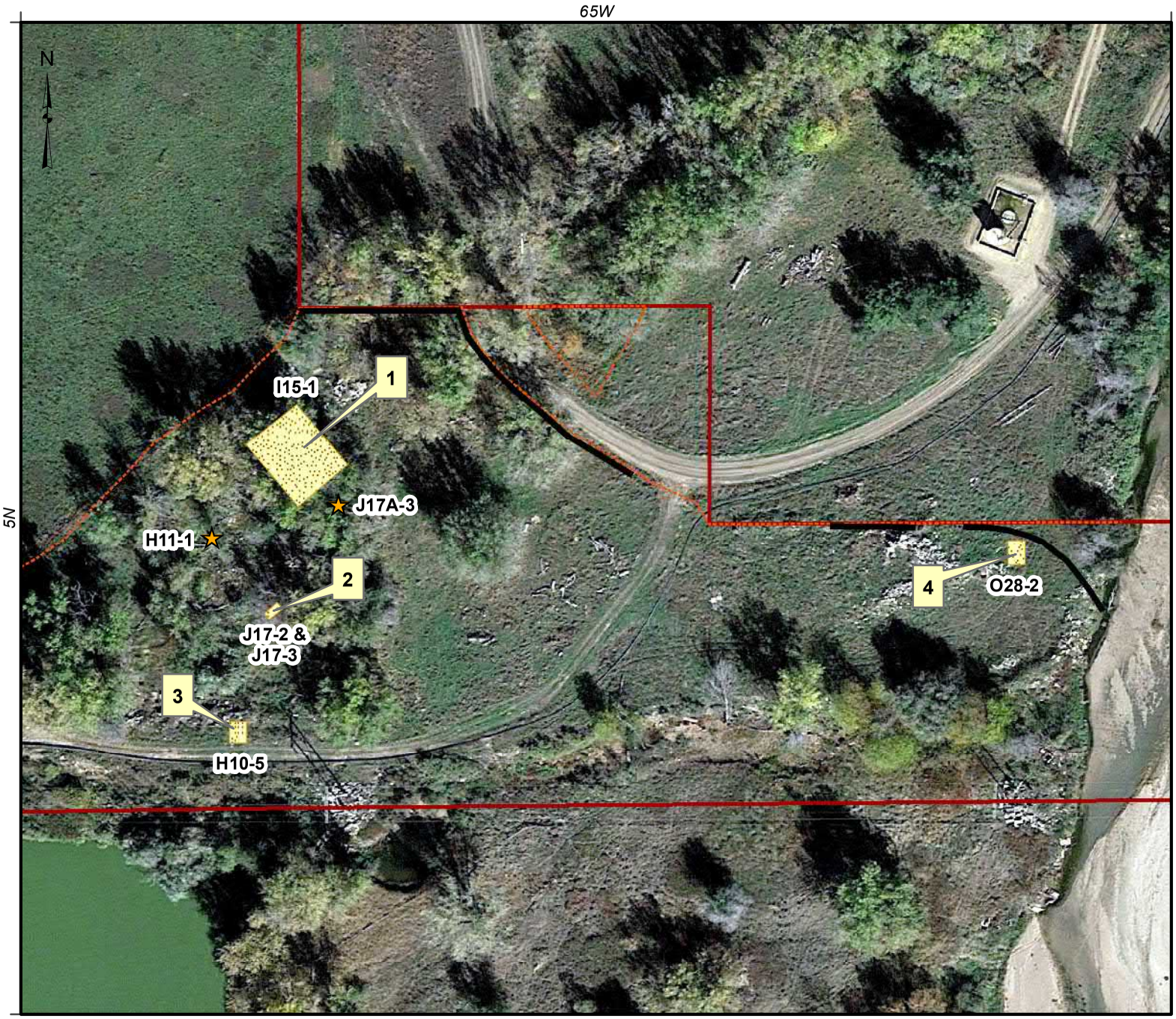
www.quantumwaterco.com



MAP LEGEND

- ACM to be Removed by Hand
- ACM Areas to be Covered
- Silt Fence
- Construction Fence
- Property Boundary

ACM = Asbestos-Containing Material

Friable ACM Areas	
Area ID	**Size (ft^2)**
1	2505
2	69
3	180
4	204

Note: Not a Survey Map
G:\PROJECTs_ENV\Greeley_Fishing_Pond\MXDs

Figure 2
Friable ACM Areas

Projection: UTM Zone 13N
Datum: NAD 1983

Job Number: 221E-18
Prepared By: CVW
Checked By: CMK
Date: April 25, 2018

Sources: City of Greeley
Weld County Assessor
Google Earth Imagery

City of Greeley Fishing Pond

Interim Stabilization Plan

1 in = 100 feet

0 50 100 200 Feet

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Table 1: Summary of Bulk Material Sampling Results, Greeley Fishing Pond Property

Sample ID	Friability	Field Notes	Asbestos Present	Asbestos Visual Estimate (%)	Asbestos Mineral	Positive Layer(s)	Laboratory Layer Description	UTM Easting	UTM Northing
A1-1	F	Fibrous pipe with orange/brown resinous coat.	NO	ND				528019	4470520
C3-1	F	Brown to black oily paper.	NO	ND				528051	4470523
D3-1	NF	Black plastic, white woven material, foam.	NO	ND				528059	4470521
D4-2	F	Gray, brittle textured material.	NO	ND				528065	4470525
D4-3	F	Black woven material.	NO	ND				528067	4470520
E5-1	NF	Gray, fibrous cement board. *Sample Abatement.	YES	25	Chrysotile	A	Gray/white fibrous cementitious material.	528075	4470523
E5-2	NF	Gray, hard, flat. *Sample Abatement.	NO	ND				528077	4470524
E5-3	NF	Black tar on concrete.	NO	ND				528076	4470525
E5-4	NF	Black tar on concrete.	NO	ND/ND				528085	4470522
E5-5	F	Black and gray shingle.	NO	ND				528084	4470526
E5-6	NF	Light gray and red shingle.	NO	ND				528084	4470526
E5-7	NF	White ceramic tile with gray grout.	NO	ND/ND				528088	4470522
E5-8	NF	Beige brick with dark speckles with grout.	NO	ND/ND				528088	4470523
E5-9	NF	Gray tile with black mastic.	YES	ND/8	Chrysotile	B	Off white tile.	528092	4470525
E5-10	NF	Green carpet with backing.	NO	ND				528083	4470531
F6-1	F	Green and black shingles.	NO	ND				528102	4470524
F6-2	F	White and black shingles.	NO	ND				528102	4470525
F6-3	NF	Gray tile with black mastic.	YES	ND/ND/15	Chrysotile	C	Gray/tan tile.	528103	4470525
F6-4	NF	Brick red tile with gray streaks and mastic.	YES	ND/12	Chrysotile	B	Red tile.	528103	4470525
H10-1	NF	Beige material with glossy white surface.	NO	ND				528125	4470518
H10-2	F	Black shingles.	NO	ND				528121	4470522
H10-3	F	Brown and black shingles.	NO	ND				528131	4470524
H10-4	F	Orange and black carpet with backing.	NO	ND				528129	4470528
H10-5	F	Sheet vinyl with tan and black design.	YES	20	Chrysotile	A	White/brown sheet vinyl with grayish white fibrous backing material.	528134	4470523
H11-1	F	Gray floor tile layered with white/orange vinyl flooring on concrete.	YES	ND/25/ND	Chrysotile	B	Brown/black sheet vinyl with off white fibrous backing material.	528130	4470563
H11-2	NF	Black tar-impregnated felt.	NO	ND				528136	4470555
H11-3	NF	Gray, weathered gasket.	NO	ND				528125	4470550
I13-1	NF	Black tar and felt layered.	YES	20/ND/ND	Chrysotile	A	Black fibrous tar with blcak tar.	528134	4470526
I13-2	F	Black tar-impregnated roofing.	NO	ND/ND/ND				528149	4470522
I13-3 (J16-1)	NF	Black tar-impregnated roofing with white sealant.	NO	ND/ND/ND				528160	4470542
I15-1	F	Black tar-impregnated roofing material.	YES	ND/20/ND	Chrysotile	B	Black fibrous tar.	528140	4470582
I15-2	F	White and brown fibrous painted.	NO	ND				528139	4470581
I15-3	F	White weathered dry wall.	NO	ND				528135	4470582
I15-4	NF	Gray fibrous cement board.	YES	15	Chrysotile	A	Gray fibrous cementitious material.	528135	4470583
I15-5	F	Black roofing material.	NO	ND/ND/ND				528138	4470586
I15-6	F	Brown particle board with black sealant.	NO	ND				528138	4470585
I-15-6	NF	Black tar-impregnated roofing.	YES	8/ND	Chrysotile	A	Balck tar. *Duplicate sample labeling*	528141	4470568
I-15-7	NF	Fibrous cement board	YES	12	Chrysotile	A	Gray fibrous cementitious material.	528141	4470567
J-17-1	F	White CMU grout	NO	ND/ND				528147	4470547
J-17-2	F	Vinyl flooring, orange with white chunk black backing. Located at multiple locations in grid.	YES	30	Chrysotile	A	Tan/brown flooring with black felt backing material.	528144	4470548
J-17-3	F	Vinyl flooring brown speckled backing with yellow squares, white backing. Located at multiple locations in grid.	YES	25	Chrysotile	A	Tan/brown sheet vinyl with off white fibrous bakcing material.	528146	4470547
J-17-4	NF	Gray floor tile with mastic, black on concrete.	YES	TR/ND/15	Chrysotile	A/C	Black mastic/Gray tile.	528148	4470548
J-17-5		Black tar-impregnated roofing material with gravel.	NO	ND/ND/ND				528146	4470559
J17A-1	NF	Fibrous cement board with criss-cross pattern.	NO	ND				528166	4470575

Table 1: Summary of Bulk Material Sampling Results, Greeley Fishing Pond Property

Sample ID	Friability	Field Notes	Asbestos Present	Asbestos Visual Estimate (%)	Asbestos Mineral	Positive Layer(s)	Laboratory Layer Description	UTM Easting	UTM Northing
J17A-2	NF	Black resinous tar.	NO	ND				528158	4470570
J17A-3	F	White vinyl flooring with light pink blocks with white backing.	YES	**25**	Chrysotile	A	Tan/gray sheet vinyl with gray fibrous backing material.	528157	4470570
L24-1	NF	Fibrous cement board.	YES	**15**	Chrysotile	A	Light gray fibrous cementitious material.	528173	4470586
N26-1	NF	Red and black fibrous rubber gasket.	NO	ND/ND				528272	4470579
N26-2	NF	Gray fibrous board.	YES	**80**	Chrysotile	A	Gray fibrous material.	528272	4470549
N26-3	F	Tar impregnated particle board.	NO	ND				528233	4470548
N27-1	NF	Orange and silver 3/4" fibrous pipe.	NO	ND				528282	4470574
N27-2	NF	Beige brick with side rivets and white and black granules.	NO	ND				528278	4470571
N27-3	NF	Black tar layers on asphalt.	NO	ND				528282	4470568
N27-4	F	Orange and white chunk vinyl flooring with beige backing.	YES	**25**	Chrysotile	A	Tan/off white sheet vinyl with off white fibrous backing material.	528279	4470566
N27-5	F	White woven material.	NO	ND				528277	4470566
N27-6	NF	Black sealant on CMU block. *Multiple locations*	YES	**9**/ND	Chrysotile	A	Black tar.	528278	4470571
N27-7	NF	Black sealant on concrete. *Multipel locations*	NO	ND				528275	4470562
N27-8	NF	Fibrous cement board. *Multiple locations*	YES	**15**	Chrysotile	A	Gray fibrous cementitious material.	528270	4470565
N27-9	NF	Black fibrous tar paper.	NO	ND/ND				528272	4470552
N27-10	F	White and red woven material.	NO	ND				528272	4470552
N27-11	NF	White chalk.	NO	ND				528273	4470551
N27-12	NF	Black fibrous tar.	NO	ND				528273	4470551
N27-13	NF	Electrical line containing white woven material.	NO	ND-All Layers(A-H)				528268	4470578
N27-14	F	Layered brown paper material inside metal disk.	NO	ND				528268	4470574
N27-15	F	Layered brown paper.	NO	ND/ND				528268	4470574
N27-16	F	White and black woven material.	NO	ND/ND				528262	4470573
O28-1	F	Beige carpet with multicolored backing.	NO	ND/ND/ND				528289	4470574
O28-2	F	Multiple layer roofing material, black and white, red granular.	YES	ND/ND/ND/**25**/ND/ND	Chrysotile	D	Black fibrous tar.	528297	4470556
O28-3	NF	Black globular tar.	NO	ND				528298	4470535

ND = Not Detected, TR = Trace, F = Friable, NF = Non-Friable

Red bold text = >1% asbestos content

Indicates sample is friable ACM

Indicates sample is nonfriable ACM

Appendix C

Photos and Descriptions of Friable ACM Areas

Refer to Friable Asbestos Areas Site Plan for Locations

H10-5

Multiple locations of sheet vinyl flooring over an approximate 12’x15’ area. Approximately 30 square feet of material visible. Some material is partially buried. Four corners of area in which material was observed are flagged.

H11-1

Approximately one square foot of sheet vinyl flooring. Location flagged.

I15-1

Multiple locations of roofing material over an approximate 55’ x 45’ area. Locations flagged.

I15-1

I15-1

J17A-3

Approximately 1 square foot of sheet vinyl. Location flagged.

J17-2/J17-3

Five locations of sheet vinyl. Locations flagged.

J17-2/J17-3

J17-2/J17-3

O28-2

Pile of deteriorated roofing material over an approximate 17’x12’ area.

Appendix D

Section 5 of CDPHE Regulations Pertaining to Solid Waste Sites & Facilities

(See Section 5.5.3 for Qualified Project Monitor Training Requirements, pp. 127-130)

SECTION 5

ASBESTOS WASTE MANAGEMENT

5.1 General Provisions

5.2 Non-Friable Asbestos Waste Disposal Areas

5.3 Friable Asbestos Waste Disposal Areas

5.4 Storage of Asbestos Waste

5.5 Management of Regulated Asbestos-Contaminated Soil (RACS)

- **5.5.1 Scope and Applicability**
- **5.5.2 Exemptions**
- **5.5.3 Training**
- **5.5.4 Response to Unplanned RACS Discovery**
  - (A) Immediate Actions
  - (B) 24-Hour Notification Requirements
  - (C) Interim Actions
- **5.5.5 Response to Planned RACS Management**
  - (A) Project Specific RACS Management Plan (PSRMP)
  - (B) Standard Operating Procedures (SOPs)
  - (C) Standard Requirements of Section 5.5.7
  - (D) Risk Based Approach
- **5.5.6 Remediation of Asbestos in Soil**
- **5.5.7 Standard Requirements for the Disturbance of RACS**
  - (A) Establishment and Control of a Regulated Work Area (RWA)
  - (B) Personal Protective Equipment (PPE) for the Purposes of Preventing Cross-Contamination
  - (C) Wetting
  - (D) Wind Speed Monitoring
  - (E) Air Monitoring
  - (F) Work Practices to be Followed During RACS Disturbance
  - (G) Loading and Placement of RACS
  - (H) Onsite Staging, Stockpiling, and Storage of RACS
  - (I) Decontamination
  - (J) RACS Spill Response
  - (K) Requirements for Exposed RACS Remaining in Place
  - (L) Documentation

5.5.8 Packaging and Disposition of Regulated Asbestos-Contaminated Soil (RACS)

(A) Disposal of RACS

(B) Onsite Reuse of RACS

(C) Demonstration of Non-RACS

5.5.9 Fees

Appendix 5A: Sample Collection Protocols and Analytical Methodologies

SECTION 5

ASBESTOS WASTE MANAGEMENT

5.1 GENERAL PROVISIONS: The provisions of Section 5.1-5.4 shall apply to all asbestos waste disposal areas.

5.1.1 (A) Any person who disposes of asbestos waste and any owner or operator of an asbestos waste disposal area, shall comply with the requirements of Sections 1, 2, 3, and 5 of these regulations.

(B) If a conflict exists between the requirements of this section and Sections 1, 2, or 3, the requirements of Section 5 shall control.

5.1.2 Each asbestos waste disposal area shall comply with the rules and regulations of the Department, the Water Quality Control Commission, the Air Quality Control Commission and each applicable local law and ordinance. Each asbestos waste disposal area shall be located, designed, constructed, operated and maintained so that it will protect public health, worker safety, and the environment.

5.1.3 No asbestos waste management activities shall cause or contribute to the occurrence of any visible emissions.

5.2 NON-FRIABLE ASBESTOS WASTE DISPOSAL AREAS: The provisions of this subsection 5.2 shall apply to each asbestos waste disposal area that receives non-friable asbestos waste.

5.2.1 Within 24 hours following receipt of non-friable asbestos waste and any storage thereof in accordance with Section 5.4 of these regulations, the waste shall be covered with a minimum of nine inches (9”) of soil or eighteen inches (18”) of non-asbestos cover material**.** The Department and local governing body having jurisdiction may approve on a case-by-case basis alternative materials of an alternative thickness. All other requirements of Sections 1.1 through 1.9 and 2.0 and 3.0 of these regulations regarding placement of "adequate cover" shall also apply to the disposal of non-friable asbestos waste. Operators shall minimize the potential for release from and exposure to asbestos waste after placement in each disposal area and shall not compact the waste prior to application of cover materials. At no time shall compaction equipment come into contact with asbestos waste, containers, or packaging.

5.2.2 Non-friable asbestos waste management shall be accomplished in a manner that minimizes any change in the friability of the waste**.**

5.3 FRIABLE ASBESTOS WASTE DISPOSAL AREAS: The provisions of this subsection 5.3 shall apply to each asbestos waste disposal area that receives friable asbestos waste.

5.3.1 (A) No friable asbestos waste shall be received or disposed of at a solid waste facility unless expressly authorized by an approved design and operations plan. This design and operations plan shall describe the friable asbestos disposal area, areas, or work practices used for onsite disposal of friable asbestos waste and shall contain provisions for a response to a spill or release of friable asbestos waste material.

5.3.2 The Department may approve specific disposal activities for friable asbestos waste on a case-by-case basis in accordance with Section 1.5 of these regulations.

5.3.3 No friable asbestos wastes shall be disposed of within one hundred feet (100') in all directions of the property line of a solid waste disposal site and facility.

5.3.4 Warning signs and fencing, or appropriate controls as approved by the Department, shall be installed and maintained at the perimeter of each asbestos waste disposal area where friable asbestos waste is disposed of, in accordance with the following minimum requirements:

(A) A fence shall be placed around the entire area where there has been or will be disposal of friable asbestos waste to ensure the restriction of activities in that area and to preclude the entry of unauthorized and unprotected personnel.

(B) Warning signs shall be displayed as follows: one at each entrance to each asbestos waste disposal area; and one or more on each side of the fenced area based on the length of the side, at a rate of one for every three hundred linear feet (300') of fence.

(C) Warning signs shall be posted in such a manner and in such locations that the legend can be easily read.

(D) Each warning sign shall be an upright rectangle with minimum measurements of twenty inches by fourteen inches (20"x14").

(E) Each warning sign shall display the legend set out below. The letter sizes used in the legend shall be as specified below or of a visibility at least equal to those specified below.

LEGEND	NOTATION
ASBESTOS WASTE DISPOSAL AREA	1 INCH
DO NOT CREATE DUST	0.75 INCH
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH	14 POINT

(F) Spacing between any two lines in the legend of the warning signs must be at least equal to the height of the upper of the two lines.

(G) Facilities that have existing signs referring to Asbestos Waste Disposal Sites may continue to use these signs until replacement is warranted.

5.3.5 (A) No friable asbestos waste shall be accepted for disposal unless it is tightly sealed in at least two 6 mil, leak-tight plastic bags or in a wrapping or other container deemed equivalent by the Department.

(B) The outermost layer of any containers holding friable asbestos waste shall be labeled with either of the following legends in type at least .5 inches tall:

(1)	CAUTION CONTAINS ASBESTOS AVOID OPENING OR BREAKING CONTAINER BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH
(2)	DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD

5.3.6 All activities involved in the disposal of friable asbestos waste, including placement in an asbestos waste disposal area, covering the asbestos waste, and compacting the fill shall be conducted in a manner that minimizes the potential for the rupture or opening of any bags, wrappers or other containers holding the friable asbestos waste and that prevents the emission of asbestos to the air.

5.3.7 (A) Within 24 hours following receipt of friable asbestos waste and any storage thereof in accordance with Section 5.4 of these regulations, the waste shall be covered with a minimum of nine inches (9”) of soil or eighteen inches (18”) of non-asbestos cover material**.** The Department and local governing body having jurisdiction may approve on a case-by-case basis alternative materials of an alternative thickness. All other requirements of Sections 1.1 through 1.9 and 2.0 and 3.0 of these regulations regarding placement of "adequate cover" shall also apply to the disposal of friable asbestos waste. Operators shall minimize the potential for release from and exposure to asbestos waste after placement in the disposal area and shall not compact the waste prior to application of cover materials. At no time shall compaction equipment come into contact with asbestos waste, containers or packaging.

5.3.8 Structurally rigid containers that hold friable asbestos waste shall be covered as specified in Section 5.3.7 within seventy-two hours of receipt or termination of storage. Precautions must be taken to avoid damage or rupture of the asbestos containers during handling. Before the owner/operator compacts any friable asbestos waste containers, the containers shall be covered with a minimum of nine inches (9”) of soil or eighteen inches (18”) of non-asbestos cover material.

5.3.9 (A) Any friable asbestos waste received in packaging other than a structurally rigid container shall be received and disposed of only if:

(1) An asbestos waste disposal area necessary for the disposal of such friable asbestos waste is prepared prior to the arrival of such waste at the landfill;

(2) A minimum of nine inches (9”) of soil or eighteen inches (18”) of non-asbestos cover material and the equipment necessary to cover the asbestos waste upon its placement in each asbestos waste disposal area is available to cover the asbestos waste per the requirements of Sections 5.3.7 and 5.3.8;

(3) All unrelated landfill activities within one hundred (100') feet in all directions of each asbestos waste disposal area are stopped during the placement, covering, and compaction of the asbestos waste;

(4) No non-essential persons are allowed within one hundred (100') feet in all directions of each asbestos waste disposal area during the placement, covering, and compaction of the asbestos waste;

(5) Sustained wind speeds at the asbestos waste disposal area do not exceed twenty miles per hour (20 mph) and gusts do not exceed thirty miles per hour (30 mph);

(6) A source of water is provided at the site to facilitate wetting the asbestos wastes if any container is breeched during placement of asbestos waste**.**

(B) Any friable asbestos waste received in packaging other than structurally rigid containers shall be disposed of by placement in an asbestos waste disposal area that is at least one hundred feet (100**'**) in all directions from any area being used concurrently for the disposal of other waste.

5.3.10 The owner or operator of an asbestos waste disposal area where friable asbestos waste has been disposed of shall:

(A) Maintain operating records required under subsection 2.4 of these regulations, including permanent records of the date and amount of each receipt of asbestos waste, the location of each asbestos waste disposal area within the boundaries of the solid waste disposal facility and the quantity of asbestos waste at each such location. These records shall be of sufficient specificity to identify the location and depth of the asbestos waste.

(B) Ensure that records made to comply with this subsection are readily available at all times and are made available to the local governing body having jurisdiction and the Department upon request.

(C) Such records shall be submitted to the local governing body having jurisdiction within thirty (30) days after the closure of the asbestos waste disposal area has been completed.

5.4 STORAGE OF ASBESTOS WASTE: Storage of asbestos waste at an asbestos waste disposal area, prior to burial, shall be conducted in accordance with the following requirements:

5.4.1 Asbestos waste shall be stored only in rigid containers and in segregated locations used solely for the purpose of such storage where asbestos waste packages can be handled, stored and maintained without being opened or disturbed.

5.4.2 Asbestos waste shall be stored at an asbestos waste disposal area for no more than twenty (20) calendar days prior to burial.

5.4.3 A warning sign shall be posted on each side of an area where asbestos waste is stored prior to burial. Such signs shall conform to subsection 5.3.4(C), (D) and (F). The legend on each such sign shall conform to the requirements of subsection 5.3.4(E) except that the first line shall read "Asbestos Waste Storage".

5.5 MANAGEMENT OF REGULATED ASBESTOS-CONTAMINATED SOIL (RACS):

5.5.1 SCOPE AND APPLICABILITY

The requirements of Section 5.5 apply to the owner or operator of any property with regulated asbestos contaminated soil (RACS) at which soil-disturbing activities are occurring or planned. The owner/operator may choose to follow the procedures set forth in Sections 5.5.1(A) and 5.5.1(B) below when debris is exposed or disturbed to determine if the debris is RACS. The requirements of Sections 5.5.1(C) and 5.5.1(D) apply when RACS is exposed or disturbed.

(A) Any person who disturbs debris or exposes debris during a soil disturbing activity shall characterize debris to determine the applicability of Section 5.5, and have appropriate personnel to characterize debris. Any person who disturbs debris or exposes debris during a soil disturbing activity shall:

(1) Conduct visual inspection of disturbed material;

(2) If debris is exposed during soil disturbing activities, and/or the soil or ash is known to contain asbestos fibers, through documented

evidence, then Section 5.5 is applicable. If there is no visible RACS or documented evidence of RACS at a site, an owner/operator does not have a duty under these regulations to sample or otherwise investigate for RACS prior to commencing soil disturbing activities;

(3) If debris is exposed that only contains green waste, and/or natural stone with no associated material suspected of containing asbestos fibers, then Section 5.5 is not applicable.

(4) In the event of an emergency in which a soil disturbing activity in an area of debris must continue or commence at once, a RACS determination in accordance with Section 5.5.1(B) may be postponed during the initial response to the immediate emergency. However, the RACS determination must be made within 48 hours of the initial emergency response.

(5) Any person who exposes but does not disturb debris during a soil disturbing activity shall have protocols to characterize debris as required by this section 5.5.1(A) and stabilize any debris determined to be RACS as required by Section 5.5.7(K), unless the debris is exempted by subsection 5.5.2(A) through (F).

(B) Any person who disturbs debris during soil disturbing activities, when the subject debris is not excluded within Section 5.5.1(A)(3), must inspect the debris, through continuous visual inspection during soil disturbing activities, to determine if the debris is, or contains, suspect asbestos-containing material (ACM). If debris is exposed that only contains metal, glass, plastic, wood, and/or bare concrete with no associated material suspected of being ACM (such as sealants, adhesives, mastics, coatings, adhered materials, or resins), then Section 5.5 is not applicable. The person(s) conducting the visual inspection must be a Qualified Project Monitor (QPM) or a Certified Asbestos Building Inspector (CABI).

All suspect ACM(s) must be:

(1) Assumed to be ACM; or

(2) Sampled by a CABI. The samples shall be analyzed by a National Voluntary Laboratory Accreditation Program (NVLAP) participating laboratory utilizing Polarized Light Microscopy (PLM) (EPA Method 600/R-93/116 or equivalent) to determine if it is ACM; or

(3) Determined to be ACM, or non-ACM, through the use of documentation specific to the material observed in the field establishing the asbestos content of the material (e.g. laboratory analysis results from previous encounters with the same material).

(4) The ACM determination shall be made within seven (7) calendar days of discovery of the debris.

(a) Within 24 hours of discovery of debris, and until the ACM determination is made, the debris shall be stabilized in accordance with Section 5.5.4(A)(3) of these regulations.
(b) No additional disturbance, other than necessary to perform the required stabilization in Section 5.5.4(A)(3), of the debris shall occur prior to the asbestos determination.

(5) A person who disturbs debris, determined or assumed to be or contain ACM per this 5.5.1(B), shall determine if the ACM is exempted in accordance with Section 5.5.2 of these regulations.

(6) A person who disturbs debris, determined or assumed to be or contain ACM per this 5.5.1(B), shall make a RACS determination by:

(a) Assuming the debris containing ACM is RACS and managing the RACS in accordance with Section 5.5 of these regulations; or
(b) Applying site and material specific knowledge of the presence or absence of RACS based on observation and/or documented evidence about the nature of ACM(s).

(7) The owner/operator shall retain, or make available for inspection, records of all RACS determinations onsite for the duration of the debris disturbance, which shall be retained by the owner/operator for a period of six (6) months after the completion of debris disturbing activities.

(C) Soil or ash known to contain non-visible asbestos, based on documented evidence, is RACS and if exposed or disturbed shall be managed in accordance with these regulations.

(D) If soil, ash, or debris is, or contains, RACS then:

(1) RACS that is exposed or disturbed shall be managed, disposed of, or reused in accordance with these regulations.

(2) Removal of ACM that is on, or comprises, a facility component, that is located on or in soil that will be disturbed, shall be conducted under this Section 5.5, in accordance with work practices in Air Quality Control Commission Regulation No. 8 (5 CCR 1001-10, Part B), Section III.V, and is not subject to the permit requirements of 5 CCR 1001-10, Part B, if the total quantity of ACM is below the following trigger levels:

(a) 260 linear feet on pipes; or
(b) 160 square feet on other surfaces; or
(c) The volume of a 55-gallon drum.

(3) RACS that is generated and not disposed of or reused in compliance with Section 5.5.8 of these regulations is solid waste and shall be managed in accordance with the landfill requirements of the Colorado Solid Wastes Disposal Sites and Facilities Act (C.R.S. 30-20, Part 1) and Sections 5.1 through 5.4 of these regulations.

(4) Except as provided in Section 5.5.1(D)(5), a person who disturbs or exposes RACS shall make the decision upon the initial discovery of RACS to either manage the RACS in accordance with Section 5.5, or cease soil disturbing activities and permanently stabilize the disturbed or exposed RACS to control the release of asbestos fibers in accordance with one of the following:

(a) Cover RACS with geofabric, or equivalent visible and physical barrier, and restore the site to pre-disturbance conditions using fill suitable for unrestricted use; or
(b) Cover RACS with geofabric, or other visible and physical barrier, followed by eighteen (18) inches of fill suitable for unrestricted use, and vegetation; or
(c) Cover RACS with geofabric, or other visible and physical barrier, followed by six (6) inches of fill suitable for unrestricted use, and concrete or asphalt; or
(d) Cover RACS with geofabric, or other visible and physical barrier, followed by fill suitable for unrestricted use to grade for vertical excavation faces or trenches; or
(e) Alternate cover designs as approved by the Department.

(5) RACS that is driven upon is an RWA and shall be kept adequately wet in order to prevent visible emissions from leaving the RWA, or demonstrate that asbestos is not leaving the RWA above risk based thresholds. All equipment surfaces that have come into contact with RACS shall be decontaminated per Section 5.5.7(I) before leaving the RWA.

5.5.2 EXEMPTIONS

(A) Removal of ACM on a facility component with asbestos quantities above the trigger levels, as defined in 5.5.1(D)(2), is subject to the permit and abatement requirements of Air Quality Control Commission Regulation No. 8 (5 CCR 1001-10, Part B), and is therefore not subject to this Section 5.5., but shall still comply with Sections 5.1 through 5.4 of these regulations.

(B) Spill response activities that are subject to the requirements of Air Quality Control Commission Regulation No. 8 (5 CCR 1001-10, Part B) are not subject to the requirements of Section 5.5, but shall still comply with Sections 5.1 through 5.4 of these regulations.

(C) Ambient occurrences of asbestos fibers in soil that are demonstrated to be the result of background conditions and not the result of site specific activities are not subject to the requirements of this Section 5.5. This background demonstration shall be submitted to, and approved by, the Department prior to the exemption being exercised.

(D) During active solid waste disposal operations, asbestos waste disposal areas that have a certificate of designation are not subject to Section 5.5, but shall comply with the facility's Engineering Design and Operations Plan.

(E) De minimis projects involving a total RACS disturbance of less than one (1) cubic yard, utilizing low-emission methods, are exempt from this Section 5.5, except for the decontamination procedures in Section 5.5.7(I) and the disposal requirements in Section 5.5.8.

(F) Projects conducted directly by a homeowner on their residence not used for the purpose of generating of income, including residential landscaping projects and other private residential soil-disturbing projects conducted after the primary dwelling is built, such as planting trees, digging holes for fence posts, installing sign posts, gardening,

other such projects conducted by homeowners on their residence, as described above, are not subject to this Section 5.5, but shall still comply with Sections 5.1 through 5.4 of these regulations.

(G) Soil disturbing activities involving Non-RACS, where no RACS is present or generated, are not subject to the requirements of Section 5.5, but Non-RACS must be disposed as non-friable asbestos waste in accordance with the disposal requirements set forth in Section 5.2 of these regulations.

(H) Soil disturbing activities involving debris that only contains metal, glass, plastic, wood, and/or bare concrete with no associated material suspected of being ACM (such as sealants, adhesives, mastics, coatings, adhered materials, or resins), as determined by a CABI, QMP, or generator knowledge, are not subject to the requirements of Section 5.5.

(I) Soil disturbing activities involving debris that only contains green waste or natural stone are not subject to the requirements of Section 5.5.

5.5.3 TRAINING

(A) All personnel inside the regulated work area (RWA) during the disturbance of RACS shall have annual awareness training. Except as provided in Section 5.5.3(F), this training requirement also applies to equipment operators and drivers of trucks carrying contaminated material for offsite disposal or reuse. This training shall cover information necessary to comply with Section 5.5 requirements and the approved project specific RACS management plan (PSMRP) or standard operating procedure (SOP) (if any) including:

1) General asbestos awareness; including health effects; and

2) Overview of the requirements of Section 5.5 and its implementation; and

3) Overview of suspect ACM that requires further evaluation by a CABI; and

4) Overview of RACS and Non-RACS; and

5) Worker protection, including respiratory protection. An overview of the levels of personal protective equipment (PPE) required for various activities and conditions; and

6) Decontamination requirements for equipment and personnel including the establishment of decontamination station(s); and

7) Engineering controls in order to prevent visible emissions from leaving the RWA or demonstrate that asbestos is not leaving the RWA above risk-based air thresholds; and

8) Overview of RACS handling procedures.

This training shall be conducted by a CABI who is familiar with the site specific plan and/or the Standard Requirements in Section 5.5.7. Records of this training shall be retained, by the owner/operator, and be available for inspection, for a minimum of one year from the date of the training.

(B) In addition to the annual asbestos awareness training required in 5.5.3(A), all personnel inside the RWA during the disturbance of RACS shall have per-project site-specific awareness training. Except as provided in Section 5.5.3(F), this training requirement also applies to equipment operators and drivers of trucks carrying contaminated material for offsite disposal or reuse. This training shall cover site-specific information necessary to comply with Section 5.5 and the selected management approach for the project (PSRMP, SOPs, or the standard requirements of Section 5.5.7), including:

1) An overview of the items from 5.5.3(A) as they pertain to site specific provisions and/or conditions that will affect work practices; and

2) Project chain-of-command and identification of authorized personnel with stop work authority, and identification of QPM(s); and

3) Hands on training specific to the soil disturbing activities the individual will be performing subject to this Regulation.

This training shall be provided by a CABI who meets the training requirements of 5.5.3(D). Records of this training shall be retained by

the owner/operator, and be available for inspection, for the duration of the project for which the training was conducted.

(C) Qualified Project Monitors shall have, at a minimum:

1) Annual asbestos awareness training and site specific awareness training under Section 5.5.3(A) and (B); and

2) Training from a CABI on identifying debris, exempted materials under Section 5.5.1(A)(3), and the assumption of debris to be RACS as outlined in Section 5.5.1; and

3) Training from a CABI on how to implement the standard requirements under Section 5.5.7 and how to perform the duties that a QPM may perform in lieu of a CABI; and

4) Training from a CABI on how to implement the provisions of the chosen RACS management approach (PSRMP, SOPs, or standard requirements of Section 5.5.7) and how to perform the duties that a QPM may perform in lieu of a CABI; and

5) Forty (40) verifiable hours of direct experience implementing Section 5.5.

Records of this training shall be retained by the owner/operator, and be available for inspection for the duration of the project for which the training was conducted.

(D) Visual Inspection and identification of RACS shall be conducted by a CABI, with forty (40) verifiable hours of on the job asbestos in soils experience on a minimum of three (3) different asbestos in soils projects, conducted under either AQCC Regulation No. 8 or Section 5.5. The CABI shall be independent of the general contractor (GC) and/or abatement contractor unless the CABI and the GC or abatement contractor are both direct employees of the property owner. However, the GC or abatement contractor may hire a subcontractor CABI, but the CABI shall not be a direct employee of the GC or abatement contractor.

(E) Air monitoring conducted in accordance with this Section 5.5 shall be performed by an Air Monitoring Specialist (AMS).

(F) Truck drivers who do not complete the training in 5.5.3(A) and (B) are ancillary workers. Soil disturbing activities must cease if the truck driver is present within the RWA unless the driver remains in the cab of the truck, the truck's windows and doors remain closed, and the air handling system remains off while the truck is inside the RWA.

5.5.4 RESPONSE TO UNPLANNED RACS DISCOVERY

Soil disturbing activities that expose RACS without previously approved plans are subject to the following requirements:

(A) IMMEDIATE ACTIONS: Immediate actions shall be taken by the person conducting the soil disturbing activity, or representative of the owner or operator, to manage RACS in accordance with Section 5.5 and Section 1.2 definitions of these Regulations. These actions shall include, at a minimum, the following:

(1) Stopping all soil disturbing activities related to RACS, until the 24-hour notification requirements in Section 5.5.4(B), and the interim action requirements in Section 5.5.4(C), are met. In the event of an emergency in which a soil disturbing activity must continue or commence at once, notification shall be made as soon as possible, but within 24 hours of identifying or assuming the presence of RACS within the soil disturbing area. During the initial response to the immediate emergency, the standard requirements of Section 5.5.7 shall be implemented to the extent possible. Within 48 hours, any disturbed and/or exposed RACS shall be managed in accordance with the standard requirements of Section 5.5.7, an approved PSRMP, or an approved SOP.

(2) Establishing and taking measures in order to prevent access to the RWA by unauthorized persons. Instances of unauthorized access not under the control of the owner/operator shall be evaluated to determine if additional access controls are warranted. The unauthorized access, and the response actions taken, shall be documented and provided to the Department within 48 hours of the incident.

(3) Conducting interim surface soil stabilization to reduce emissions including:

a. Polyethylene sheeting or geofabric with daily inspection, and inspection after storm events, and repair/replacement of sheeting as necessary to maintain stabilization; or
b. Chemical stabilizer demonstrated to be effective in the stabilization of RACS (e.g. magnesium chloride) with weekly inspection, and inspection after storm events, and re-application of chemical stabilizer as necessary to maintain stabilization; or
c. Minimum of three (3) inches of soil appropriate for unrestricted use; or
d. Other means of stabilization as approved by the Department.
e. Stabilization is not required if RACS is kept adequately wet. Verification of adequately wet conditions shall be conducted at least every two (2) hours, or RACS shall be stabilized by one of the methods described in (3)(a-d) above.

(B) 24-HOUR NOTIFICATION REQUIREMENTS: The owner/operator, or owner/operator representative shall submit a completed Notification of RACS Disturbance form to the Department's Hazardous Materials and Waste Management Division within 24 hours of identifying RACS during a soil disturbing activity.

(C) INTERIM ACTIONS: In accordance with Section 5.5.5, the owner/operator, or owner/operator representative, shall submit to the Department's Hazardous Materials and Waste Management Division, for review and approval, within five (5) workings days of the discovery, a PSRMP, SOPs, or indicate the standard requirements of Section 5.5.7 will be followed on the Notification of RACS Disturbance form submitted to the Department.

(D) Once the requirements of Sections 5.5.4(A), (B), and (C) are completed, any soil disturbing activities shall proceed in accordance with applicable requirements.

5.5.5 RESPONSE TO PLANNED RACS MANAGEMENT

Planned soil disturbing activities involving RACS shall be conducted in accordance with the standard requirements identified in Section 5.5.7, and with one of the following management strategies and the associated notification requirement:

(A) PROJECT SPECIFIC RACS MANAGEMENT PLAN (PSRMP);

(1) The owner/operator, or owner/operator representative, shall submit a completed Notification of RACS Disturbance form to the Department's Hazardous Materials and Waste Management Division at least ten (10) working days prior to any planned soil disturbing activity. This notification shall include submittal of a PSRMP conforming to the requirements of Section 5.5.5(A)(2). The Department will acknowledge receipt of a notification of the intent to utilize a PSRMP by mail or electronic correspondence. The PSRMP shall be approved by the Department prior to implementation.

(2) If the owner/operator choose(s) management in accordance with this Section 5.5.5(A), a PSRMP shall be developed and submitted to the Department's Hazardous Materials and Waste Management Division for review and approval prior to implementation. The Department will use its best efforts to review and respond to the plan within ten (10) working days of receipt. The PSRMP shall include the following:

(a) Property representative's name and phone number; and
(b) Property location; and
(c) General site description, including a description of RACS and the types of known or assumed ACM(s), and the location(s) of these material on the site; and
(d) Description of planned soil disturbing activities; and
(e) Description of site management, emission control activities, and work practices to control the release of, and/or exposure to, asbestos outside of the RWA including:

(i) Measures to assure that the soil is adequately wet (as that term is defined in Section 1.2 of these regulations), stabilized, or covered during soil disturbing activities; and
(ii) Wind speed monitoring during RACS disturbance, including frequency of monitoring, and shutdown and start up criteria; and
(iii) An air monitoring plan designed to detect asbestos at the perimeter of the RWA as an indication that the measures to control the release of asbestos outside of the RWA are effective. The plan may include a tiered air monitoring approach providing less frequent air monitoring given demonstrated effectiveness of work practices; and

(iv) Work practices specific to mechanical and/or hand disturbance of RACS including measures in order to prevent the release of visible emissions outside of the RWA, or demonstrate that asbestos is not leaving the RWA above risk-based air thresholds; and

(v) Work practices for the loading and placement of RACS including spill prevention procedures.

(vi) The owner /operator has the option to erect a structure maintained at a negative pressure differential sufficient to contain all dust, with off-gas from the evacuation system treated with HEPA filtration. If this option is chosen, the requirement to submit an air monitoring plan, under Section 5.5.5(A)(2)(e)(iii) is not applicable.

and

(f) Description and location of any planned sampling. All sampling shall be performed in accordance with the procedures set forth in Appendix 5A. All investigation derived waste shall be managed in accordance with Section 5.5.8.

(3) A copy of the PSRMP shall be maintained on the site during RACS disturbing activities.

(4) At the option of the owner/operator and upon notice to the Department, a Soil Characterization and Management Plan approved prior to the effective date of this amended Section 5.5, and that complies with the substantive requirements of the regulation prior to amendment, shall remain in effect until the completion of the subject project or until it is replaced by a PSRMP.

(B) STANDARD OPERATING PROCEDURES (SOPs)

(1) The owner/operator, or owner/operator representative, shall notify the Department's Hazardous Materials and Waste Management Division, by submitting a completed Notification of RACS Disturbance form, prior to implementation of the previously approved SOPs at a RWA. SOPs that conform to Section 5.5.5(B)(2) shall be approved by the Department prior to implementation. The Department will acknowledge receipt of a notification of the intent to utilize an SOP by mail or electronic correspondence.

(2) If the owner/operator chooses management in accordance with this Section 5.5.5(B), the owner/operator shall develop and submit to the Department's Hazardous Materials and Waste Management Division, for review and approval, thirty (30) calendar days in advance of any RACS disturbing activities, SOPs that conform with Section 5.5.5(A)(2)(a) – (f) that will be implemented, upon notice to the Department per Section 5.5.5(B)(1), at future RWA(s). A copy of the SOPs shall be maintained on site during RACS disturbing activities for the duration of the Project.

(3) At the option of the owner/operator and upon notice to the Department, a SOP approved prior to the effective date of this amended Section 5.5, and that complies with the substantive requirements of the regulation prior to amendment, shall remain in effect and may be used to comply with the amended regulation.

(C) STANDARD REQUIREMENTS OF SECTION 5.5.7

The owner/operator, or owner/operator representative, shall submit to the Department's Hazardous Materials and Waste Management Division a completed Notification of RACS Disturbance form indicating the intent to utilize the standard requirements of Section 5.5.7, as a default RACS management plan, prior to any planned soil disturbing activity. This notification shall include property location, general site description, and contact information for the owner/operator responsible for the RWA activities. The Department will acknowledge receipt of a notification of the intent to utilize the standard requirements of Section 5.5.7 by mail or electronic correspondence.

(D) RISK BASED APPROACH

The owner/operator may choose to submit, for Department review and approval, a site-specific risk assessment work plan to evaluate the risks of the proposed work practices associated with planned disturbance activities in an area or areas of RACS.

5.5.6 REMEDIATION OF ASBESTOS IN SOIL

(A) Remediation is not required of properties at which ACM, RACS, or asbestos waste is located. If the owner of a property chooses to remediate (rather than just manage) all or a portion of the property containing ACM, RACS, or asbestos waste a Remediation Plan shall

be submitted to the Department's Hazardous Materials and Waste Management Division for review and approval prior to commencement of activities associated with the remediation. The Remediation Plan shall comply with this Section 5.5, and include the following:

(1) The standard requirements in accordance with Section 5.5.7, and the plan requirements outlined in Section 5.5.5(A). Alternatively, a risk based approach pursuant to Section 5.5.5(D) may be proposed, for Department review and approval, for disturbance of RACS; and

(2) A detailed description of planned remediation activities, including proposed depth and areal extent of remediation, and work practices to be implemented; and

(3) The proposed use of the property and area of remediation; and

(4) Any planned engineering or institutional controls in order to prevent exposure to any asbestos left in place, or minimize exposure below a risk-based concentration approved by the Department, within the area covered by the Remediation Plan, and

(5) A schedule for submittal of a Remediation Completion Report that incorporates the information from Section 5.5.7(L) and any additional information necessary to demonstrate that the remediation goals have been achieved.

(B) The Department shall use its best efforts to provide written notification that a Remediation Plan has been approved or disapproved within no more than forty-five (45) calendar days after a request by a property owner, unless the property owner and the Department agree to an extension of the review to a date certain.

(C) If a remedial decision is made by the Department, the area subject to the remedial decision may be subject to C.R.S. Section 25-15-320(2), and an environmental covenant may be required for waste left in place.

5.5.7 STANDARD REQUIREMENTS FOR THE DISTURBANCE OF RACS

The requirements of this section, if followed in their entirety, constitute a default RACS management plan, eliminating the need to submit a PSRMP or SOP.

(A) ESTABLISHMENT AND CONTROL OF A REGULATED WORK AREA (RWA)

(1) Requirements for establishment and control of a RWA applicable to all projects subject to this Regulation:

(a) Establish a RWA which is identifiable to all persons. Haul roads between RWAs, where RACS is not present, are considered to be outside the RWA(s); however, equipment decontamination [Section 5.5.7(I)] and spill response procedures [Section 5.5.7(J)] shall be followed; and

(b) Stop all soil disturbing activities in the RWA if ancillary workers or members of the public are present within the RWA. Truck drivers who do not complete the training under Sections 5.5.3(A) and (B) are ancillary workers. Soil disturbing activities must cease if the truck driver is present within the RWA unless the driver remains in the cab of the truck, the truck's windows remain closed, and the air handling system remains off while the truck is inside the RWA; and

(c) Post labeling and signage to demarcate RWA(s). The RWA shall be demarcated by visible means that fully defines the extent of the RWA. Labeling and signage shall indicate the presence of asbestos, and that the area is off limits to unauthorized personnel.

(2) **Additional Requirement for Projects Disturbing RACS Containing Friable ACM.** Establish a secured work site (e.g., fencing with locks/zip-ties/chains). Personnel, or staff assigned to this duty, may be used to secure the RWA in lieu of fencing. If the RWA is located within a larger secure facility, fencing of the RWA is not necessary as long as the RWA is secured.

(B) PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR THE PURPOSES OF PREVENTING CROSS-CONTAMINATION

(1) Requirements applicable to all RWAs subject to this Regulation:

(a) Use of disposable booties or impermeable footwear that will be decontaminated per Section 5.5.7(I); and
(b) Use of disposable gloves or impermeable gloves that will be decontaminated per Section 5.5.7(I); and
(c) Replace or decontaminate (per Section 5.5.7(I)) all PPE in all instances where the integrity of the PPE is compromised, and when workers exit the RWA; and
(d) Decontaminate (per Section 5.5.7(I)) or dispose of all used PPE as asbestos contaminated waste.

(2) **Additional Requirement Applicable to Projects at RWAs Containing Friable ACM.** Use of disposable impermeable suits or equivalent coveralls, remove suits or coveralls upon exiting the RWA, and dispose of used suits or coveralls as asbestos contaminated waste.

(C) WETTING

(1) Wetting requirements applicable to all RACS disturbance:

(a) Adequately wet all RACS and soils, or other materials containing RACS, on the surface and in the sub-surface prior to and during RACS disturbance, except as provided in Section 5.5.7(F)(1)(b)(ii). Pre-wetting is not necessary if soils are already adequately wet. Apply water or amended water (as required in Section 5.5.7(C)(2)) at low pressure in order to minimize dust generation and splattering to prevent visible emissions from leaving the RWA, or demonstrate that asbestos is not leaving the RWA above risk-based thresholds.
(b) Mist RACS and soils, or other materials, containing RACS during placement as needed to maintain the material in an adequately wet condition using equipment mounted spray bars, or additional hose operator(s).
(c) Except as provided in (d) below, incidental occurrences of visible emissions leaving the RWA shall be managed by evaluating site conditions and engineering controls for each occurrence of visible emissions, and immediately implementing

any identified engineering control revisions necessary in order to prevent future occurrences of visible emissions. All instances of visible emissions leaving the RWA shall be documented as required in Section 5.5.7(L) of this regulation.

(d) When utilizing the risk-based air monitoring threshold approach to evaluate the effectiveness of adequately wetting, visible emissions are allowed to leave the RWA as long as the risk-based air threshold is not exceeded.

(2) **Additional requirement for RACS that contains friable ACM.** Use amended water containing a wetting agent, such as a 50:50 mixture of polyoxyethylene ester and polyoxyethylene ether, or the equivalent, in a 0.16 percent solution (1 ounce to 5 gallons) of water, or as per manufacturer recommendations for the wetting of asbestos. This requirement may be waived by the Department for emergency situations where the work must occur immediately and wetting agents are not available.

(D) WIND SPEED MONITORING

(1) Requirements applicable to all projects involving mechanical disturbance of RACS, and hand disturbance of RACS containing friable ACM:

(a) Take wind measurements from within the RWA using a hand held anemometer. Alternatively, or in conjunction with hand held measurements, an onsite weather station may be used within a quarter mile of the RWA as long as the conditions measured by the weather station are representative of conditions in the RWA.

i. Collect wind speed measurements at a minimum of thirty (30) minute intervals and during wind gust(s). Average wind speed measurements shall be obtained manually by taking ten readings at one minute intervals and averaging the ten readings, or through the use of instrumentation that provides a ten minute average wind speed reading.
ii. If wind break barriers are used, wind speed measurements may be taken from within barriers; however, wind speed measurements shall also be taken outside the wind break barriers if any RACS disturbing activities, such as loading, are taking place outside or above the barriers. Wind speed

shut-down criteria shall be based on measurements taken that are representative of the area of active RACS disturbance.

(b) Immediate stoppage of all RACS disturbance shall occur based on results of wind speed monitoring conducted in accordance with subsection (a) and exceedance of the following criteria:

i. Wind gust(s) in excess of 20 mph, or
ii. Sustained winds in excess of 12 mph, averaged over ten (10) minutes, or
iii. Winds are interfering with the ability of engineering controls to work as intended, or
iv. Winds are creating visible emissions that leave the RWA.

(c) RACS disturbance may resume when all of the following criteria are met:

i. No gust(s) in excess of 20 mph occur for twenty (20) minutes, and
ii. No sustained winds in excess of 12 mph occur for twenty (20) minutes, based on a ten (10) minute average wind speed measurement, and
iii. Winds are not interfering with the ability of engineering controls to function as intended, and
iv. Winds are not creating visible emissions that leave the RWA.

(E) AIR MONITORING

(1) If using the risk-based air threshold approach to monitor the effectiveness of adequately wetting:

(a) Air monitoring to determine asbestos content of visible emissions allowed to leave the RWA, for comparison to the risk-based air thresholds shall not be utilized for projects that are less than ten (10) days in duration.
(b) Air monitoring to determine asbestos content of visible emissions allowed to leave the RWA, for comparison to the risk-based air thresholds, shall begin on the first day of the project.
(c) A minimum of four (4) air samples per day shall be collected for TEM analysis.
(d) Sample collection, analysis, and data evaluation shall be conducted in accordance with Appendix 5A.

(2) If preventing visible emissions leaving the RWA as an indication of the effectiveness of work practices, not for risk evaluation, air monitoring is required during mechanical disturbance of RACS in RWAs with an adjacent receptor zone:

(a) No air monitoring is required for RACS disturbance that will not exceed a duration of two (2) days. However, the requirements for adequate wetting (Section 5.5.7(C)) and no visible emissions leaving the RWA (Section 5.5.7(F)) shall be adhered to on all RACS disturbance projects. Dividing projects into multiple two (2) day or shorter components shall not be used as a mechanism to avoid air monitoring requirements.

(b) Area monitoring shall consist of a minimum of four (4) samples collected on the perimeter of the RWA at appropriate intervals to provide representative information regarding potential releases of asbestos fibers to the adjacent receptor zone(s). Additional samples shall be collected for large perimeter RWAs (greater than one (1) acre). RWAs greater than one (1) acre shall require additional perimeter monitoring points be added at a rate of one (1) sample for every 200 linear feet (or approximately each additional ¼ acre). If representative information about potential releases to the adjacent receptor zone(s) can be collected using less than the minimum number of samples, the remaining sample locations shall be at the discretion of the AMS.

(c) Phase Contrast Microscopy (PCM) analysis is required on all samples collected (unless all samples will be analyzed by Transmission Electron Microscope (TEM) by default). The laboratory shall be requested to provide verbal results to the AMS or the QPM by the start of the next working day, or as soon as possible after the start of the next working day, with written results within 24 hours of the receipt of verbal results. A consultation with the Department is required If this timeframe cannot be met by the laboratory.

(d) Upon receipt of a laboratory report indicating a “cannot be read (CBR)”, or a “not analyzed (NA) or rejected” due to loose debris or uneven loading, analysis result:

i. The AMS shall evaluate the lab report and any field documentation to determine a possible cause for the CBR or "not analyzed (NA) or rejected" result; and
ii. If the CBR or "not analyzed (NA) or rejected" cannot be correlated to a specific field event that compromised the sample (e.g. the sample was blown over, the filter of the sample was sprayed with water) then the sample shall be prepared for indirect TEM presence/absence analysis to determine potential asbestos content in accordance with Appendix 5A; and
iii. If the CBR or "not analyzed (NA) or rejected", analysis result can be correlated to a compromised sample, then preparation for indirect TEM presence/absence analysis is not required as long as adequate air monitoring data is available to evaluate the effectiveness of engineering controls. However, overloading of a sample with particulate matter does not constitute a compromised sample, and will require indirect preparation for TEM presence/absence analysis; and
iv. Field personnel shall evaluate why the sample was compromised and modify field procedures as necessary to avoid future samples from being compromised; and
v. The Department project manager shall be notified by phone or email of instances of CBR or "not analyzed (NA) or rejected" analysis results within 24 hours of receipt of verbal results.

(e) TEM presence/absence analysis is required (analysis providing fiber counts/concentrations is always optional) as described in paragraphs (i) through (iv) below. The laboratory shall be requested to provide verbal results by the start of the next working day, or as soon as possible after the start of the next working day, with written results within 24 hours of the receipt of verbal results.

i. All samples, required by this Section 5.5, with PCM results having fiber concentrations greater than 0.01f/cc shall be submitted for TEM analysis.
ii. During the first five (5) days of RACS disturbance – A minimum of 25% of the samples collected from each RWA, inclusive of the downwind floating samples as described in 5.5.7(E)(2), shall be submitted for TEM analysis. The

sample(s) selected for TEM analysis shall have the highest PCM result(s) based on fiber concentration. If all PCM results are Below Detectable Limit (BDL) for fiber concentration, then the sample(s) selected for TEM analysis shall be determined by highest fiber count. If all samples have no fiber counts (i.e. zero (0) fibers counted, not a "below detection limit" fiber concentration) then no TEM analysis is required.

iii. After five (5) days of RACS disturbance with no asbestos detections by TEM analysis, the frequency of analysis by TEM, on the highest 25% of PCM results(s), may be reduced to once every five (5) days of RACS disturbance, or portions thereof, using the same selection criteria as in paragraphs (i) and (ii) above. The samples submitted for TEM analysis during the period of reduced frequency TEM analysis shall be either the first occurrence of: 1) high winds exceeding wind shut down criteria, or 2) visible emissions. In the absence of high wind events or visible emissions the selected day for TEM analysis may be random, as determined by the AMS.

iv. If there are any asbestos detections during the random once every five (5) days of RACS disturbance analysis by TEM, then TEM analysis shall be conducted for the next three (3) consecutive days of RACS disturbance, or portions thereof, using the same procedures as in paragraph (i) and (ii) above. If there are no additional asbestos detections during the next three (3) consecutive days of RACS disturbance with samples submitted for TEM analysis, then the frequency of TEM analysis may return to random once every five (5) days of RACS disturbance.

v. If site conditions, friability of the materials being managed, or work practices change, then the initial five (5) days of TEM analysis shall restart using the provisions set forth in this Section 5.5.7(E)(1)(e).

(f) Detection or presence responses - For each detection of asbestos by TEM analysis, the following shall be conducted:

i. Notify the Department project manager by phone or email, on the same calendar day as receipt of verbal or written results (whichever comes first) from the laboratory.

ii. Evaluate site conditions and engineering controls for each detection, and immediately implement any identified

engineering control revisions necessary with the goal of preventing future detections of asbestos fibers.

iii. Submit an Emission Control Plan (ECP) to the Department project manager for each detection (days with multiple detections can be addressed by a single ECP). The ECP shall be submitted within 48 hours from the asbestos detection event and shall contain:

1. The date of the detection.
2. A written description of sample details (sample ID, number of structures detected, type of asbestos detected, PCM analytical result) and any potential cause of the release. Include a description of site activity (engineering controls being employed, equipment being used, size of excavation/soil disturbing activity, types of materials identified, etc.) and CABI observations at the work area before and during the presumed time of release.
3. A diagram or write up of all air sample positions clearly indicating which sample received the TEM detection. Indicate, through illustration or description, prevailing wind direction and average wind speeds for the detection event; include any wind speed shutdowns for the date of detection. If applicable, indicate downwind floater air sample relocation times and new positions through illustration or description.
4. Laboratory reports confirming the type and amount of fibers detected by TEM analysis.
5. Other pertinent information that will additionally describe the release and/or will assist in the prevention of future releases from the RWA.
6. A written description of actions taken and any other proposed actions with the goal of preventing future releases from the RWA.
7. If the owner/operator believes fibers are coming from offsite and are not under the control of the owner/operator, then, in addition to the information provided in the ECP, documentation shall be provided demonstrating additional sources of asbestos fibers.

(g) If there are three (3) TEM detections on consecutive analysis events or ten (10) detections for a single project, consultation with the Department is required to determine if the standard requirements of Section 5.5.7 are being implemented appropriately and whether:

i. Changes in the standard requirements of Section 5.5.7 are likely to prevent future releases; or
ii. Changes in the standard requirements of Section 5.5.7 are not likely to prevent future releases and a PSRMP is necessary per Section 5.5.5(A)(2); or
iii. If the owner/operator believes fibers are coming from offsite and are not under the control of the owner/operator, then, in addition to the information provided in the ECP, documentation shall be provided demonstrating additional sources of asbestos fibers. Air samples shall be collected and analyzed following the analytical procedures of Appendix 5A for the type of project being conducted; and
iv. Additional consultation with the Department is required to determine whether additional engineering controls for structures within the adjacent receptor zone are appropriate.

(3) **Additional requirement for projects disturbing RACS containing friable ACM.** Collect two (2) additional downwind floating samples for mechanical disturbance of RACS containing friable ACM. The samplers shall be moved based on prevailing wind direction and adjacent receptors. For example, if adjacent receptors are present on only one side of the RWA, one sample location should be maintained between the RWA and the adjacent receptor.

(F) WORK PRACTICES TO BE FOLLOWED DURING RACS DISTURBANCE

(1) Work practice requirements applicable to all management of RACS:

(a) Prevent visible emissions from leaving the RWA, or demonstrate that asbestos is not leaving the RWA above risk based thresholds by:

i. Excavating in lifts not to exceed the extent of wetting; or

ii. Conducting continuous wetting while mixing dry materials at the point of RACS disturbance to ensure all materials are adequately wet prior to removal from the excavation.
iii. Instances of visible emissions leaving the RWA shall be documented and addressed by changing or increasing controls (e.g. more effective wetting, reduced speed of excavation).

(b) RACS on exposed excavation faces that will be disturbed and/or managed during the project shall either be kept adequately wet (in accordance with Section 5.5.7(C)), or be stabilized using any of the following in order to prevent visible emissions from leaving the RWA, or demonstrate that asbestos is not leaving the RWA above risk based thresholds:

i. Polyethylene sheeting or geofabric with daily inspection, and inspection no later than twelve (12) hours following a storm event, and repair/replace sheeting as necessary to maintain stabilization; or
ii. Chemical stabilizer demonstrated to be effective in the stabilization of RACS (e.g. magnesium chloride) with weekly inspection, and inspection no later than one (1) calendar day following a storm event, and re-application of chemical stabilizer as necessary to maintain stabilization; or
iii. Minimum of three (3) inches of soil appropriate for unrestricted use.

(c) Stormwater shall be managed in accordance with the Water Quality Control Commission's stormwater regulations (5 CCR 1002-61), which include specific stormwater permitting and management requirements for construction sites. The Water Quality Control Division should be contacted to determine the specific requirements for each project. Stormwater shall be managed in a manner that minimizes run on and runoff from RACS. Stormwater that comes into contact with RACS shall be treated as asbestos contaminated water in accordance with Section 5.5.7(J)(4), and other material(s) impacted by asbestos contaminated stormwater shall be managed as RACS in accordance with Section 5.5.7(J)(3).

(2) Work Practice requirements applicable to the management of RACS using hand methods on surfaces or in the subsurface:

a. Wet and remove the RACS and six (6) inches, in all directions, of surrounding soil or other material from the last occurrence of visible ACM; and

b A CABI shall confirm that the visible extent of ACM and surrounding soil, or other material, has been removed (or extent of excavation has been reached). If RACS remains, it shall be managed for stabilization or future removal. If there is no documented evidence of non-visible RACS at the site, then a visual inspection and clearance shall be sufficient to determine the removal of RACS. If there is documented evidence of non-visible RACS at the site, sampling is required to confirm the removal of RACS. After the removal of the additional six (6) inches, and in the absence of any debris, a QPM may make the determination that RACS has been removed; and

c. If RACS remains in the RWA, it shall be managed for stabilization, per Section 5.5.7(K), or future removal.

d. In lieu of stabilization or full removal, sampling may be performed per Section 2.2 of Appendix 5A to demonstrate that the material is not RACS.

e. Dispose of RACS in accordance with Section 5.5.8.

(3) Work practice requirements applicable to management of RACS using mechanical methods:

a. For surface occurrence of RACS - Wet and remove all RACS and a minimum of six (6) inches of soil, and/or other matrix material, in all directions from the last occurrence of visible ACM, with CABI confirmation that the visible extent of RACS has been removed.

b. For subsurface occurrence of RACS - Wet and remove all RACS and a minimum of three (3) linear feet of soil or other matrix material, in the direction(s) of planned excavation, with CABI confirmation that the visible extent of RACS has been removed. If there is no documented evidence of non-visible

RACS at the site, then a visual inspection and clearance shall be sufficient to determine the removal of RACS. If there is documented evidence of non-visible RACS at the site, sampling is required to confirm the removal of RACS. After the removal of the additional three (3) linear feet, and in the absence of any debris, a QPM may make the determination that RACS has been removed.

c. If RACS remains in the RWA, it shall be managed for stabilization, per 5.5.7(K), or future removal.

d. In lieu of stabilization or full removal, sampling may be performed per Appendix 5A to demonstrate that the material is not RACS.

e. Package and dispose of RACS in accordance with Section 5.5.8.

(4) Soil or other matrix material that remains after removal of RACS in accordance with Section 5.5.7(F), Section 5.5.7(H)(1)(c)(i), or an approved plan, is not considered RACS, is not subject to Section 5.5, and may be appropriate for unrestricted use, onsite or offsite, as long as it does not contain any other regulated material.

(G) LOADING AND PLACEMENT OF RACS

(1) Requirements for the loading of RACS:

(a) Protect clean surfaces (including loading surface and truck or disposal container surfaces that may come in contact with RACS) by covering or decontamination of surfaces prior to transport or removal of the truck or disposal container from the RWA and/or loading zone.

(b) Spill prevention shall consist of:

i. Minimization of spillage by not overfilling the excavator or loader bucket and returning the bucket to a closed position prior to moving from the loading point; and
ii. Replacement of protective coverings when worn or damaged in order to prevent breaches; and
iii. Control of runoff in order to prevent cross contamination from water containing asbestos; and

iv. Mitigation of spills of RACS in accordance with Section 5.5.7(J).

(c) During the process of loading the container, the equipment operator shall lower the bucket as close as possible to the interior of the container before dumping, and dump the load slowly to allow adequate misting and in order to prevent visible emissions from leaving the RWA, or demonstrate that asbestos is not leaving the RWA above risk based thresholds.

(2) Requirements for the transportation of RACS:

(a) Onsite transportation of RACS between the RWA and an onsite area of staging, stockpiling, storage, disposal or reuse shall comply with the following:

i. The packaging requirements for RACS set forth in Section 5.5.8(A) of these regulations are not applicable; however, the decontamination requirements of Section 5.5.7(I) shall be followed at the end of disposal operations, or before disposal equipment is removed from the site; and
ii. Driving speeds shall not exceed 12 miles per hour or RACS shall be covered during transport; and
iii. For transportation between the RWA and a non-contiguous onsite staging, stockpiling, storage, disposal, or reuse area:

1. Transportation equipment tires shall not contact RACS; or
2. RACS that is driven upon is a RWA and shall be kept adequately wet in order to prevent visible emissions from leaving the RWA, or demonstrate that asbestos is not leaving the RWA above risk based thresholds, and all equipment surfaces that have come into contact with RACS shall be decontaminated per Section 5.5.7(I) before leaving the RWA; or
3. The haul road shall be managed as RACS for stabilization, per Section 5.5.7(F)(1), and future removal of a minimum of three (3) inches of soil, or other matrix material. If the road is constructed of a durable surface such as concrete or asphalt, the surface shall be decontaminated in accordance with Section 5.5.7(I)(1)(b) using wet methods, followed by CABI inspection verifying that all soil and debris has been removed from the

surface. Rinsate/runoff shall be collected and filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will be managed under these regulations.

(H) ONSITE STAGING, STOCKPILING, AND STORAGE OF RACS

(1) Staging, as defined in Section 1.2 of these regulations, is the accumulation and temporary storage of RACS in the RWA for 12 hours or less. The following requirements shall apply to the staging of RACS:

(a) Staged RACS shall be kept adequately wet.

(b) Staging of RACS shall be on 6 mil, or greater, polyethylene sheeting or shall include removal, and management as RACS, of a minimum of three (3) inches of material, from below the staging pile/area prior to demobilization; with visual or measured confirmation of removal. If polyethylene sheeting is placed on top of a durable surface such as concrete or asphalt, the surface must be decontaminated using wet methods, followed by CABI inspection verifying that all soil and debris has been removed from the surface. Rinsate/runoff shall be collected and filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will be managed under these regulations.

(c) Material determined to be clean during generation shall be inspected during placement for staging. Staging of clean material with incidental discovery of RACS shall be managed as follows:

i. If a CABI was continually inspecting the material during generation, remove the piece of ACM and one (1) foot of material in all directions, with CABI confirmation that the visible extent of RACS has been removed. If more than one (1) piece of ACM, or a pocket of ACM is discovered, remove the pocket of ACM plus one (1) foot of material in all directions, with CABI confirmation that the visible extent of RACS has been removed. Material that remains after removal of RACS, and CABI visible confirmation, is not

considered RACS, is not subject to Section 5.5, and may be appropriate for unrestricted reuse, onsite or offsite, as long as it does not contain any other regulated material.

ii. If a CABI was not continually inspecting the material during generation, an intrusive inspection of the pile shall be conducted to determine the extent of RACS contamination, followed by the removal of the visible extent of contamination plus removal of one (1) foot of material in all directions. Alternatively, the entire pile, plus three (3) inches of material below the pile, shall be removed and managed as RACS. If the pile was placed on top of a durable surface such as concrete or asphalt, the surface shall be decontaminated using wet methods, followed by CABI inspection verifying that all soil and debris has been removed from the surface. Rinsate/runoff shall be collected and filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will be managed under these regulations.

(2) Stockpiling, as defined in Section 1.2 of these regulations, is the accumulation and storage of RACS that will exist for more than twelve (12) hours, up to and including ten (10) calendar days. The following requirements shall apply to stockpiled RACS:

(a) Stockpiled RACS shall be placed on a minimum of 6 mil polyethylene sheeting or shall include removal, and management as RACS, of a minimum of three (3) inches of soil, or other matrix material, from under the entire area of RACS stockpiling after stockpile removal. If the stockpile was placed on top of a durable surface such as concrete or asphalt, the surface must be decontaminated using wet methods, followed by CABI inspection verifying that all soil and debris has been removed from the surface. Rinsate/runoff shall be collected and filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will be managed under these regulations.

(b) RACS shall be adequately wet during disturbance.

(c) Stockpiled RACS shall be controlled per Section 5.5.7(A).

(d) Stockpiled RACS shall be stabilized by:

i. Polyethylene sheeting or geotechnical fabric with daily inspection, and inspection no later than twelve (12) hours following storm events, and repair/replace sheeting as necessary to maintain stabilization; or
ii. Chemical stabilizer demonstrated to be effective in the stabilization of RACS (e.g. magnesium chloride) with weekly inspection, and inspection no later than one (1) calendar day after storm events, and re-application of chemical stabilizer as necessary to maintain stabilization; or
iii. Minimum of three (3) inches of soil appropriate for unrestricted use.

(e) For stockpile areas that are non-contiguous with the RWA, transportation of RACS shall be conducted in accordance with the following:

i. Transportation equipment tires shall not contact RACS; or
ii. The tires shall be decontaminated per Section 5.5.7(I) before leaving the RWA; or
iii. The haul road shall be managed as RACS for stabilization, per Section 5.5.7(H)(2)(d), and future removal of a minimum of three (3) inches of soil, or other matrix material. If the road is constructed of a durable surface such as concrete or asphalt, the surface shall be decontaminated using wet methods, followed by CABI inspection verifying that all soil and debris has been removed from the surface. Rinsate/runoff shall be collected and filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will be managed under these regulations.

(f) For a stockpile that was previously thought to be free of RACS, but where RACS is subsequently identified, the procedure outlined in Section 5.5.7 (H)(1)(c) shall be followed.

(3) Storage of RACS exceeding ten calendar days shall require the submission of a RACS Storage Plan. Storage of RACS shall not commence prior to approval of the RACS Storage Plan by the Department's Hazardous Materials and Waste Management Division. The RACS Storage Plan shall include:

(a) Approval of storage with signature from the property owner; and

(b) Volume of RACS intended for storage; and

(c) Liner design or provisions for removal of a minimum of three (3) inches of underlying material; and

(d) Storm water design including protections for run-on and run-off; and

(e) Cover design or use of an equivalent durable stabilizer; and

(f) Access control and signage; and

(g) Storage timeframe (shall not exceed six (6) months unless an extended storage timeframe is approved by the Department and complies with local governing authority requirements); and

(h) Inspection and maintenance schedule; and

(i) Closure and removal requirements; and

(j) Documentation and reporting; and

(k) Certification of any designed elements by a Colorado registered Professional Engineer.

(4) Temporary sub-surface storage of RACS in areas of future planned RACS removal shall not exceed six (6) months and shall comply with the following:

(a) RACS may only be placed within the Area of Contamination (AOC) that it was originally removed from.

(b) Placement of RACS utilizing standard RACS management requirements in accordance with the standard requirements of Section 5.5.7, an approved PSRMP, or an approved SOP.

(c) Cover RACS in accordance with the requirements of Section 5.5.7(K).

(d) RACS not removed within six (6) months (unless an extended storage timeframe is approved by the Department), shall be considered disposal in accordance with Section 5.5.8(A), or reuse within an AOC and will require an environmental covenant in accordance with Section 5.5.8(B)(1).

(5) Offsite staging, stockpiling, and storage of RACS are allowed as long as they comply with the disposition requirements of Section 5.5.8.

(l) DECONTAMINATION

(1) Requirements applicable to all projects subject to Section 5.5:

(a) Personnel Decontamination:

i. Remove booties and/or gloves before exiting RWA and dispose as asbestos contaminated waste; or
ii. If not using disposable PPE, decontaminate boots in a boot wash station, remove gloves after exiting the boot wash station, and dispose of gloves as asbestos contaminated waste. Rinsate from the boot wash station shall be collected, filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility, or re-applied to RACS that will be managed under these regulations.

(b) Decontamination of Equipment or Surfaces that have come into Contact with RACS

i. For equipment that comes into contact with RACS:

1. Wet decontamination on a decontamination pad (minimum 10 mil poly or other durable non-permeable barrier) followed by CABI inspection and verification of equipment decontamination before it leaves the decontamination area. All decontamination liquids and solids shall be contained, and run-on and run-off shall be prevented. Rinsate/runoff shall be collected, filtrated to less than 5 microns (or applicable local requirements) and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will

be managed under these regulations. For breaches in the decontamination pad where RACS or water contaminated with asbestos may have impacted the material below the decontamination pad, implement the provisions of Section 5.5.7(J);

and/or

2. Decontamination using HEPA vacuums followed by CABI inspection and verification of equipment decontamination before it leaves the decontamination area.

(c) Protection of Clean Equipment and Surfaces:

i. Keep all equipment off of RACS; or
ii. Protect clean surfaces from coming in contact with RACS by covering equipment surfaces or RACS surfaces with polyethylene sheeting or equivalent durable impermeable covering. For onsite movement of excavation equipment between RWAs, where only the excavator bucket has come in contact with RACS, the bucket shall be wrapped in polyethylene sheeting (minimum 6 mil) prior to movement. Protective coverings shall be cleaned, repaired, or replaced as necessary. If protective coverings are breached and RACS or asbestos contaminated water comes into contact with underlying material, the provisions of Section 5.5.7(J) shall be followed. Coverings that have come in contact with RACS shall be disposed as asbestos contaminated waste.

(2) Additional Requirements for Projects Disturbing RACS Containing Friable ACM:

(a) Remove disposable impermeable suits or equivalent coveralls before exiting RWA and dispose as asbestos contaminated waste, or

(b) After removal of suits or coveralls, conduct full wet decontamination prior to exiting RWA with collection of rinsate and filtration to less than 5 microns and discharge to a sanitary sewer or other Department-approved disposal facility. Re-application of decontamination shower water is prohibited.

(J) RACS SPILL RESPONSE

(1) Areas where RACS is spilled are RWAs until clean up is completed.

(2) Spilled material shall be cleaned up immediately and not allowed to dry out or accumulate on any surface. The Department's Hazardous Materials and Waste Management Division shall be notified, through the spill reporting hotline, in the event that spills of RACS cannot be cleaned up within 24 hours of spill identification.

(3) Where there are breaches in ground coverings that have the potential to allow RACS or water contaminated with asbestos to impact the material below the covering, a minimum of three (3) inches of soil, or other matrix material, shall be removed from beneath the breached ground coverings. Visual or measured (e.g. survey) confirmation that three (3) inches of soil and/or other matrix material from beneath the breached covering has been removed shall be conducted. If ground coverings are placed on top of a durable surface such as concrete or asphalt, the surface shall be decontaminated using wet methods, followed by CABI inspection that all soil and debris has been removed from the surface.

(4) Rinsate, runoff, or any other water that has come into contact with RACS shall be considered to be asbestos contaminated water and shall be collected and filtrated to less than 5 microns and discharged to a sanitary sewer or other Department-approved disposal facility or re-applied to RACS that will be managed under these regulations.

(5) Surfaces that are contacted by asbestos contaminated water shall be managed as RACS as per Section 5.5.7(J)(3) or permanently stabilized as per Section 5.5.7(K).

(6) If work practices in an RWA are causing an ongoing spill outside the RWA, the work practices shall cease or be modified to prevent additional releases.

(K) REQUIREMENTS FOR EXPOSED RACS REMAINING IN PLACE

(1) Any remaining RACS that has been exposed by the soil disturbing activity, but is not disturbed, such as an excavation side-wall or bottom shall be covered or stabilized using one of the following:

(a) Cover RACS with geofabric, followed by eighteen (18) inches of fill suitable for unrestricted use, and vegetation; or

(b) Cover RACS with geofabric, followed by six (6) inches of fill suitable for unrestricted use, and concrete or asphalt; or

(c) Cover RACS with geofabric, followed by fill suitable for unrestricted use to grade or six (6) inches, whichever is greater, for vertical excavation faces or trenches; or

(d) Alternate cover designs as approved by the Department.

(L) DOCUMENTATION

(1) The documents listed below shall be maintained during a project and available for Department review upon request. However, this documentation need not be submitted to the Department unless requested. CABI and AMS notes may be collected by one individual if they possess both certifications; however, if no AMS is onsite the CABI shall provide items listed in the AMS notes section (e.g. wind monitoring and shutdown events). CABI and AMS notes may be taken by another individual, but shall be reviewed, approved, and signed by the CABI or AMS for whom the notes are being taken. Other appropriate personnel may also provide the following documentation.

(a) CABI/QPM Notes shall include documentation of:

i. Site description including location; and
ii. Descriptions of site activities; and
iii. Descriptions of equipment in use; and
iv. Descriptions of hand removals (including locations); and
v. Descriptions of types of debris identified; and
vi. Descriptions of suspect material identified; and
vii. Friability of ACM identified (as determined by a CABI); and
viii. Sampling, if conducted (all sampling shall be conducted by a CABI); and
ix. Decontamination visual inspection and clearances; and
x. Excavation visual inspection and clearances; and
xi. Spill response activities; and
xii. Observations of visible emissions and responses; and

xiii. Observations of non-earthen material or the appearance of fill; and
xiv. Observations of other indicators of impact to soils.

(b) AMS notes shall include documentation of:

i. Wind speed measurements; and
ii. Prevailing wind direction(s); and
iii. Wind shut down event(s); and
iv. Initial air sample locations; and
v. Air sample relocation notes; and
vi. Observations of visible emissions and responses; and
vii. Notes pertaining to sample malfunctions (pump faults, overloading, etc.); and
viii. Instances of samples being compromised (samples knocked over, sample filters being sprayed with water, samples physically impacted by equipment, etc.); and
ix. Air sample data (flow rates, time of sampling, volumes, calibration method, etc.).

(c) General documentation shall include:

i. Disposal records; and
ii. Analytical reports including chain of custody forms; and
iii. Evaluations of any samples with a “cannot be read” analysis result and the notifications of these events to the Department; and
iv. Location of known remaining RACS; and
v. Creation and removal dates for, and locations of, staged, stockpiled, and/or stored RACS; and
vi. Stockpile and staging pile inspection logs and documentation of weather events requiring inspection; and
vii. Logs of all site personnel with access to the RWA; and
viii. Certification records for all CABIs and AMSs utilized on the project, and
ix. Records for training conducted in accordance Sections 5.5.3(A) and 5.5.3(B); and
x. Records demonstrating the QPM(s) meet the training and experience requirements set forth in Section 5.5.3(C); and
xi. ECP(s) generated during the project.

5.5.8 PACKAGING AND DISPOSITION OF REGULATED ASBESTOS CONTAMINATED SOIL (RACS)

(A) Disposal of RACS

(1) RACS containing one percent (1%) or greater of friable ACM (as determined in the field by a CABI) by volume per load or container, based on visual estimation through continuous visual inspection or other Department-approved quantifiable means of measurement, shall be packaged in a leak tight container and disposed as friable asbestos waste, in accordance with Section 5.3 of these regulations. Alternatively, a friable ACM determination by a CABI is not required if the disposal load is assumed to be RACS containing 1% or greater of friable ACM and is packaged and disposed of in accordance with Section 5.3 of these regulations. Documentation shall accompany each load of RACS removed from the site stating that soil originating from this site shall not be used as daily cover or reused offsite.

(2) For RACS containing:

(a) Less than one percent (1%) of friable ACM (as determined in the field by a CABI) by volume, per load or container, based on visual estimation through continuous visual inspection, or other Department-approved quantifiable means of measurement, shall be packaged in a leak tight container and disposed in a manner similar to non-friable asbestos waste, as described in Section 5.2 of these regulations. Documentation must accompany each load of RACS removed from the site stating that soil originating from this site shall not be used as daily cover or reused offsite.

(b) Except as provided by Section 5.5.8(A)(3), only visible non-friable ACM (as determined in the field by a CABI) that has not been rendered friable, or RACS that contains no visible ACM, shall be packaged in a leak tight container and disposed of as non-friable asbestos waste in accordance with Section 5.2 of this Part 5. Documentation shall accompany each load of RACS removed from the site stating that soil originating from this site shall not be used as daily cover or reused offsite.

(c) A total volume of debris that is less than 1% of the disposal load, based on visual estimation through continuous visual inspection, and the debris is all assumed to be RACS, then a CABI is not required to make a friable ACM determination.

(3) Owners/operators may utilize alternative packaging for RACS, that contains only non-friable ACM and/or asbestos fibers in soil, that ensures that there are no visible emissions during transport to or from the landfill. The alternative packaging must also be acceptable to the disposal facility accepting the waste. A written notice shall be submitted to the Department at least forty-eight (48) hours prior to the alternative packaging being used. If alternative packaging will be used for material that contains any amount of friable asbestos waste, the alternative packaging shall be in accordance with Section 5.3.5 of the Regulation.

(4) A Design and Operations (D&O) plan shall be submitted to, and approved by, the Department for onsite disposal of RACS outside of the AOC, in accordance with the Colorado Solid Wastes Disposal Sites and Facilities Act (C.R.S. 30-20, Part 1) and these regulations. The packaging requirements set forth above in Section 5.5.8(A)(1-2) are not required for onsite disposal, but the requirements of Section 5.5.5(A)(2)(e) are applicable. An environmental covenant, in accordance with 25-15-320, C.R.S., is required for onsite RACS disposal, and a Certificate of Designation shall be required, in accordance with Section 1.6 of these regulations, unless exempt under Section 1.4.

(B) Onsite reuse of RACS:

(1) A plan for reuse of RACS within the footprint of the AOC shall be submitted to the Department for review and approval prior to implementation and shall comply with Section 5.5.5(A)(2)(e), and the following cover requirements:

(a) Cover RACS with geofabric, followed by eighteen (18) inches of fill suitable for unrestricted use, and vegetation; or

(b) Cover RACS with geofabric, followed by six (6) inches of fill suitable for unrestricted use, and concrete or asphalt; or

(c) Cover RACS with geofabric, followed by fill suitable for unrestricted use to grade or six (6) inches, whichever is greater, for vertical excavation faces or trenches; and

(d) The final grades shall promote surface water run-off and minimize erosion, and shall have slopes no less than 5% (20:1) and no greater than 25% (4:1); or

(e) Alternate cover designs as approved by the Department; and

(f) An environmental covenant, in accordance with 25-15-320, C.R.S., may be required for onsite reuse of RACS.

(2) A plan for beneficial reuse of RACS outside the footprint of the AOC, in accordance with Section 8.6, shall be submitted to the Department for review and approval prior to its implementation. The plan shall include provisions for covering RACS and shall comply with the management requirements of Section 5.5.5(A)(2)(e). Additionally, the cover requirements outlined in Section 5.5.7(K) shall be adhered to. An environmental covenant, in accordance with 25-15-320 C.R.S. may be required for beneficial reuse of RACS.

(C) Demonstration of Non-RACS

(1) Soil or other matrix material initially determined to be RACS may be demonstrated not to be RACS based on visual inspection, removal of all ACM, and sampling and analysis of the remaining material showing no detectable asbestos. Sampling and analysis shall be conducted in accordance with Appendix 5A. If there is no detectable asbestos, this material is no longer subject to Section 5.5 and may be appropriate for unrestricted use, onsite or offsite, as long as it does not contain any other regulated material.

5.5.9 FEES

The Department shall collect fees, from the owner, operator, or person conducting the soil disturbing activity, based on total documented costs, in accordance with Section 1.7

APPENDIX 5A
SAMPLE COLLECTION PROTOCOLS AND ANALYTICAL METHODOLOGIES

1.0 Purpose

(A) The purpose of this appendix is to establish standard sample collection requirements and analytical methods and procedures for use in identifying and quantifying asbestos fibers in air, bulk material, and environmental media such as soil or ash.

2.0 Sample Collection Requirements

(A) The following sample collection requirements shall be followed when collecting samples for the purpose of determining the applicability of Section 5.5, and when collecting samples necessary to comply with the requirements of Section 5.5. Remediation plans submitted in accordance with Section 5.5.6 shall include a site specific sampling and analysis plan that incorporates the sample collection methodologies and analytical procedures in this Appendix, or proposes alternatives, and include site specific clearance criteria.

2.1 Bulk Samples

(A) Bulk samples shall be collected, in a manner sufficient to determine whether the material is asbestos-containing material (ACM) or not ACM, from each type of suspect ACM. Bulk samples shall be collected by a State of Colorado certified Asbestos Building Inspector (CABI). In the absence of bulk sample collection, any suspect ACMs must be assumed to be ACMs.

(B) Bulk samples shall be collected by homogenous type based on color, pattern, texture, thickness, associated materials, or by other identifying characteristics. Additionally, the quantity and location of a suspect material shall be used to determine the number of bulk samples required to characterize the asbestos content of each homogeneous suspect material. For the purpose of determining that a homogeneous suspect material does not contain asbestos, a minimum of three (3) bulk samples shall be collected from the homogeneous material unless there is insufficient material to constitute three (3) samples. If one of the collected samples of a homogeneous bulk material is determined to be ACM, then the homogeneous material shall be considered ACM.

2.2 Soil Samples

(A) Samples collected to determine asbestos content in soil shall be ten (10) point aliquot composite samples collected from a maximum area of 1,250 square feet (representing 0-6 inches beyond the exposed surface) or a maximum volume of forty (40) cubic yards. Individual aliquots shall be approximately 1/10 of the entire sample volume. At each aliquot location approximately one (1) tablespoon of soil shall be collected. The total volume of the ten (10) aliquots should equal roughly a half cup. The total collected sample volume should be greater than one quarter (¼) cup, but should not exceed one cup. Aliquot locations shall be randomly selected but shall be representative of the entire sample area or volume (to be inclusive of the interior of soil piles in addition to the surface). However, aliquots shall be co-located with any areas where friable ACM was formerly present. All samples collected to determine asbestos content shall be collected by a CABI.

(B) Sampling for clearance purposes of any exposed horizontal or vertical surface shall have the following additional requirements:

1) The aliquots of a clearance sample shall not be collected until after the RACS, and the required amount of associated material, has been removed.

2) A visual inspection shall be performed and passed (i.e., no visible ACM present) by a CABI prior to the collection of soil samples. Visual inspections shall include the following:

a) The area to be cleared shall be designated before the visual inspection; and
b) Former locations of friable materials shall be designated; and
c) The surface being inspected shall be dry enough to allow identification of suspect ACM; and
d) The visual inspection shall be conducted in adequate lighting; and
e) The area to be cleared shall be free of visual impediments (e.g. snow cover, plastic sheeting, standing water, etc.); and
f) At a minimum, the area to be cleared shall be inspected in at least two (2) perpendicular directions; and
g) Single or multiple inspectors may be used to perform a visual inspection and clearance. However, a single inspector shall not visually inspect more than a five (5) foot width with each pass [i.e. for a clearance area that is 25’ x 50’ a single inspector would be required to

make at least five (5) passes in one direction (25' length) and at least ten (10) passes in the other direction (50' length)]; and

h) Detailed close examination of the area being cleared is required. The inspector(s) should use limited invasive inspection techniques, such as periodically sifting the surface being cleared and closely inspecting the disturbed area.

3) If sidewalls with six (6) inches or greater of vertical height are present, independent ten (10) point aliquot composite samples shall be collected from each of the sidewalls and the floor of the excavation.

2.3 Ash Samples

(A) Ash that contains, or is comingled with, suspect ACM and/or construction and demolition debris shall be considered to be RACS unless the ash is sampled, and analysis demonstrates that the ash is not RACS. Representative samples of each type of ash materials shall be sampled and analyzed in the same manner as soil (including area/volumetric limitations of sampling). Ash samples shall be collected by homogenous strata, location, content of other surrounding material, or other observations indicating heterogeneity of the ash present. All samples collected to determine asbestos content shall be collected by a CABI. In the absence of suspect ACM or construction and demolition debris, and in the absence of documented evidence of non-visible asbestos, ash material may be treated as non-RACS.

2.4 Cross Contamination Prevention

(A) All sample collection equipment shall be decontaminated in a manner sufficient to prevent cross contamination between individual samples or individual composite samples. Decontamination is not required between the collection of aliquots comprising a single composite sample.

2.5 Air Samples for Standard RACS Management

(A) Air samples shall be collected by drawing air through 0.8-micron (µm), 25-millimeter (mm), mixed cellulose ester (MCE) filters, using an open-faced cowl extension oriented face down at an angle of 45°. Sample flow rate shall be between 0.5-10 liters per minute depending on the anticipated duration of sampling and the specified detection sensitivity. The air sampling equipment shall be run until the minimum volume required is collected for each sample. However, if the minimum air volume required by the method, and/or to reach the required analytical sensitivity, being

utilized cannot be met, the State of Colorado trained and certified Air Monitoring Specialist (AMS) shall request that the laboratory prepare the sample using an indirect preparation method, for TEM presence/absence analysis. Air samples shall be collected at a height that is representative of the disturbance activity taking place. However, air samples shall be located at a height between three (3) feet above the ground surface but not to exceed twenty (20) feet above the ground surface. Air samples shall be collected by an AMS.

2.6 Air Samples for Risk-Based Air Threshold Monitoring

(A) Air samples shall be collected by an AMS. Air monitoring shall be conducted during each partial or full day of soil management activities using fixed and mobile monitors as follows:

1) A minimum of four (4) samples shall be collected for each regulated work area (RWA).
2) For the purpose of determining the number of samples necessary, each RWA shall be divided into four (4) equal quadrants. A minimum of one (1) sample shall be collected for each quadrant with an adjacent receptor zone.
3) If an RWA is greater than one (1) acre, one (1) additional sample for each quadrant with an adjacent receptor zone shall be collected and analyzed for each additional one quarter (¼) acre in RWA surface area.
4) Samples shall be located along the RWA perimeter, between the RWA and each adjacent receptor zone. Samples shall be placed between the RWA and any fixed adjacent receptor(s). In the absence of fixed adjacent receptors, sample placement shall be at the AMS's discretion.
5) The sample volume shall be the minimum necessary to meet analytical sensitivity.
6) Samples shall be collected by drawing air through 0.8-micron (µm), 0.25-millimeter (mm), mixed cellulose ester (MCE) filters, using an open-faced cowl extension oriented face down at an angle of 45°.

3.0 Analytical Requirements

(A) The following analytical methods shall be used to evaluate the presence of asbestos and/or to determine asbestos content when analyzing samples for the purpose of determining the applicability of Section 5.5, and when analyzing samples collected in accordance with Section 5.5:

3.1 Bulk Samples

(A) Samples of suspect ACM shall be analyzed by polarized light microscopy (PLM), according to United States Environmental Protection Agency (USEPA) Method EPA/600/R-93/116 or equivalent method, to determine if any asbestos fibers are present. If the asbestos content of a sample is estimated to be 1% asbestos or less, but greater than 0%, by a method other than point counting (such as visual estimation), the determination shall be repeated using the point counting technique with PLM. Alternatively, the material may be assumed to be ACM. Analysis shall be conducted by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

3.2 Soil Samples and Ash Samples

(A) Prior to preparation of a soil or ash sample, bulk materials shall be separated from the soil or ash sample for independent analysis. Any bulk materials identified in a soil or ash sample that contain any amount of asbestos shall be reported as independent layers of the whole sample. The samples shall be adequately prepared (crushed and dried) to facilitate stereomicroscopic analysis by the laboratory. The goal of the preparation process should be to produce dried conglomerates of approximately one eighth inch (1/8") to one quarter inch (¼") size. Rock and/or stone material does not need to be crushed (this process is not intended to be homogenization). Soil and ash samples shall be analyzed by PLM according to USEPA Method EPA/600/R-93/116 to determine if any asbestos fibers are present. Analysis shall be conducted by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory. During the stereomicroscopic analysis (10X – 50X) of the soil/ash sample the analyst shall sift through the sample at a rate of approximately one (1) tablespoon per minute. At the end of the stereomicroscopic analysis the sample shall be agitated or shaken as a final check for asbestos prior to the preparation of PLM grab mounts. At no time during the stereomicroscopic analysis shall a sub sample be collected. The entire sample shall be analyzed and the results reported. If no asbestos was identified by PLM after the initial stereomicroscopic examination, then three (3) random grab mount preparations shall be analyzed by PLM to determine if the sample is none detected for asbestos content. If any asbestos is found by the laboratory it shall be reported even in the absence of a second detection (i.e. there does not need to be a second detection to qualify a trace level of asbestos in the sample). Quantification of asbestos content shall be based on the entire sample volume, and be reported as such.

3.3 Air Samples for Standard RACS Management

(A) Air samples submitted for Phase Contrast Microscopy (PCM) shall be analyzed according to NIOSH Method 7400 by a laboratory showing successful participation in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program or individual(s) certified through the AIHA Asbestos Analysts Registry (AAR) Program.

(B) Air samples submitted for Transmission Electron Microscopy (TEM), for which quantification of asbestos is desired, shall be prepared and analyzed according to the standard Asbestos Hazard Emergency Response Act (AHERA) method (AHERA; 40 CFR Part 763, Subpart E, Appendix A). All TEM analysis shall be performed by a NVLAP accredited laboratory. If a presence/absence analysis is desired, the analysis shall be performed using the AHERA method modified in the following manner:

1) A minimum of two (2) preparations shall be prepared and utilized for each sample.
2) Analysis shall be conducted on a minimum of four (4) grid openings or until three (3) or more structures are identified, whichever comes first.
3) Any structure (adhering to the AHERA counting rules) identified during analysis shall be reported.
   a) Identification of less than three (3) structures shall be reported as present.
   b) Identification of three (3) or greater structures shall be reported as detected.

(C) Any air sample analysis that results in a “cannot be read (CBR)” determination from the analyst, or a “not analyzed (NA) or rejected” due to loose debris or uneven loading, shall be evaluated by the AMS to determine if a cause of the CBR or NA can be ascertained. If it is determined that the CBR is a result of overloading from airborne emissions, then the AMS shall request that the laboratory prepare the sample, using an indirect preparation method, for TEM presence/absence analysis.

3.4 Risk-Based Air Threshold Samples

(A) Air samples collected for TEM analysis shall be submitted to a NVLAP accredited laboratory. Samples shall be analyzed by TEM according to ISO Method 10312 with the following modifications for PCM equivalent (PCMe) structures:

1) An aspect ratio of 3:1 shall be used when counting structures greater than 5 µm in length, rather than the 5:1 ratio specified in the method.
2) A width range of 0.25 to 3 µm will be used when counting PCMe structures, rather than the 0.2 to 3 µm specified in the method.
3) A minimum of ten grid openings will be counted, rather than the minimum of four (4) grid openings specified in the method.
4) Calculations shall be made based on total fibers rather than primary fibers.

(B) The maximum number of grid openings (GOs) to be counted to achieve the specified analytical sensitivity shall be estimated as follows:

Number of GOs = EFA ÷ (A_{GO} x V x S x CF)

where:
EFA = effective filter area (385 for a 25-mm filter)
A_{GO} = area of a grid opening (approximately 0.01 mm2; actual value to be provided by the analytical laboratory)
V = volume of air sampled (in liters [L])
S = analytical sensitivity (structures per cubic centimeter [s/cc])
CF = conversion factor (1000 cc/L)

(C) Any air sample analysis that results in a “cannot be read (CBR)” determination from the analyst, or a “not analyzed (NA) or rejected” due to loose debris or uneven loading, shall be prepared by the laboratory, using an indirect preparation method, for TEM presence/absence analysis.

3.5 Data Evaluation for Risk-Based Air Threshold Samples

(A) General requirements:

1) Samples collected for comparison to risk-based air thresholds shall be evaluated based on the average (mean) concentration over the exposure duration.
2) All valid data shall be used to calculate daily and ten (10) day rolling averages.
3) For all projects a minimum of three (3) samples per day must have quantifiable data (not CBR or rejected). If less than three (3) quantifiable analytical results are available then the daily average is invalid.

(B) Project days 1-9:

1) The results of the daily samples must be averaged to calculate a daily average for use in comparing to the risk based air threshold for days 1-9 of monitoring.
2) A ten (10) day average shall be calculated for days 1-9. The ten (10) day average shall be comprised of at least eight (8) valid daily average results. However, all valid data shall be used to calculate the ten (10) day average.
3) If the ten (10) day average exceeds the risk-based air threshold, engineering controls shall be adjusted to reduce the daily average.
4) The Department shall be notified within 24 hours if the calculations in paragraphs 1 and 2 above cannot be completed due to invalid data.

(C) Project days 10 and greater:

1) Starting on day 10, a ten (10) day rolling average shall be calculated and compared to the risk-based threshold.
2) If average concentration trends indicate the risk-based air threshold will be exceeded before project completion, engineering controls shall be adjusted to reduce the daily asbestos emissions.
3) If subsequent evaluation of average concentration trends indicates that the risk-based air threshold will still be exceeded before project completion, additional adjustments to engineering controls shall be made.
4) If changes in engineering controls are not effective in reducing airborne concentration trends such that the risk-based air thresholds can be met, consultation with the Department is required.
5) The Department shall be notified within five (5) working days if the averaged airborne asbestos concentration for the entire project exceeds the risk-based air threshold.

4.0 Documentation

(A) All of the following sampling and analytical documentation shall be maintained during a project and available for Department review upon request. This documentation need not be submitted to CDPHE unless requested or as required in a project specific plan.

1) Documentation of bulk, soil, and ash samples shall include:

a. A description of the material being sampled including friability.

i. For samples collected for characterization purposes also include an estimate of the quantity of visible suspected RACS present.
ii. For samples of ash, also include a brief description of the ash layer, and any associated identifiable debris.

b. Name of person collecting the sample(s).
c. Date and time of sample collection.
d. Location of sample collection (a map, drawing, or diagram showing sample locations in relation to the work area and surrounding area).
e. The boundary/limits that are represented by the collected sample.
f. Chain of custody documentation.
g. Laboratory analysis reports.
h. Log of characterized homogeneous bulk materials including material descriptions, photographic documentation, and asbestos content.

2) Documentation of air samples shall include:

a. Name of person collecting the sample(s).
b. Date and time(s) of sample collection.
c. Locations of air sample collection.
d. Any relocation of air samples.
e. A map, drawing, or diagram showing air sample locations (initial and relocations) in relation to the work area and the surrounding area.
f. Chain of custody documentation.
g. Laboratory analysis reports.
h. Explanation of any air sample malfunctions and any voided air samples.
i. Risk based air threshold concentration calculations.
j. Air sample data (flow rates, time of sampling, volumes, calibration method, etc.).
k. Wind speed measurements.
l. Prevailing wind directions.
m. Wind shut down events.
n. Observations of visible emissions and responses.

5.0 Deviations from Sampling and Analysis Procedures

(A) Deviation from this sampling and analysis appendix shall only be allowed upon consultation with, review by, and approval from, the Department.

Terracon

July 9, 2018

Public Works Project Manager
City of Greeley
1001 9th Avenue
Greeley, Colorado 80631

Attn: Brian Ward P.E., P.M.P.
P: (970) 350-9357
M: (970) 673-5796
E: Brian.Ward@greeleygov.com

RE: Addendum #01 to Interim Stabilization Plan for RACS
Greeley Fishing Pond Project
Intersection of 1st Avenue and 31st Street
Greeley, Colorado
Terracon Project No. 21187022

- Terracon performed an inspection of the Greeley Fishing Pond Project site Area 1 on July 3, 2018. The purpose of the inspection was to further delineate the extent of the previously identified friable asbestos-containing roofing materials (ACM) within the approximate 55-foot by 45-foot area (Area 1) depicted on Figure 2 of the Quantum Water & Environment and Spirit Environmental, LLC Interim Stabilization Plan (ISP) for Regulated Asbestos-Contaminated Soil dated June 5, 2018. According to the ISP, Area 1 will be covered with geotextile, followed by six inches of fill cover.

- During a site walk performed by Mike Helm with Region 8 Enviro (a State of Colorado General Abatement Contractor), friable ACM roofing was observed to be located primarily along a southwest to northeast line in the center of Area 1, as well as the north-northeast corner of Area 1, and an area to the north-northwest of the Area 1 north boundary.

- Terracon generally confirmed the two general locations of the friable roofing ACM as identified by Region 8 Enviro. Terracon used red spray paint to mark these areas onsite. These two areas (approximately 60-ft x 10-ft and 35-ft x 10-ft plus 10-ft x 5-ft) are shown in red on the attached Exhibit 1 drawing. The blue area on Exhibit 1 is the approximate original 55-ft x 45-ft lay-out of Area 1 as shown on Figure 2 of the ISP. Terracon did not observe friable roofing ACM in the remainder of Area 1.

- Terracon did not inspect site areas outside of the general boundaries of Area 1 and did not inspect for non-friable ACM debris (which does not require covering) inside of Area 1.

If you have any questions regarding this addendum, please contact the undersigned at (303) 454-5255.

Sincerely,
Terracon Consultants, Inc.
Colorado Asbestos Consulting Business License No. ACF-14838

Prepared By:

Kurt L. Streeb, CHMM
Senior Project Manager
State of Colorado Inspector #9234

Reviewed By:

Kevin M. Troyer
Senior Industrial Hygienist
Asbestos-IH Program Manager, Denver
State of Colorado Inspector #5044

Attachments: Exhibit 1
Photographs
Inspector Credentials

N

Red areas – RACS to be covered

Blue area - Extent of Area 1

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	MJS
Drawn by:	KLS
Checked by:	KMT
Approved by:	MJS
Project No.	21187022
Scale:	N.T.S.
File Name:	EXHIBIT 1
Date:	7/6/2018

Terracon
Consulting Engineers & Scientists
10625 W. I-70 Frontage Rd. N. Wheat Ridge, CO 80033
PH. (303) 423-3300 FAX. (303) 423-3353

ADDENDUM #01 TO ISP FOR RACS, AREA 1

GREELEY FISHING POND PROJECT
INTERSECTION OF 1ST AVENUE AND 31ST STREET
GREELEY, COLORADO

Exhibit 1

			
Photo #1	Area 1, Center Area RACS	**Photo #2**	Area 1, Center Area RACS
			
Photo #3	Area 1, Center Area RACS	**Photo #4**	Area 1, North-Northwest Area RACS
			
Photo #5	Area 1, North-Northwest Area RACS	**Photo #6**	Area 1, North-Northwest Area RACS

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United States of America

CERTIFICATE OF ACHIEVEMENT

This certificate is awarded to:

KURT STREEB

In recognition of satisfactory completion of the EPA-approved annual asbestos refresher training course under section 206 of the Toxic Substance Control Act (TSCA), Title II entitled:

BUILDING INSPECTOR / MANAGEMENT PLANNER

COURSE DATE:	APRIL 20, 2018
EXPIRATION DATE:	APRIL 20, 2019
COURSE HOURS:	8.0

Verify Credential

Danaya N. Benedetto
Co-Founder & CEO
Training Program Manager

Credential License ID: 11481085

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Frank Hulce
Instructor

CHC Training Certificate No.
R18-0768-AIMP-CO

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Colorado Department
of Public Health
and Environment

ASBESTOS CERTIFICATION*

This certifies that

Kurt Streeb

Certification No.: 9234

has met the requirements of 25-7-507, C.R.S. and Air Quality Control Commission Regulation No. 8, Part B, and is hereby certified by the state of Colorado in the following discipline:

Inspector/Management Planner*

Issued: **July 19, 2017**

Expires: **July 19, 2018**

**** This certificate is valid only with the possession of a current Division-approved training course certification in the discipline specified above.***

Authorized APCD Representative

SEAL

Colorado Department
of Public Health
and Environment

ASBESTOS CONSULTING FIRM

This certifies that

Terracon Consultants, Inc.

Registration No.: ACF - 14838

has met the registration requirements of 25-7-507, C.R.S. and the Air Quality Control Commission Regulation No. 8, Part B, and is hereby authorized to perform asbestos consulting activities as required under Regulation No 8, Part B, in the state of Colorado.

Issued: December 07, 2017
Expires: January 30, 2019

Authorized APCD Representative

SEAL

Oversight of Interim Stabilization Activities of Regulated Asbestos-Contaminated Soils

Greeley Fishing Pond Project
Intersection of 1st Avenue and 31st Street
Greeley, Colorado

August 6, 2018

Terracon Project No. 21187022

Prepared for:
City of Greeley
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Wheat Ridge, Colorado

August 6, 2018

Terracon

City of Greeley
1001 9th Avenue
Greeley, Colorado 80631

Attn: Mr. Brian Ward, P.E., P.M.P.
Public Works Project Manager
P: 970-350-9357
E: brian.ward@greeleygov.com

Re: Oversight of Interim Stabilization Activities of
Regulated Asbestos-Contaminated Soils
Greeley Fishing Pond Project
Intersection of 1st Avenue and 31st Street
Greeley, Colorado
Terracon Project No. 21187022

Dear Mr. Ward,

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached report for the above-referenced site to the City of Greeley. The purpose of this report is to present the results of the oversight of interim stabilization activities of regulated asbestos-contaminated soils (RACS) on the property performed on July 25 and 27, 2018. This oversight of interim stabilization activities of RACS was conducted in general accordance with our contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018.

Terracon appreciates the opportunity to provide this service to the City of Greeley. If you have any questions regarding this report please contact the undersigned at 303-423-3300.

Sincerely,
Terracon Consultants, Inc.

Prepared By:

for Jeff A. Delise
Project Manager
State License No. 24310

Reviewed By:

Kurt L. Streeb, CHMM
Senior Project Manager
State License No. 9234

TABLE OF CONTENTS

OVERSIGHT OF INTERIM STABILIZATION ACTIVITIES OF REGULATED ASBESTOSCONTAMINATED SOILS
Greeley Fishing Pond Project
Intersection of 1st Avenue and 31st Street
Greeley, Colorado

Terracon Project No. 21187022
August 6, 2018

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted oversight of interim stabilization activities of RACS at the property located at the intersection of 1st avenue and 31st street in Greeley, Colorado. The oversight and documentation was conducted on July 25 and 27, 2018, by AHERA-accredited and State of Colorado-certified asbestos building inspectors (CABIs) in general accordance with the Quantum Water & Environment and Spirit Environmental, LLC Interim Stabilization Plan (ISP) for Regulated Asbestos-Contaminated Soil dated June 5, 2018 and Terracon Addendum #01 to Interim Stabilization Plan for RACS dated July 9, 2018.

Terracon was responsible for oversight of the stabilization and/or removal of RACS observed generally within in Areas 3, 7 and 8 (as depicted on the Appendix A, Property Overview Map) identified in the ISP and Addendum #01 to the ISP. Stabilization activities were conducted by Region 8 Enviro and included:

- Warning fence and signage
- Silt fences
- Removal of RACS from H11-1 and J17A-3 (as depicted on Figure 2, Friable ACM Areas)
- Install geotextile over I15-1 (Area 1), J17-2 & J17-3 (Area 2), H10-5 (Area 3) and O28-2 (Area 4) as shown on Figure 2, Friable ACM Areas
- Fill/cover installed geotextile with six inches of soil in I15-1, J17-2 & J17-3, H10-5 and O28-2, as depicted on Figure 2, Friable ACM Areas

1.1 Reliance

This report is for the exclusive use of the City of Greeley for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and the City of Greeley. Reliance on this report by the City of Greeley and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and Terracon's Agreement for Services. The limitations of liability defined in Terracon's Agreement for Services is the aggregate limit of Terracon's liability to the City of Greeley.

2.0 PROPERTY DESCRIPTION

The subject property is an approximately 39-acre undeveloped property purchased by the City of Greeley in 2015. In 2015 and 2018 debris piles containing building materials were observed in the southeast, approximately 5-acre area of the property (generally within Areas 3, 7 and 8 as depicted on the Appendix A, Property Overview Map) by ERO and Sprit/Quantum. In March of 2018 Quantum collected bulk samples from various debris piles and confirmed the presence of asbestos-containing materials on the property. Based on the analytical results and Quantum's visual assessment, an ISP was issued by Spirit/Quantum on May 3, 2018 to address the identified RACS. The ISP was submitted to the State of Colorado Department of Public Health and Environment (CDPHE) who provided comments to the ISP on May 23, 2018. The final version of the ISP incorporating CDPHE's comments was issued on June 5, 2018. At the request of the City of Greeley, Terracon performed an inspection of I15-1 (Area 1) on July 3, 2018 to further delineate the location and extent of the identified RACS. Based on that inspection, the extent of RACS requiring soil coverage within Area 1 was modified. On July 12, 2018 CDPHE approved the final ISP and Addendum #01, and Region 8 Enviro was issued a notice proceed with the ISP.

3.0 ASBESTOS OVERSIGHT

3.1 Field Activities

The oversight of stabilization activities was conducted by Mr. Jeff Delise and Mr. Rylan MacVey, AHERA-accredited and State of Colorado-certified asbestos building inspectors on July 25 and 27, 2018. Copies of Mr. Delise's and Mr. MacVey's asbestos inspector certifications are attached in Appendix C. The inspection was conducted in general accordance with the ISP and Addendum #01.

3.2 Installation of Fencing, Signage, and Geotextile

At the completion of ISP activities on July 27, 2018, Terracon observed that proper fencing and signage fully surrounded the areas of concern within Areas 3, 7 and 8. Terracon also observed that Region 8 Enviro had properly removed and disposed of RACS in locations H11-1 and J17A-3. In addition, the geotextile (DeWett 4.5 oz, Non-Woven) placed by Region 8 Enviro in RACS locations I15-1, J17-2 & J17-3, H10-5 and O28-2 2 fully covered the RACS and was properly secured. Terracon confirmed that the geotextile extended three feet from the RACS debris piles in all directions in accordance with ISP.

3.3 Confirmation of Soil Coverage

Based on our final visual inspection performed on July 27, 2018, fill dirt was placed over the geotextile in RACS locations I15-1, J17-2 & J17-3, H10-5 and O28-2 in accordance with the ISP. Terracon confirmed that at least six inches of fill soil was placed over the geotextile in each location.

Selective photographs of the oversight activities are presented in Appendix A.

4.0 FINDINGS AND RECOMMENDATIONS

Based on our observations, stabilization activities were properly performed by Region 8 Environ in accordance with the ISP and Addendum #01. Asbestos waste was properly bagged, removed from site, and transported to Denver Arapahoe disposal site (DADS) landfill for disposal. Disposal records are presented in Appendix B.

Terracon recommends following any applicable long-term inspections and maintenance described in the ISP.

5.0 LIMITATIONS/GENERAL COMMENTS

The analysis and conclusions in this report are based upon data obtained while monitoring asbestos remediation activities. The professional services provided and judgments rendered on this project are consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information that may have been used in the preparation of this report. No warranty, express or implied, is made.

APPENDIX A

PHOTOGRAPHS

			
Photo #1	View of the geotextile installed in H10-5	**Photo #2**	View of the geotextile installed in J17-2 and J17-3
			
Photo #3	View of the geotextile installed in I15-1	**Photo #4**	View of geotextile installed in I15-1
			
Photo #5	View of the geotextile installed in O28-2	**Photo #6**	View of cleanup of J17A-3

			
Photo #7	View of cleanup of H11-1	**Photo #8**	View of soil placement at H10-5
			
Photo #9	View of verification of 6+ inches of soil at H10-5	**Photo #10**	View of soil placement at J17-2 & J17-3
			
Photo #11	View of verification of 6+ inches of soil at J17-2 & J17-3	**Photo #12**	View of soil placement at I15-1

			
Photo #12	View of verification of 6+ inches of soil at I15-1	**Photo #13**	Second view of soil placement at I15-1
			
Photo #14	Second view of soil placement at I15-1	**Photo #15**	View of soil placement at O28-2

APPENDIX B

WASTE MANIFEST

ASBESTOS NESHAP WASTE SHIPMENT RECORD

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
		800-424-9300	220110

GENERATOR

5. Generator's Name and Mailing Address: Greeley Fishing Pond
1001 9th Ave
Lower Floor
Greeley, CO 80631
Generator's Phone: 970-350-9333

Generator's Project Address (if different than mailing address)
Intersection of 1st Ave and 31st street
Greeley, CO

6. Transporter 1: Complete Company Name and Address: Region 8 Enviro, LLC 4710 Newport St, Commerce City, CO 80022 — Transporter Phone: 303-424-4227

7. Transporter 2: Complete Company Name and Address — Transporter Phone

8. Designated Disposal Facility Name and Site Address — Facility's Phone:

	9. Waste Shipping Name, Description, & Profile Number	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	RQ, NA 2212, Asbestos, 9, PG III	01	RO	01	Y	
2.						

13. Regulatory Agency: Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

Emergency Notification:
CHEMTREC (800) 424-9300
24-hour Toll Free Number

14. Bill to & Account Number:

15. Contractor/Generator Certification:
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/ placarded, and are in all respects in proper condition for transportation and disposal according to applicable national and state governmental regulations.
I hereby certify that the above described waste is not a hazardous waste as defined by federal, state or local regulations and does not contain regulated quantities of PCB's or radioactive materials.

Generator's/Offeror's Printed/Typed Name: Jeff A. DeLue #24310 — Signature — Month 07 Day 27 Year 18

TRANSPORTER

16. Transporter Acknowledgement of Receipt of Materials

Transporter 1 Printed/Typed Name: Michael Heim — Signature — Month 07 Day 27 Year 18

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Special Handling Instructions
Soil originating from the above site shall not be used as daily cover or sold as clean fill.

18. Discrepancy Indication Space:

19. Ticket #

Initials of Person noting discrepancy _____ Signature _____ Date _____

20. Management Method/Location

Landfill _____ Monofill _____ Location:

21. Designated Disposal Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 18

Printed/Typed Name — Signature — Month Day Year

169-BLC-O 6 10498 (Rev. 10/14)

GENERATORS INITIAL COPY

APPENDIX C

CERTIFICATIONS

CHC Training
Nationwide Training & Certification Experts
www.trainingchc.com
303.412.6360
(855) 60.CERTIFY

1775 West 55th Avenue
Denver, CO 80221,
United States of America

CERTIFICATE OF ACHIEVEMENT

This certificate is awarded to:

JEFF DELISE

In recognition of satisfactory completion of the EPA-approved annual asbestos refresher training course under section 206 of the Toxic Substance Control Act (TSCA), Title II entitled:

BUILDING INSPECTOR

COURSE DATE:	APRIL 4, 2018
EXPIRATION DATE	APRIL 4, 2019
COURSE HOURS:	4.0

Verify Credential

Danaya N. Benedetto
Co-Founder & CEO
Training Program Manager

Credential License ID: 11416737

CHC TRAINING EST. 2007 ACCREDITED ALUMNI — SAFETY, QUALITY, COMPLIANCE, INTEGRITY

Michael A. Benedetto
Instructor

CHC Training Certificate No.
R18-0567-AI-CO

Visit our Website

Colorado Department
of Public Health
and Environment

ASBESTOS CERTIFICATION*

This certifies that

Jeffrey A Delise

Certification No.: 24310

has met the requirements of 25-7-507, C.R.S. and Air Quality Control Commission Regulation No. 8, Part B, and is hereby certified by the state of Colorado in the following discipline:

Building Inspector*

Issued: **February 14, 2018**

Expires: **February 14, 2019**

**** This certificate is valid only with the possession of a current Division-approved training course certification in the discipline specified above.***

Authorized APCD Representative

SEAL

CHC Training
Nationwide Training & Certification Experts

www.chctraining.com
303.412.6360
855.60.CERTIFY

1775 West 55th Avenue
Denver, CO 80221,
United States of America
Colorado State Approval No. 22651

Certificate of Acheivement

This certificate is awarded to:

Rylan Macvey

In recognition of satisfactory completion of the EPA-approved initial asbestos training course under section 206 of the Toxic Substance Control Act (TSCA), Title II entitled:

BUILDING INSPECTOR

Course Dates:	June 25 - 27, 2018
Examination Date:	June 27, 2018
Expiration Date:	June 27, 2019
Course Hours:	24.0

Verify this Credential

Danaya N. Benedetto
CEO & Training Program Manager

Credential License ID:
11667379

CHC Training
Safety Quality Compliance Integrity
Est. 2007
Accredited Alumni

Frank Hulce
Instructor

CHC Training Certificate No.
I18-1307-AI-CO

Visit our Website

Limited Asbestos Assessment

Greeley Fishing Pond Hazardous Materials Assessment
Intersection of 1st Avenue and 31st Street
Greeley, Colorado

August 21, 2018

Terracon Project No. 21187023

Prepared for:
City of Greeley
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Wheat Ridge, Colorado

August 21, 2018

City of Greeley
1001 9th Avenue
Greeley, Colorado 80631

Attn: Mr. Brian Ward P.E., P.M.P.
Public works Project Manager
P: 970.350.9357
E: brian.ward@greeleygov.com

Re: Limited Asbestos Assessment
Greeley Fishing Pond Hazardous Materials Assessment
Intersection of 1st Avenue and 31st Street
Greeley, Colorado
Terracon Project No. 21187023

Dear Mr. Ward:

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached report for the above-referenced site to the City of Greeley. The purpose of this report is to present the results of the limited asbestos assessment of the property performed on July 24, 25, and August 6, 2018. This limited assessment was conducted in as part of the scope of services outlined in the Greeley Fishing Pond Hazardous Materials Assessment Project (RFP #FA18-04-040) and our contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018.

Terracon appreciates the opportunity to provide this service to the City of Greeley. If you have any questions regarding this report please contact the undersigned at 303-423-3300.

Sincerely,
Terracon Consultants, Inc.

Prepared By:

Jeff A. Delise
Project Manager
State License No. 24310

Reviewed By:

Kurt Streeb
Senior Project Manager
State License No. 9234

TABLE OF CONTENTS

LIMITED ASBESTOS ASSESSMENT
Greeley Fishing Pond Hazardous Materials Assessment
Intersection of 1st Avenue and 31st Street
Greeley, Colorado

Terracon Project No. 21187023

August 21, 2018

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted a limited asbestos assessment at the property located at the intersection of 1st avenue and 31st Street in Greeley, Colorado. The limited asbestos assessment was conducted on July 24, 25, and August 6, 2018, by AHERA-accredited and State of Colorado-certified asbestos inspectors in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and our contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018.

Terracon was responsible to conduct a visual assessment of surface soils within the property boundaries identified in the RFP (within the red property line as shown on Figure 1: Greeley Fishing Pond Project Area). The objective of this task was to visually assess and document any suspect asbestos-containing material (ACM) debris on the surface of the property soils (excluding the ACM previously identified in the Quantum Water & Environment and Spirt Environmental, LLC Interim Stabilization Plan (ISP) for Regulated Asbestos Contaminated Soil dated June 5, 2018) and obtain bulk samples for analysis. Suspect ACM samples were collected in general accordance with the sampling protocols outlined in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763, Subpart E, known as the Asbestos Hazard Emergency Response Act (AHERA) and Solid Waste Sites and Facilities (Solid Waste Regulations), 6 CCR 1007-2 Section 5 Asbestos Waste Management, 5.5 Management of Regulated Asbestos-Contaminated Soils. Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

1.1 Reliance

This report is for the exclusive use of the City of Greeley for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and the City of Greeley. Reliance on this report by the City of Greeley and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and Terracon's Agreement for Services. The limitations of liability defined in Terracon's Agreement for Services is the aggregate limit of Terracon's liability to the City of Greeley.

2.0 PROPERTY DESCRIPTION

The subject property is an approximately 39-acre undeveloped property purchased by the City of Greeley in 2015. In 2015 and 2018 debris piles containing building materials were observed in the southeast, approximately 5-acre area of the property (generally within Areas 3, 7 and 8 as depicted on the Appendix A, Property Overview Map found in the Spirit/Quantum ISP) by ERO and Sprit/Quantum. In March of 2018 Quantum collected bulk samples from various debris piles and confirmed the presence of ACM on the property. Based on the analytical results and Quantum's visual assessment, an ISP was issued by Spirit/Quantum on May 3, 2018 to address the identified regulated asbestos-contaminated soil (RACS). Terracon was tasked with assessing the remainder of the site for suspect ACM to include in an overall hazard materials assessment of the site.

3.0 ASBESTOS ASSESSMENT

3.1 Field Activities

The inspection was conducted by Mr. Jeff Delise and Mr. Rylan MacVey, AHERA-accredited and State of Colorado-certified asbestos inspectors on July 24, 25, and August 6, 2018. Copies of Mr. Delise's and Mr. MacVey's asbestos inspector certifications are attached in Appendix E. The inspection was conducted in general accordance with the RFP.

3.2 Visual Assessment

Survey activities were initiated with visual observation of the property (within the property line boundary but excluding the previously identified areas surveyed by Quantum/Spirit in the ISP). A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.

Terracon inspectors walked all accessible areas of the property and visually assessed and documented any suspect asbestos-containing building material (ACBM) debris on the property and obtained bulk samples for analysis.

3.3 Physical Assessment

A physical assessment of each HA of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.4 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA and CDPHE Solid Waste Regulations sampling protocols. Samples of suspect materials were collected from randomly selected locations in each homogeneous area.

Bulk samples were collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM. A summary of suspect ACM samples collected during the survey is included in Appendix A.

Selective photographs of homogenous materials are presented in Appendix C. Sample locations are presented in Appendix D.

3.5 Sample Analysis

Bulk samples were submitted under chain of custody to EMLab P&K of Arvada, Colorado for analysis by polarized light microscopy (PLM) with dispersion staining techniques per USEPA methodology 600/R-93/116. Analysis of the bulk samples was conducted in accordance with Appendix E to Subpart E of 40 CFR Part 763 and EPA/600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopic visual estimation. EMLab P&K is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) Accreditation No. 500053-0. EMLab is a registered CDPHE asbestos laboratory (Registration No. 18529).

4.0 REGULATORY OVERVIEW

The Colorado Department of Public Health and Environment (CDPHE) regulates asbestos content in soils in Solid Waste Sites and Facilities (Solid Waste Regulations), 6 CCR 1007-2 Section 5 Asbestos Waste Management, 5.5 Management of Regulated Asbestos-Contaminated Soils. Asbestos-contaminated soil (ACS) is defined as soil containing any detectable amount of asbestos. The regulation classifies friable material (or any non-friable rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage) as regulated asbestos-contaminated soil (RACS). Management of RACS is regulated in Section 5.5 of the soils regulation. According to Section 5.5, CDPHE must be notified 10 working days in advance of disturbance of known RACS, or within 24 hours of unexpected discovery of RACS. Non-friable material that has not been rendered friable or deteriorated due to weathering, historical mechanical impact or fire damage is considered non-regulated ACS (Non-RACS) and is not regulated under Section 5.5; but is subject to the requirement for proper disposal as non-friable asbestos waste under Section 5.5.2 (G).

The United States Occupational Safety and Health Administration (USOSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The USOSHA standard requires that employee exposure to airborne asbestos must not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an eight-hour time weighted average (TWA) and not exceed 1.0 f/cc over a 30-minute time period known as an excursion limit (EL). The TWA and EL are known as USOSHA's asbestos permissible exposure limits (PELs). The USOSHA standard classifies construction and maintenance activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

5.0 FINDINGS AND RECOMMENDATIONS

Laboratory analysis confirmed the following asbestos-containing non-friable materials:

- Red Flooring Material
- Gray Mastic
- Black Roofing Tar and Felt associated with Gray Mastic
- Black Mastic with Silver Coating and Paint
- Black Roofing Tar and Felt associated with Black Mastic

Based on our observations, Terracon considers the ACM debris to be non-RACS. According to CDPHE Solid Waste Regulations, non-friable ACM debris that has not been rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage is considered non-RACS and is therefore exempt from Section 5.5 of the Solid Waste regulations, but is subject to the requirement for proper disposal as non-friable asbestos waste.

The summary of sample locations is presented in Appendix A. Laboratory analytical reports are included in Appendix B.

6.0 LIMITATIONS/GENERAL COMMENTS

The limited asbestos assessment did not include an investigation of subsurface suspect materials. In addition, reasonable efforts to access suspect materials on the property were made; however, areas which may pose a health or safety risk to Terracon personnel were not sampled.

This limited asbestos assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our survey of the property. The information contained in this report is relevant to the date on which this assessment was performed, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by the City of Greeley for specific application to their project as discussed. This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A

Greeley Fishing Pond Hazardous Materials Assessment
Intersection of 1st Avenue and 31st Street – Greeley, Colorado

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Sample Number	Material Description	Sample Location (coordinates)	Layer	Lab Results	HA Location (coordinates)	Condition	RACS?	NESHAP Categorization	OSHA Categorization	Estimated Quantity
01	072418-JD01 A	Brown Fibrous Debris	N 40.38464 W 104.67475	Brown Semi-Fibrous Material	None Detected	N 40.38464 W 104.67475	Damaged	NA	Friable	Misc.	2 SF
01	072418-JD01 B			Brown Semi-Fibrous Material	None Detected						
01	072418-JD01 C			Brown Semi-Fibrous Material	None Detected						
02	072418-JD02 A	Roofing Shingle Debris	N 40.38471 W 104.67755	Black Roofing Shingle with Brown Pebbles	None Detected	N 40.38471 W 104.67755	Damaged	NA	CAT I Non-Friable	Misc.	32 SF
02	072418-JD02 B			Black Roofing Shingle with Brown Pebbles	None Detected						
02	072418-JD02 C			Black Roofing Shingle with Brown Pebbles	None Detected						
03	072418-JD03 A	White Vinyl Sheet Flooring Debris	N 40.38477 W 104.67751	Off-White Sheet Flooring with Fibrous Backing	None Detected	N 40.38477 W 104.67751	Damaged	NA	Friable	Misc.	1 SF
03	072418-JD03 B			Off-White Sheet Flooring with Fibrous Backing	None Detected						
03	072418-JD03 C			Off-White Sheet Flooring with Fibrous Backing	None Detected						
04	072418-JD04 A	Roofing Shingle Debris	N 40.38483 W 104.67190	Black Roofing Shingle with Tan Pebbles	None Detected	N 40.38483 W 104.67190	Damaged	NA	CAT I Non-Friable	Misc.	5 SF
04	072418-JD04 B			Black Roofing Shingle with Tan Pebbles	None Detected						
04	072418-JD04 C			Black Roofing Shingle with Tan Pebbles	None Detected						
05	072418-JD05 A	Gray Cementitious Debris	N 40.38598 W 104.67165	Gray Cementitious Material	None Detected	N 40.38598 W 104.67165	Damaged	NA	CAT II Non-Friable	Misc.	20 SF
05	072418-JD05 B			Gray Cementitious Material	None Detected						
05	072418-JD05 C			Gray Cementitious Material	None Detected						
06	072418-RM01 A	Brown Fibrous Debris	N 40.38465 W 104.67452	Brown Fibrous Material	None Detected	N 40.38465 W 104.67452	Damaged	NA	Friable	Misc.	2 SF
06	072418-RM01 B			Brown Fibrous Material	None Detected						
06	072418-RM01 C			Brown Fibrous Material	None Detected						
07	072518-RM01 A	Roofing Shingle Debris	N 40.38541 W 104.67728	Black Roofing Shingle with Black Pebbles	None Detected	N 40.38541 W 104.67728	Damaged	NA	CAT I Non-Friable	Misc.	3 SF
07	072518-RM01 B			Black Roofing Shingle with Black Pebbles	None Detected						
07	072518-RM01 C			Black Roofing Shingle with Black Pebbles	None Detected						

HA No.	Sample Number	Material Description	Sample Location	Layer	Lab Results	HA Location	Condition	RACS?	NESHAP Categorization	OSHA Categorization	Estimated Quantity
08	080618-JD01 A	Red Flooring Debris	N 40.2302 W 104.4008	1 – Red Flooring Material 2 – Black Adhesive	6% Chrysotile ND	N 40.2302 W 104.4008	Damaged	No	CAT I Non-Friable	Misc.	10 SF
08	080618-JD01 B			1 – Red Flooring Material 2 – Black Adhesive	6% Chrysotile ND						
08	080618-JD01 C			1 – Red Flooring Material 2 – Black Adhesive	6% Chrysotile ND						
09	080618-JD02 A	Gray Mastic Debris	N 40.2303 W 104.3958	1 – Gray Mastic 2 – Black Roofing Tar and Felt	8% Chrysotile 40% Chrysotile	N 40.2303 W 104.3958	Damaged	No	CAT II Non-Friable	Misc.	5 SF
09	080618-JD02 B			1 – Gray Mastic 2 – Black Roofing Tar and Felt	8% Chrysotile 40% Chrysotile						
09	080618-JD02 C			1 – Gray Mastic 2 – Black Roofing Tar and Felt	8% Chrysotile 40% Chrysotile						
10	080618-JD03 A	Black Mastic Debris	N 40.2302 W 104.4005	1 – Black mastic with Silver Coating and Paint 2 – Black Roofing Tar and Felt	8% Chrysotile 40% Chrysotile	N 40.2303 W 104.3958	Damaged	No	CAT II Non-Friable	Misc.	45 SF
10	080618-JD03 B			1 – Black mastic with Silver Coating	8% Chrysotile	N 40.2302 W 104.4005					
10	080618-JD03 C			1 – Black mastic with Silver Coating 2 – Black Roofing Tar and Felt	8% Chrysotile 40% Chrysotile	N 40.2302 W 104.3958					

APPENDIX B

ASBESTOS LABORATORY ANALYTICAL DATA

EMLab P&K
A TestAmerica Company

Report for:

Jeff Delise
Terracon: CO
10625 W I-70 Frontage Road N
Suite 3
Wheat Ridge, CO 80033

Regarding: Project: 21187022; Greeley Fishing Pond
EML ID: 1967991

Approved by:

Approved Signatory
Noah Lazarte

Dates of Analysis:
Asbestos PLM: 07-30-2018

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187022; Greeley Fishing Pond

Date of Sampling: 07-25-2018
Date of Receipt: 07-25-2018
Date of Report: 07-30-2018

ASBESTOS PLM REPORT

Total Samples Submitted:	21
Total Samples Analyzed:	21
Total Samples with Layer Asbestos Content > 1%:	0

Location: 072418-JD01A Lab ID-Version‡: 9272325-1

Sample Layers	Asbestos Content
Brown Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Hair/Wool
Sample Composite Homogeneity:	Poor

Location: 072418-JD01B Lab ID-Version‡: 9272326-1

Sample Layers	Asbestos Content
Brown Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Hair/Wool
Sample Composite Homogeneity:	Poor

Location: 072418-JD01C Lab ID-Version‡: 9272327-1

Sample Layers	Asbestos Content
Brown Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Hair/Wool
Sample Composite Homogeneity:	Poor

Location: 072418-JD02A Lab ID-Version‡: 9272328-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Brown Pebbles	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187022; Greeley Fishing Pond

Date of Sampling: 07-25-2018
Date of Receipt: 07-25-2018
Date of Report: 07-30-2018

ASBESTOS PLM REPORT

Location: 072418-JD02B

Lab ID-Version‡: 9272329-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Brown Pebbles	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187022; Greeley Fishing Pond

Date of Sampling: 07-25-2018
Date of Receipt: 07-25-2018
Date of Report: 07-30-2018

ASBESTOS PLM REPORT

Location: 072418-JD02C Lab ID-Version‡: 9272330-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Brown Pebbles	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 072418-JD03A Lab ID-Version‡: 9272331-1

Sample Layers	Asbestos Content
Off-White Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Good

Location: 072418-JD03B Lab ID-Version‡: 9272332-1

Sample Layers	Asbestos Content
Off-White Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Good

Location: 072418-JD03C Lab ID-Version‡: 9272333-1

Sample Layers	Asbestos Content
Off-White Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Good

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187022; Greeley Fishing Pond

Date of Sampling: 07-25-2018
Date of Receipt: 07-25-2018
Date of Report: 07-30-2018

ASBESTOS PLM REPORT

Location: 072418-JD04A Lab ID-Version‡: 9272334-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Tan Pebbles	ND
Composite Non-Asbestos Content:	30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 072418-JD04B Lab ID-Version‡: 9272335-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Tan Pebbles	ND
Composite Non-Asbestos Content:	30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 072418-JD04C Lab ID-Version‡: 9272336-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Tan Pebbles	ND
Composite Non-Asbestos Content:	30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 072418-JD05A Lab ID-Version‡: 9272337-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Good

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187022; Greeley Fishing Pond

Date of Sampling: 07-25-2018
Date of Receipt: 07-25-2018
Date of Report: 07-30-2018

ASBESTOS PLM REPORT

Location: 072418-JD05B Lab ID-Version‡: 9272338-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Good

Location: 072418-JD05C Lab ID-Version‡: 9272339-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Good

Location: 072418-RM01A Lab ID-Version‡: 9272340-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 072418-RM01B Lab ID-Version‡: 9272341-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: Terracon: CO
C/O: Jeff Delise
Re: 21187022; Greeley Fishing Pond

Date of Sampling: 07-25-2018
Date of Receipt: 07-25-2018
Date of Report: 07-30-2018

ASBESTOS PLM REPORT

Location: 072418-RM01C Lab ID-Version‡: 9272342-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 072518-RM01A Lab ID-Version‡: 9272343-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Composite Non-Asbestos Content:	30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 072518-RM01B Lab ID-Version‡: 9272344-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Composite Non-Asbestos Content:	30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 072518-RM01C Lab ID-Version‡: 9272345-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Composite Non-Asbestos Content:	30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
A TestAmerica Company

Report for:

Jeff Delise
Terracon: CO
10625 W I-70 Frontage Road N
Suite 3
Wheat Ridge, CO 80033

Regarding: Project: 21187023; Greeley Pond
EML ID: 1976243

Approved by:

Approved Signatory
Noah Lazarte

Dates of Analysis:
Asbestos PLM: 08-08-2018

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187023; Greeley Pond

Date of Sampling: 08-06-2018
Date of Receipt: 08-07-2018
Date of Report: 08-10-2018

ASBESTOS PLM REPORT

Total Samples Submitted:	9
Total Samples Analyzed:	9
Total Samples with Layer Asbestos Content > 1%:	9

Location: 080618-JD-01A, Red Roofing Lab ID-Version‡: 9313150-1

Sample Layers	Asbestos Content
Red Roofing Material	6% Chrysotile
Black Adhesive	ND
Sample Composite Homogeneity:	Moderate

Location: 080618-JD-01B, Red Roofing Lab ID-Version‡: 9313151-1

Sample Layers	Asbestos Content
Red Roofing Material	6% Chrysotile
Black Adhesive	ND
Sample Composite Homogeneity:	Moderate

Location: 080618-JD-01C, Red Roofing Lab ID-Version‡: 9313152-1

Sample Layers	Asbestos Content
Red Roofing Material	6% Chrysotile
Black Adhesive	ND
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: Terracon: CO
C/O: Jeff Delise
Re: 21187023; Greeley Pond

Date of Sampling: 08-06-2018
Date of Receipt: 08-07-2018
Date of Report: 08-10-2018

ASBESTOS PLM REPORT

Location: 080618-JD-002A, Grey Mastic Lab ID-Version‡: 9313153-1

Sample Layers	Asbestos Content
Gray Mastic	8% Chrysotile
Black Roofing Tar and Felt	40% Chrysotile
Composite Non-Asbestos Content:	20% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 080618-JD-002B, Grey Mastic Lab ID-Version‡: 9313154-1

Sample Layers	Asbestos Content
Gray Mastic	8% Chrysotile
Black Roofing Tar and Felt	40% Chrysotile
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 080618-JD-002C, Grey Mastic Lab ID-Version‡: 9313155-1

Sample Layers	Asbestos Content
Gray Mastic	8% Chrysotile
Black Roofing Tar and Felt	40% Chrysotile
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Moderate

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: Terracon: CO
C/O: Jeff Delise
Re: 21187023; Greeley Pond

Date of Sampling: 08-06-2018
Date of Receipt: 08-07-2018
Date of Report: 08-10-2018

ASBESTOS PLM REPORT

Location: 080618-JD-003A, Black Mastic Lab ID-Version‡: 9313156-1

Sample Layers	Asbestos Content
Black Mastic with Silver Coating and Paint	8% Chrysotile
Black Roofing Tar and Felt	40% Chrysotile
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Comments: Some layers in the sample were inseparable without cross contamination.

Location: 080618-JD-003B, Black Mastic Lab ID-Version‡: 9313157-1

Sample Layers	Asbestos Content
Black Mastic with Silver Coating	8% Chrysotile
Sample Composite Homogeneity:	Poor

Comments: Some layers in the sample were inseparable without cross contamination.

Location: 080618-JD-003C, Black Mastic Lab ID-Version‡: 9313158-1

Sample Layers	Asbestos Content
Black Mastic with Silver Coating	8% Chrysotile
Black Roofing Tar and Felt	40% Chrysotile
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

APPENDIX C

PHOTOGRAPHS

Photo #1	View of 072418-JD01

Photo #2	View of 072418-JD02

Photo #3	View of 072418-JD03

NO PHOTO AVAILABLE

Photo #4	View of 072418-JD04

Photo #5	View of 072418JD-05

Photo #6	View of 072418RM-01

Photo #7	View of 072518-RM01

Photo #8	View of 080618-JD01

Photo #9	View of 080618-JD01

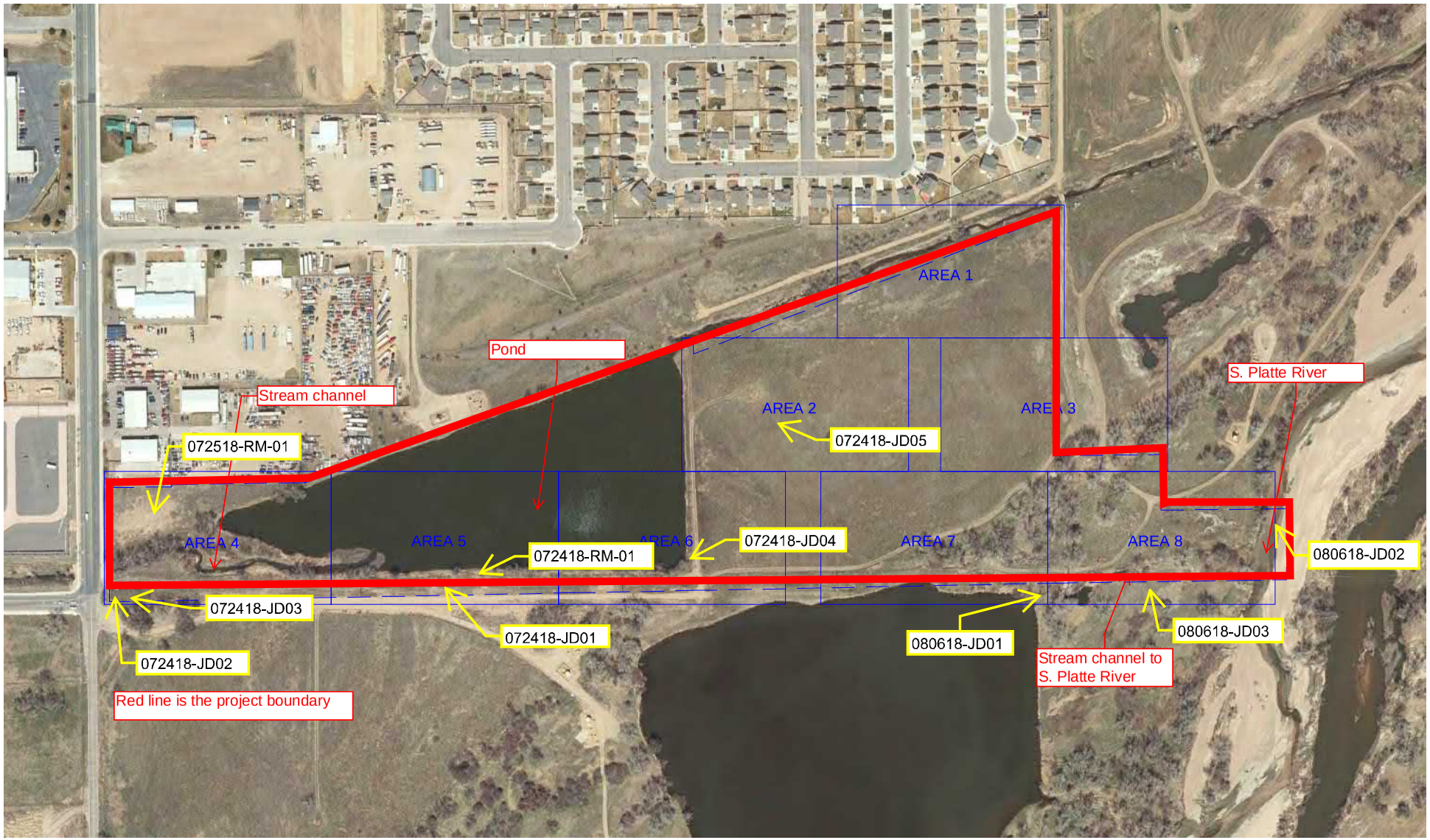
Photo #10	View of 080618-JD03

Photo #5	View of 080618-JD03

Photo #12	View of 080618-JD02

APPENDIX D

SAMPLE LOCATION MAP



Drawing Date: 9/29/2017 7:59:21 AM Drawing File Name: Site Maps.dwg Horiz. Scale: 1"=250' Vert. Scale: NA Designed by: BEW Checked by: N/A	Sheet Revisions Date: 10/13/17 Comments: Conceptual Site Plan Init.	City of Greeley Colorado	CITY OF GREELEY, COLORADO PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION 1001 NINTH AVENUE GREELEY, COLORADO 80631 greeleygov.com/engineering	As Constructed No Revisions: Revised: Void:	Area Layouts 1st Avenue Fishing Pond	Project No./Code COG: 318 00 060 4631 0000 Sheet Number 4

APPENDIX E

CERTIFICATIONS

Colorado Department
of Public Health
and Environment

ASBESTOS CERTIFICATION*

This certifies that

Jeffrey A Delise

Certification No.: 24310

has met the requirements of 25-7-507, C.R.S. and Air Quality Control Commission Regulation No. 8, Part B, and is hereby certified by the state of Colorado in the following discipline:

Building Inspector*

Issued: **February 14, 2018**

Expires: **February 14, 2019**

**** This certificate is valid only with the possession of a current Division-approved training course certification in the discipline specified above.***

Authorized APCD Representative

SEAL

Colorado Department
of Public Health
and Environment

ASBESTOS CERTIFICATION*

This certifies that

Rylan D MacVey

Certification No.: 24848

has met the requirements of 25-7-507, C.R.S. and Air Quality Control Commission Regulation No. 8, Part B, and is hereby certified by the state of Colorado in the following discipline:

Building Inspector*

Issued: **August 08, 2018**

Expires: **August 08, 2019**

**** This certificate is valid only with the possession of a current Division-approved training course certification in the discipline specified above.***

Authorized APCD Representative

SEAL

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

August 31, 2018

Mr. Brian Ward, PE, PMP
Public Works Project Manager
City of Greeley
1001 9th Avenue
Greeley, CO 80631

RE: **Acceptance:** *Oversight of Interim Stabilization Activities of Regulated Asbestos-Contaminated Soils* – Greeley Fishing Pond Site, Greeley, Colorado, dated August 6, 2018
SW/WLD/GFP 3.10

Dear Mr. Ward:

The Colorado Department of Public Health and Environment ("CDPHE"), Hazardous Materials and Waste Management Division ("Division") has received the following oversight report regarding interim stabilization activities that were performed to stabilize Regulated Asbestos Contaminated Soil (RACS) at the Greeley Fishing Pond Site near the intersection of 1st Avenue and 31st Street in Greeley, CO:

- *Oversight of Interim Stabilization Activities of Regulated Asbestos-Contaminated Soils* (the Report)

The above referenced Report was submitted to document that initial stabilization of RACS materials was performed in compliance with the approved *Final Interim Stabilization Plan, City of Greeley Fishing Pond* and the associated *Addendum #01 to Interim Stabilization Plan for RACS*.

After review, the Division hereby **accepts** the oversight report for the Greeley Fishing Pond Site.

As a reminder, the Division's inspection cover letter dated May 16, 2018 contained three requested items in response to the inspection of the Greeley Fishing Pond Site conducted on April 3, 2018. The first two requested items have been addressed by the City, and the Division appreciates your efforts towards this end. Please keep in mind that the third requested item is still outstanding and will need to be addressed in a timely fashion. The third requested item is reiterated below for your benefit:

Requested Action 3: Work with the Division to develop a final remedy (development and implementation of a closure plan) for the site either through application to the Voluntary Cleanup Program (VCUP) or by working with the Solid Waste Permitting Unit of the Division. Successful application to the VCUP program or the submission of a closure plan to the Solid Waste Permitting Unit of the Division should be completed within 180 calendar days of your receipt of this letter (Inspection report cover letter was dated 5/16/18).

In Closing, the Division is authorized to bill for its review of technical submittals at $125 per hour, pursuant to Section 1.7 of the Solid Waste Regulations. An invoice for the Division's review of the subject documents will be sent under separate cover.

The Division contact person for this project is Brian Long, and may be contacted at (303) 691-4033 or briant.long@state.co.us.

Sincerely,

Brian T. Long
Environmental Protection Specialist
Solid Waste Compliance Assurance Unit
Solid Waste and Materials Management Program

ec: Kurt Streeb, Terracon Michael Skridulis, Terracon Kevin Troyer, Terracon
Ed Smith, CDPHE HMWMD

APPENDIX D
(On External Drive)

October 25, 2018

Mr. Brian Ward P.E., P.M.P.
Public Works Project Manager
City of Greeley
1001 9th Avenue
Greeley, CO 80631

Re: Cultural Resources Assessment
Greeley Fishing Pond
Greeley, Colorado
Terracon Project No. 21187023

Dear Mr. Ward:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to provide the City of Greeley (Client) with the following Cultural Resources Assessment for the above-referenced project. This project was performed in accordance with Terracon's Proposal dated May 23, 2018.

1.0 PROJECT INFORMATION

1.1 Project Area Description

The project is located east of 1st Avenue and 31st Street in Greeley, Weld County, Colorado and consists of an approximate 39-acre tract of vacant land (hereinafter, the site), which is bordered at the east by the South Platte River (Figure 1). The site consists primarily of open space with a man-made pond. See Photographs included with this letter.

1.2 Environmental Setting

The project area lies within the Colorado Piedmont-Great Plains physiographic province of Colorado and is part of the South Platte watershed. Geologically, the formation in which the project area is located is mapped as modern alluvium and gravels and alluviums. The closest water source to the project area is Greeley Pond, which is inside the project area. In terms of present conditions, the proposed project area consists of undeveloped land and has indications of modern dumping.

Geography of Weld County consists of dissected plains, valleys, and sand hills. Commercial agricultural dominates the region as a result of access to irrigation and water supplies, gently sloping topography, and deep, nutrient rich soil.

The project area consists primarily of open space with water retention features and waterways. Vegetation around the pond is typical of the disturbed species and consists primarily of cheatgrass (*Bromus tectorum*), Canadian horseweed (*Conyza canadensis*), reed canarygrass

(*Phlaris arundinacea*), eastern cottonwood (*Populus deltoides*), Russian thistle (*Salsola kali*), puncture vine (*Tribulus terrestris*), and Siberian elm (*Ulmus pumila*). The eastern portion of the site is typical of the mixed-grass prairie and consists primarily of smooth brome (*Bromis inermis*) across the entire site with a minor amount of intermediate wheatgrass (*Thinopyrum intermedium*). On the northern boundary the riverine is bordered by several cottonwoods, which line the riverine along with Bebb Willows (*Salix bebbiana*).

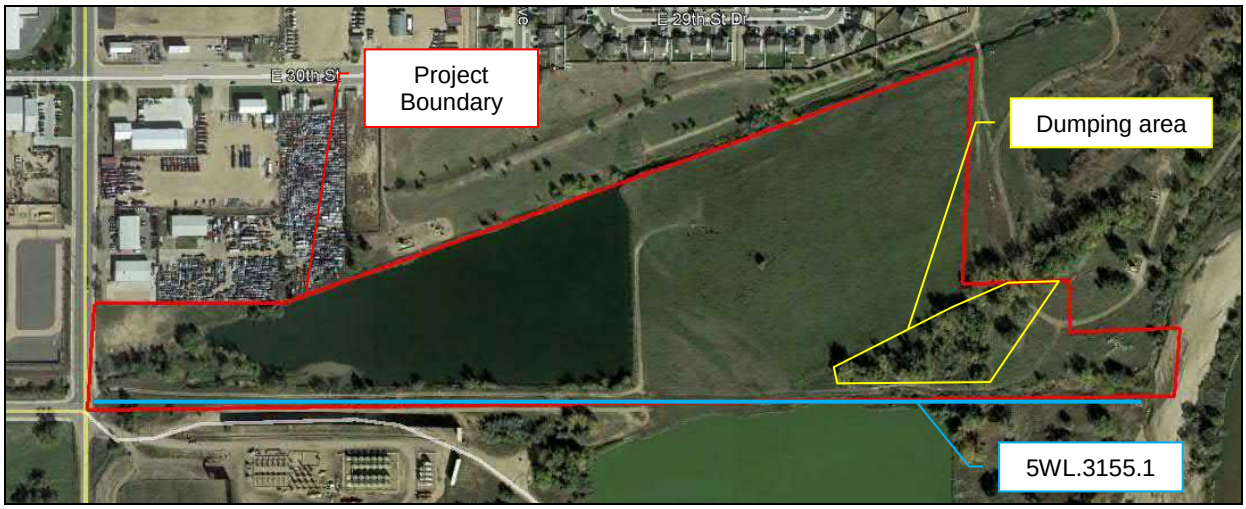


Figure 1. Project Area

2.0 RECORDS REVIEW

Prior to fieldwork, Terracon conducted an online records search using the State Historic Preservation Office (SHPO) Office of Archaeology and Historic Preservation's (OAHP) on-line Cultural Resource Database (Compass) to determine the presence of previously recorded cultural resources, archaeological sites, or historic properties within the project area. According to OAHP's Compass database, there are two previously recorded resources within the project area, 5WL.6167 and 5WL.3155.1 [Kiowa Creek to Weld Transmission Line, (segment)]. Records indicate that site 5WL.6167 is an isolated find that consists of three pieces of glass and is mapped on the southern project boundary. However, 5WL.6167 could not be relocated during the current study. The segment of Kiowa Creek to Weld Transmission Line (5WL.3155.1) is present within the project boundary (see Figure 1).

3.0 ARCHAEOLOGICAL FIELD METHODS

The archaeological survey of the potentially affected area was performed in general accordance with requirements set forth by the OAHP. The survey was performed by Elizabeth Newcomb, MA, RPA. Ms. Newcomb is a Principal Investigator who meets the *Secretary of the Interior's Professional Qualifications Standards* for archaeology. Fieldwork was completed on August 22, 2018, over the duration of six hours.

Terracon visually examined the project area using intensive pedestrian survey at 15m intervals. Ground surface visibility (GSV) was approximately 50 to 70 percent throughout the project area due to heavy vegetation. A portion of the southwestern project area has known illegal dumping. The dumping appears to be a series of industrial and domestic waste. The waste includes metal, roofing materials, building materials, and car parts. It is unclear if there are historic-aged resources in this area: However, Terracon did not include this area in the survey due to safety concerns from the industrial waste.

4.0 RESULTS

Based on the archaeological research and fieldwork, one previously recorded historic property is located within the project area, an eligible segment of the Kiowa Creek to Weld Transmission Line (5WL.3155.1) (See Photographs 11-13 attached to this letter). The 5WL.3155.1 is eligible under the National Register of Historic Places (NRHP) Criteria A and C. Due to what appears to be modern improvements, 5WL.3155.1 may no longer be eligible under NRHP Criterion C. However, as 5WL.3155.1 does not appear to have been relocated, it is still eligible under NRHP Criterion A as part of the Colorado-Big Thompson power grid that was expanded during the mid-20th century. No other cultural resources, archaeological sites, or historic properties are known to exist within the project area.

4.1 Archaeological Evaluation & Recommendations

On the basis of the records search and survey of the project area, Terracon identified one historic property, 5WL.3155.1, within the project area. It is Terracon's understanding that 5WL.3155.1 will not be disturbed as a result of this project. Terracon recommends a finding of ***no adverse effect*** on historic properties. Therefore, Terracon recommends no further cultural resources-related work be required.

The recommendations of this survey are based solely on the information and research publicly available at the state, federal, and local levels as well as the fieldwork conducted in the project area. No archaeological survey can wholly determine the presence of deeply buried archaeological features; therefore, should buried artifacts, human remains, cultural sites, or ground features be unexpectedly unearthed during construction activities, all construction should immediately cease, and the resources should be examined by a professional archaeologist. Additionally, appropriate authorities including all pertinent tribal entities and the Colorado SHPO should be notified. Inadvertent discoveries of human remains should follow Colorado's legal standards concerning human burials.

Sincerely,
Terracon Consultants, Inc.

Elizabeth B. Newcomb M.A., R.P.A
Principal Investigator

Ann M. Scott, Ph. D. R.P.A
Natural & Cultural Resources Group Manager

REFERENCES CITED

Chambellan, Collette C. And Steven F. Mehls
2009 *A Class I And Class III Cultural Resource Inventory Of The Kiowa Creek To Weld 115-kV Structure Replacement Project, Weld County*, Downloaded August 21, 2018.

Colorado Historical Society
2007 *Colorado Cultural Resource Survey Manual*. Electronic Document, www.historycolorado.org/sites/default/files/files/OAHP/crforms, Downloaded June 2, 2018.

Colorado Historical Society Office of Archaeology and Historic Preservation Compass
http://gis.co.gov/compass, accessed August 21, 2018.

Photo #1 View of project area. View to the southwest.

Photo #2 View of project area. View to the southeast.

Photo #3 View of project area. View to the south.

Photo #4 View of project area, Parcel A. View to the northeast.

Photo #5 View of project area, Parcel B. View to the north.

Photo #6 View of project area. View to the north.

Photo #7 View of project area, from center. View to the north.

Photo #8 View of project area, from center. View to the east.

Photo #9 View of project area, from center. View to the south.

Photo #10 View of project area, from center. View to the west.

Photo #11 View of 5WL.3155.1. View to the west.

Photo #12 View of 5WL.3155.1. View to the east.

Photo #13 View of View of 5WL.3155.1, close-up. View to the east.

October 31, 2018

Mr. Brian Ward P.E., P.M.P
Public Works Project Manager
City of Greeley
1001 9th Avenue
Greeley, CO 80631

Re: Natural Resources Assessment
Greeley Fishing Pond
Greeley, Colorado
Terracon Project No. P21187023

Dear Mr. Ward:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to provide the City of Greeley (client) with the following Natural Resources Assessment for the above-referenced project. This project was performed in accordance with Terracon's Proposal dated May 23, 2018.

1.0 PROJECT INFORMATION

1.1 Site Description

The project is located east of 1st Avenue and 31st Street in Greeley, Weld County, Colorado and consists of an approximately 39-acre tract of vacant land (hereinafter, the site) which is bordered at the east by the South Platte River (Appendix A, Exhibit 1). The site consists primarily of open space with a man-made pond.

2.0 ENVIRONMENTAL SETTING

2.1 Specific Features of the Site

Terracon's Natural Resource Lead, Tyler Worley, conducted a field survey on August 22, 2018 to evaluate the site for surface water and T&E species. The elevation of the site is approximately 4,630 feet (ft) above sea level, and surrounding areas include the town of Greeley, Co and numerous privately-owned residential housing, small commercial businesses, and water body features. The climate is semi-arid, with relatively cool winters, and hot summers. Mean annual precipitation is approximately 15.89 inches (in) and average annual temperature is 50° Fahrenheit (F) (NRCS 2018). The geology of the region consists of alluvium material associated with the South Platte River and sedimentary material with aeolian/loess deposits. The site is located in the central high plains of the northern portion of the Colorado Piedmont section of the Great Plains.

The site is located within the South Platte watershed. The South Platte River connects with the Big Thompson River, which flows into the Cache la Poudre River west of Greeley, CO. Geography of Weld County consists of dissected plains, valleys, and sand hills. Commercial

The site is located within the South Platte watershed. The South Platte River connects with the Big Thompson River, which flows into the Cache la Poudre River west of Greeley, CO. Geography of Weld County consists of dissected plains, valleys, and sand hills. Commercial agricultural dominates the region as a result of access to irrigation and water supplies, gently sloping topography, and deep, nutrient rich soil.

tectorum), Canadian horseweed (*Conyza canadensis*), reed canarygrass (*Phlaris arundinacea*), eastern cottonwood (*Populus deltoides*), Russian thistle (*Salsola kali*), puncture vine (*Tribulus terrestris*), and Siberian elm (*Ulmus pumila*). The eastern portion of the site is typical of the mixed-grass prairie and consists primarily of smooth brome (*Bromis inermis*) across the entire site with a minor amount of intermediate wheatgrass (*Thinopyrum intermedium*). On the northern boundary the riverine is bordered by several Cottonwoods which line the riverine along with Bebb Willows (*Salix bebbiana*).

3.0 PRELIMINARY DATA GATHERING

This natural resources assessment was requested to assist the client with identifying specific issues that could render the site either economically unfeasible for development or that would pose an unacceptable level of risk if development is pursued. Terracon reviewed published information including U.S. Geologic Survey (USGS) Topographic maps, National Wetlands Inventory (NWI) and the federally published threatened and endangered species (T&E) for Weld County, Colorado from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) system. Additionally, a screening-level ecological toxicity evaluation is provided in Section 6 to this report.

To complete the natural resources assessment, Terracon performed a limited evaluation of the following three subjects, which are discussed in sections 2.1 through 2.2:

1) Potential Jurisdictional Waters of the U.S., Including Wetlands
2) Protected Species (e.g., Threatened and Endangered Species)

3.1 Potential Jurisdictional Waters of the U.S., Including Wetlands

Terracon conducted a limited desktop review for the site to evaluate potential presence of apparent jurisdictional Waters of the U.S. (WOTUS), including wetlands, as defined and regulated by federal authority under 33 CFT Parts 320-330.

Wetlands as defined by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE), in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, (Federal Interagency Committee for Wetland Determination, 1989), are “those areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for

life in saturated soil conditions." Jurisdictional wetlands are regulated under Section 404 of the Clean Water Act/1972, Clean Water Act of 1977 and 1987, and the Farm Bills of 1985 and 1990.

Terracon reviewed the following resources to evaluate the potential presence of jurisdictional WOTUS, including suspected wetlands, on the site:

Topographic Map and Aerial Image Review

The USGS 7.5-Minute Topographic Quadrangle map of the project site was reviewed to identify drainages or other potential Waters of the U.S. within the site (Appendix A, Exhibit 2). A dry water lake and/or pond and riverine exist within the site boundary. Bordering the east site boundary is the South Platte River.

National Wetlands Inventory Map

National Wetlands Inventory (NWI) data for the project site was reviewed to identify potential wetland/waterbody areas (Appendix A, Exhibit 3). NWI data for the project site was published by the U.S. Department of the Interior's (DOI) U.S. Fish and Wildlife Service (USFWS) and depicts a freshwater pond and riverine within the project boundary. Aside from the suspect water features shown on the USGS topo, no other NWI layers are located in the site.

3.2 Protected Species

Terracon searched available data from the USFWS Information, Planning and Conservation System (IPaC) Endangered Species Act species list to identify species of concern determined by the activities proposed at the project site. Based on a review of the website, nine (9) species are listed as potentially occurring at the site. Terracon also reviewed a list of Federal and State protected species obtained from the USFWS Environmental Conservation Online System which identified 10 species listed in Weld County (Appendix B). A review of the Colorado Parks and Wildlife Threatened and Endangered Species list for Colorado identified 74 state-listed threatened or endangered species within the state of Colorado.

According to the IPaC report, suitable habitat for the following federal listed species (Table 1) is potentially present in Weld County, Colorado:

Taxon	Name	Species Habitat	Status
Mammals	Black-food Ferret (*Mustela nigripes*)	Great Plains and Intermountain West	Endangered
Mammals	Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)	Upland habitats of Colorado and Wyoming	Threatened
Birds	Least Tern (*Sterna antillarum*)	Sandbars along Rivers, sand and gravel pits	Endangered
Birds	Mexican Spotted Owl (*Strix occidentalis lucida*)	Older-growth temperate forest	Threatened

Birds	Piping Plover (*Charadrius melodus*)	Shorelines Platte River, sandy beaches and rocky shores	Threatened
Birds	Whooping Crane (*Grus americana*)	Shallow, grassy wetlands interspersed with grasslands or scattered evergreens.	Endangered
Fishes	Pallid Sturgeon (*Scaphirhynchuys albus*)	Lower reaches of Platte River	Endangered
Flowering Plants	Colorado Butterfly Plant (*Gaura neomexicana*)	Moist floodplains	Threatened
Flowering Plants	Ute Ladies'-tresses (*Spiranthes diluvialis*)	Near the base of the eastern slope of the Rocky Mountains in southeastern Wyoming and adjacent Nebraska and north central and central Colorado	Threatened
Flowering Plants	Western Prairie Fringed Orchid (*Platanthera praeclara*)	Central Lowlands and the eastern Great Plains of the U.S	Threatened

Habitats for the listed species identified were compared to desktop aerial imagery apparent habitat conditions at the project site. The project site consists of open, disturbed grassland.

The Migratory Bird Treaty Act of 1918 (MBTA) decrees that migratory birds and their parts (including eggs, nests, and feathers) are federally protected. The MBTA is the domestic law that affirms, or implements, the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each of the conventions protect selected species of birds that are common to these countries (i.e., they occur in these countries at some point during their annual life cycle). The following migratory birds of concern (Table 2) were identified within the vicinity of the project site on the IPaC.

Species Name	***Bird of Conservation Concern (BCC)***	***Seasonal Occurrence in Project Area****
Bald Eagle (Haliaeetus leucocephalus)	*Yes*	*Year-Round*
Golden Eagle (Aquila chrysaetos)	*Yes*	*Year-round*
Semipalmated Sandpiper (Calidris pusilla)	*Yes*	*Migration*
Willet (Tringa semipalmata)	*Yes*	*Breeding*

During the site visit, Terracon personnel traversed up to ½ mile from the project site to evaluate the presence or absence of wildlife. No raptors were observed in the vicinity of the site. Two blue herons were observed in flight above the project site. The various ponds surrounding the project location may be considered a concentration area for migratory birds or nesting waterfowl.

4.0 FIELD METHODOLOGY

4.1 Plant Community Assessment

Suspect areas were visually observed to determine the species, when possible, and absolute percentage of ground cover for four strata of plant community types. Herbs were generally observed within a two-meter square (m^2) radius, shrubs/saplings within a 5-m^2 radius (as applicable), and trees and woody vines (if present) within a 10-m^2 radius of the observation location.

For each plant species observed, the wetland indicator status was evaluated. The indicator statuses were determined using the USACE National Wetlands Plant List (NWPL). Indicator status categories for vegetation are presented below:

- Obligate Wetland (OBL) – occur almost always (estimated probability greater than 99%) under natural conditions in wetlands.
- Facultative Wetland (FACW) – usually occur in wetlands (estimated probability 67-99%) but occasionally found in non-wetlands.
- Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%).
- Facultative Upland (FACU) – usually occur in non-wetlands (estimated probability 67-99%) but occasionally found in wetlands.
- Obligate Upland (UPL) – rarely occur in wetlands, but occur almost always (estimated probability greater than 99%) under natural conditions in non-wetlands.

The percent cover of each stratum was determined and dominance was evaluated, if wetland vegetation was present. Dominant species were the most abundant species that accounted for more than 20 percent of the absolute percent coverage of the stratum. The number of dominant species with an indicator status of OBL, FACW, and/or FAC was compared to the total number of dominant species across all strata. Typically, when more than 50 percent of the dominant species had an indicator status of OBL, FACW, and/or FAC, hydrophytic vegetation was present.

If the percentage of dominant species with an indicator status of OBL, FACW, and/or FAC was less than 50 percent, prevalence index and morphological adaptations may have been evaluated to confirm if hydrophytic vegetation was present or absent.

4.2 Hydric Soils Assessment

After Terracon evaluated wetland vegetation, subsurface soil samples were evaluated in suspect wetland areas. The samples were evaluated to a depth of approximately 20 inches below ground surface and were visually compared to *Munsell Soil Color Charts* (Munsell 2009). *Field Indicators of Hydric Soils in the United States* manual (NRCS 2017) was utilized to aid in the evaluation and identification of hydric soils indicators. The soil samples were further examined for hydric soil indicators including, but not limited to, histosols, thick dark surface, sandy gleyed matrix, sandy redox, loamy gleyed matrix, redox dark surface, and/or redox depressions (i.e. mottling). If these or other hydric soils indicators were observed in the subsurface soil sample, the observation location was considered to have hydric soil. Sandy loamy soils dominate the site. Most of the site has been disturbed from human activity.

4.3 Wetland Hydrology Assessment

Visual indicators of wetland hydrology were evaluated, if present. Examples of primary wetland hydrology indicators include, but are not limited to, surface water, high water table, soil saturation, water marks, sediment deposits, drift deposits, iron deposits, inundation visible on aerial imagery, and water-stained leaves. Examples of secondary wetland hydrology indicators include, but are not limited to, surface soil cracks, drainage patterns, water-stained leaves, and drainage patterns. If at least one primary wetland hydrology indicator or two secondary wetland hydrology indicators were observed, the observation location was considered to have wetland hydrology.

4.4 Classification of Wetlands

Upon completion of the review of the three wetland criteria at each area, a wetland classification was made. Under normal circumstances, if one or more of the wetland criteria were not identified, the area was not considered to be a wetland. Additional observations were made throughout wetland areas (if present) to define the wetland/non-wetland boundary (only if wetlands were present). Vegetation, soil and hydrology assessment data from identified wetland areas (only if wetlands were present) were recorded on a USACE Wetland Determination Data Form. The recorded data forms (wetland determination data points 1 through 12) for the project site can be found in *Appendix C* and point locations can be seen on Exhibit 4 in Appendix A. Sample point locations are located throughout the site to evaluate the potential presence/absence of wetland characteristics.

5.0 SUMMARY OF FIELD OBSERVATIONS AND RESULTS

On August 22, 2018 Terracon performed field observations of the project site and identified areas that contained wetland characteristics. Sample point locations are illustrated on Exhibit 4 (Appendix A) and the Wetland Determination Data Forms are provided in Appendix C. Site photographs, included in Appendix D, provide an indication of the physical characteristics observed during the site visits. Descriptions of the determination data collected at each point are provided below.

5.1 Summary of Wetland Determination Field Data

Point Greeley Fishing Pond 1 – Wetland
As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-1 was located in the southwest portion of the site adjacent to the riverine. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-1 (Appendix B). This point contained evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents an wetland location. This point is shown in Photo 1, Appendix D.

Summary: *Hydrophytic vegetation: **Yes*** *Hydric Soils: **Yes*** *Wetland hydrology: **Yes***

Point Greeley Fishing Pond 2 – Non-wetland
As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-2 was located in the south portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-2 (Appendix B). This point lacked evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 2, Appendix D.

Summary: *Hydrophytic vegetation: **No*** *Hydric Soils: **No*** *Wetland hydrology: **No***

Point Greeley Fishing Pond 3 – Non-wetland
As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-3 was located in the southwest portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-3 (Appendix B). This point contained evidence of hydric soil and wetland hydrology, but lacked hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 3, Appendix D.

Summary: *Hydrophytic vegetation: **No*** *Hydric Soils: **Yes*** *Wetland hydrology: **Yes***

Point Greeley Fishing Pond 4 – Non-wetland
As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-4 was located in the east portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-4 (Appendix B). This point lacked evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 4, Appendix D.

Summary: *Hydrophytic vegetation: **No*** *Hydric Soils: **No*** *Wetland hydrology: **No***

Point Greeley Fishing Pond 5 – Non-wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-5 was located in the northeast portion of the site adjacent to the riverine. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-5 (Appendix B).

This point lacked evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 5, Appendix D.

Summary: *Hydrophytic vegetation:* ***No*** *Hydric Soils:* ***No*** *Wetland hydrology:* ***No***

Point Greeley Fishing Pond 6 – Non-wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-6 was located in the northeast portion of the site adjacent to the riverine. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-6 (Appendix B). This point lacked evidence of hydric soil, wetland hydrology, but did contain hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 6, Appendix D.

Summary: *Hydrophytic vegetation:* ***Yes*** *Hydric Soils:* ***No*** *Wetland hydrology:* ***No***

Point Greeley Fishing Pond 7 – Non-wetland

As shown on Exhibit 5.0 (Appendix A), wetland determination data Point Greeley Fishing Pond-7 was located in the northeast portion of the site adjacent to the riverine. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-7 (Appendix B). This point contained evidence of hydric soil, wetland hydrology, but did contain hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 7, Appendix D.

Summary: *Hydrophytic vegetation:* ***No*** *Hydric Soils:* ***Yes*** *Wetland hydrology:* ***Yes***

Point Greeley Fishing Pond 8 – Non-wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-8 was located in the northeast portion of the site adjacent to the riverine. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-8 (Appendix B). This point lacked evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 8, Appendix D.

Summary: *Hydrophytic vegetation:* ***No*** *Hydric Soils:* ***No*** *Wetland hydrology:* ***No***

Point Greeley Fishing Pond 9 – Wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-9 was located in the northeast portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-9 (Appendix B).

This point contained evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents a wetland location.

Summary: *Hydrophytic vegetation:* ***Yes*** *Hydric Soils:* ***Yes*** *Wetland hydrology:* ***Yes***

Point Greeley Fishing Pond 10 – Wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-10 was located in the northeast portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-9 (Appendix B). This point contained evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents a wetland location. This point is shown in Photo 9, Appendix D.

Summary: *Hydrophytic vegetation:* ***Yes*** *Hydric Soils:* ***Yes*** *Wetland hydrology:* ***Yes***

Point Greeley Fishing Pond 11 – Non-wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-11 was located in the western portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-11 (Appendix B). This point lacked evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents an upland location. This point is shown in Photo 11, Appendix D.

Summary: *Hydrophytic vegetation:* ***No*** *Hydric Soils:* ***No*** *Wetland hydrology:* ***No***

Point Greeley Fishing Pond 12 – Wetland

As shown on Exhibit 4 (Appendix A), wetland determination data Point Greeley Fishing Pond-12 was located in the western portion of the site adjacent to the pond. Data for hydrophytic vegetation, hydric soil, and wetland hydrology are recorded on the determination data form for Point Greeley Fishing Pond-12 (Appendix B). This point contained evidence of hydric soil, wetland hydrology, and hydrophytic vegetation; therefore, this point represents a wetland location. This point is shown in Photo 12, Appendix D.

Summary: *Hydrophytic vegetation:* ***Yes*** *Hydric Soils:* ***Yes*** *Wetland hydrology:* ***Yes***

5.2 Wetland Conclusions and Recommendations

Per the inventory of the site, resource document review, and site visit observations, 12.82 acres of functional wetlands exist on the property (Exhibit 4, Appendix A). Surface hydrology is present in these areas and flowing water was observed flowing towards South Platte River to the northeast. As such, there is a hydrologic nexus from the wetlands shown on Exhibit 4 to a WOTUS or relatively permanent waters (RPWs). It is Terracon's conclusion that wetlands on the site are likely jurisdictional; therefore, may be regulated by the USACE under Section 404 of the CWA. The USACE; however, has the final authority for jurisdiction under the CWA.

6.0 ECOLOGICAL TOXICITY EVALUATION

A screening-level ecological toxicity evaluation was performed using analytical data for the site. Data were collected by Terracon staff in August/September 2018. Soil, sediment, and surface water data were collected at various locations around the perimeter of the pond, as well as along the South Platte River. Soil and sediment data are provided in Table 1 (Appendix E) and surface water are provided in Table 2 (Appendix E). To perform the evaluation, ecological toxicity benchmarks for each media were used from the U.S. Department of Energy (DOE) Oak Ridge National Laboratory (ORNL) Risk Assessment Information System (RAIS) website[1]. ORNL RAIS is a nationwide database that contains ecological benchmarks that are used to identify chemical concentrations in environmental media that are at or below thresholds for effects to ecological receptors. The selected screening value for each analyte and medium was the minimum RAIS value. The minimum value, which represents an overly conservative approach, is typically a U.S. Environmental Protection Agency (EPA) regional value. Additionally, ecological benchmarks may be lower than regional background values for certain metals.

Sampling locations that have analytes that exceed screening values are represented in **bold** font on Tables 1 and 2. The following analytes had exceedances for soil and sediment for Resource Conservation and Recovery Act (RCRA) metals (Table 1, Appendix E): arsenic, barium, cadmium, chromium, copper, lead, mercury, silver, and zinc. However, most exceedances were with samples that were collected below the typical zone of biological activity (i.e., 4-8 feet below surface). For surface soil (samples SS-1 through SS-7), barium, chromium, and lead were the only constituents that exceeded ecological benchmarks. However, screening values for these metals may be lower than estimated background concentrations. For volatile organic compounds (VOCs) in soil/sediment, only acetone, chlorobenzene, and 1,4-Dichlorobenzene exceeded ecological benchmarks; however, these were at locations below the zone of biological activity. For semi-volatile organic compounds (SVOCs) for soil/sediment, all analytes exceeded ecological benchmarks; however, only benzo(b)fluoranthene exceeded in shallow soil (samples SS-02 and SS-06).

[1] *Department of Energy Oak Ridge National Laboratory Risk Assessment Information System (ORNL RAIS). 2018. Screening levels for ecological benchmarks. Available at: https://rais.ornl.gov/.*

For surface water (Table 2, Appendix E), barium, naphthalene, and phosphorus exceeded ecological benchmarks at one or more samples. However, due to the limited surface water data set, additional data may be needed to determine ecological toxicity at the site.

7.0 GENERAL COMMENTS

Protected Species Summary

No federally listed T&E species were observed during the field survey. During the site visit, Terracon personnel traversed up to a ½ mile from the project site to evaluate the presence or absence of wildlife. No raptor, migratory birds, or songbirds were observed within the vicinity. Impact to Migratory Birds of Concern are expected to be minimal. Terracon reviewed Colorado Parks & Wildlife GIS data to view the most up-to-date layers for raptor nest locations as well as additional habitat layers. The area is included in bald eagle summer and winter forage area. A known and documented bald eagle nest is located 1.4 miles northeast of the project site (CPW 2018).

Wetland Summary

The wetland delineation was performed using the USACE Manual and Great Plains Supplement. The manuals provide assistance for delineating wetlands based on the three criteria discussed. However, the manuals alone may not have provided enough information to document whether or not the three criteria were met. Various physical properties or other visual signs used to evaluate whether the three wetland identification criteria areas were satisfied may not be straightforward, especially in disturbed or problem areas. The manuals also allow the user to visually estimate certain indicators such as the percentage of area covered by dominant species for the entire community. Terracon did not attempt to identify every possible plant species and did not classify soil type by laboratory methods. Due to seasonal changes, Terracon cannot guarantee the area to exhibit or not to exhibit wetland characteristics at all times of the year. The limitations of this wetland delineation should be recognized.

This report has been prepared in accordance with generally accepted scientific and engineering evaluation practices. This report is for the exclusive use of the client for the project being discussed. No warranties, either express or implied, are intended or made.

Ecological Toxicity Summary

A screening-level ecological toxicity evaluation was performed using analytical data for the site. Soil, sediment, and surface water data were collected at various locations around the perimeter of the pond, as well as along the South Platte River. To perform the evaluation, ecological toxicity benchmarks for each media were used from the ORNL RAIS website. The selected

screening value for each analyte and medium was the minimum RAIS value. For soil/sediment, numerous constituents had concentrations that exceeded ecological benchmarks, however most exceedances were at depths not likely to be regularly contacted by ecological receptors (i.e., wildlife). Additionally, metals concentrations for the site may be at or near designated background concentrations for Weld County, Colorado. For surface water, although data are limited, only three constituents exceeded ecological benchmarks. *Note: this preliminary ecological toxicity evaluation is for informational purposes only and does not represent a formal ecological risk assessment for remediation purposes.*

8.0 REFERENCES

Colorado Parks and Wildlife. 2018. Colorado Parks and Wildlife Species Activity Data. Available at: https://services5.arcgis.com/ttNGmDvKQA7oeDQ3/argis/rest/services/CPWSpeciesData/FeatureServer

Munsell. 2017. Munsell Soil Color Charts.

Natural Resources Conservation Service (NRCS). 2017. Field Indicators of Hydric Soils in the United States, Version 8.1.

Natural Resources Conservation Service (NRCS). 2018. Web soil survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

United States Army Corps of Engineers. 2010. Great Plains Regional Supplement, Version 2.0. Available at: http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/gp_supp.pdf.

United States Fish and Wildlife Service. 2018. National Wetlands Inventory. Available at: https://www.fws.gov/wetlands/.

APPENDIX A
EXHIBITS

APPENDIX B
IPaC

APPENDIX C
DETERMINATION FORMS

APPENDIX D
PHOTO LOG

APPENDIX E
ECOLOGICAL TOXICITY SCREENING TABLES

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Project Manager:	MS
Drawn by:	TW
Checked by:	AM
Approved by:	MS

Project No.	21187023
Scale:	AS SHOWN
File Name:	21187023
Date:	9/12/2018

Terracon
1289 1st Ave
Greeley, CO 80631-4275

SITE DIAGRAM

Greeley Fishing Pond Hazardous Materials Assessment

31st street and 1st avenue
greeley, CO

Exhibit

1

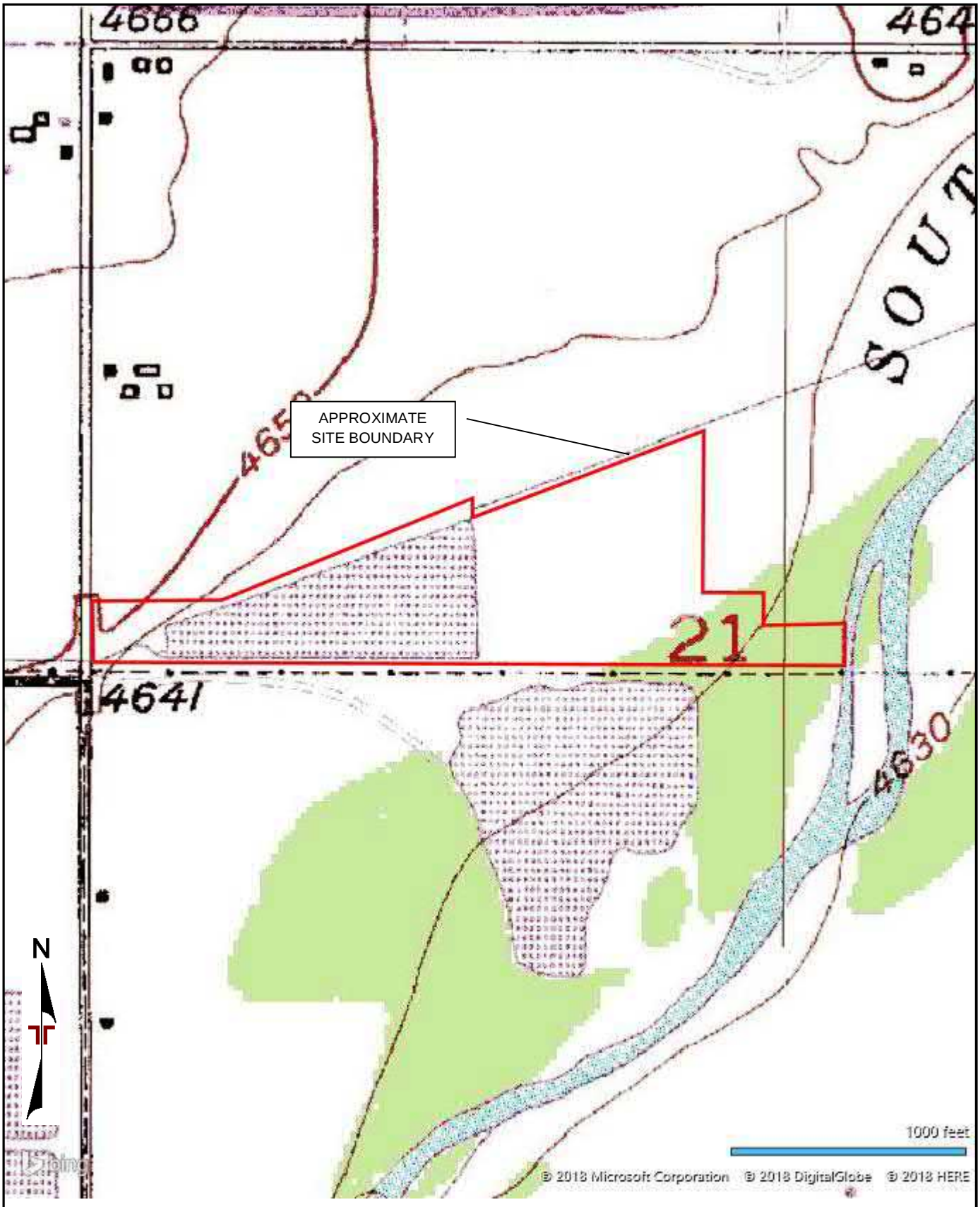


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

Project Manager: MS Drawn by: TW Checked by: AM Approved by: MS	Project No. 21187023 Scale: AS SHOWN File Name: 21187023 Date: 9/12/2018	Terracon 1289 1st Ave Greeley, CO 80631-4275	TOPOGRAPHIC MAP Greeley Fishing Pond Hazardous Materials Assessment 31st street and 1st avenue greeley, CO	Exhibit 2

U.S. Fish and Wildlife Service
National Wetlands Inventory

Exhibit 3. Greeley Fishing Pond NWI Map

September 12, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Legend

- Wetland Boundary
- Wetland Determination Data Point

0 180 360 720 1,080 1,440 Feet

Project No.:	21187023
Date:	Sep 2018
Drawn By:	CDS
Reviewed By:	MJS

Terracon
2110 Overland Ave. Ste. 124 Billings, MT 59102
PH. (406) 656 9127 terracon.com

Wetland Delineation

Greeley Fishing Pond Hazardous Materials Assessment
East of 31st Street at 1st Avenue, Greeley, Colorado

Exhibit

4

N:\PROJECTS-ADDITIONAL\21187023 - Greeley Fishing Pond\All Data.mxd

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Weld County, Colorado

Local office

Colorado Ecological Services Field Office

(303) 236-4773
(303) 236-4005

MAILING ADDRESS
Denver Federal Center

P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS
134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

http://www.fws.gov/coloradoES
http://www.fws.gov/platteriver

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Black-footed Ferret Mustela nigripes This species only needs to be considered if the following condition applies: • Special incidental take provisions pursuant to Section 10(a)(1)(A) of the ESA apply to a reintroduced population of black-footed ferrets. Contact the Colorado Ecological Services Field Office for additional details. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6953	Endangered
Preble's Meadow Jumping Mouse Zapus hudsonius preblei There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4090	Threatened

Birds

NAME	STATUS
Least Tern Sterna antillarum This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8505	Endangered
Mexican Spotted Owl Strix occidentalis lucida There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8196	Threatened
Piping Plover Charadrius melodus This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened

NAME	STATUS
Whooping Crane Grus americana This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/758	Endangered

Fishes

NAME	STATUS
Pallid Sturgeon Scaphirhynchus albus This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7162	Endangered

Flowering Plants

NAME	STATUS
Colorado Butterfly Plant Gaura neomexicana var. coloradensis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6110	Threatened
Ute Ladies'-tresses Spiranthes diluvialis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2159	Threatened
Western Prairie Fringed Orchid Platanthera praeclara This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be

present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Jul 31
Buff-breasted Sandpiper *Calidris subruficollis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9488	Breeds elsewhere
Burrowing Owl *Athene cunicularia* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Cassin's Sparrow *Aimophila cassinii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9512	Breeds Aug 1 to Oct 10
Chestnut-collared Longspur *Calcarius ornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 10

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/1680

Hudsonian Godwit Limosa haemastica — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lark Bunting Calamospiza melanocorys — Breeds May 10 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-billed Curlew Numenius americanus — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Mccown's Longspur Calcarius mccownii — Breeds May 1 to Aug 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9292

Mountain Plover Charadrius montanus — Breeds Apr 15 to Aug 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Whimbrel Numenius phaeopus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9483	Breeds elsewhere
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Willow Flycatcher Empidonax traillii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability

of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

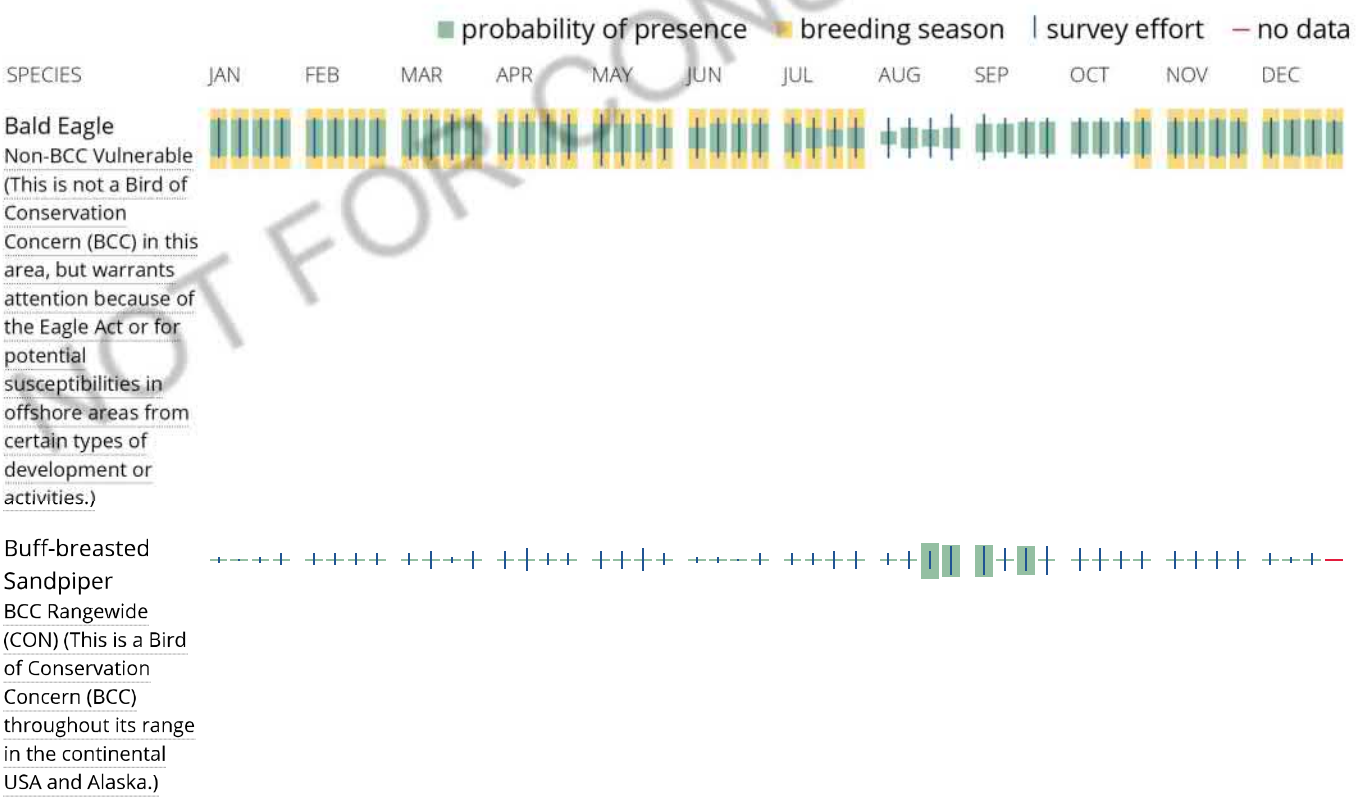
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

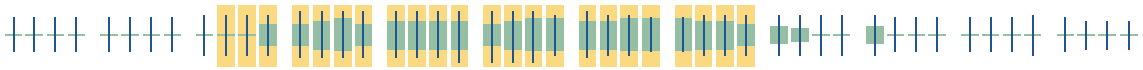
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

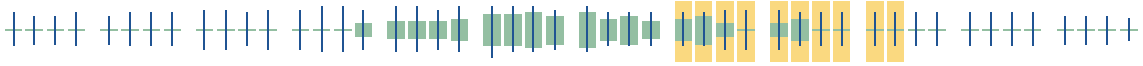
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



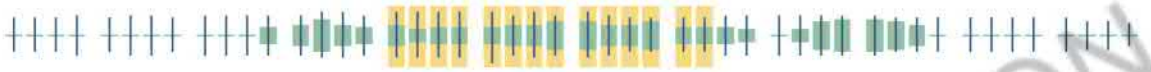
Burrowing Owl
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Cassin's Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



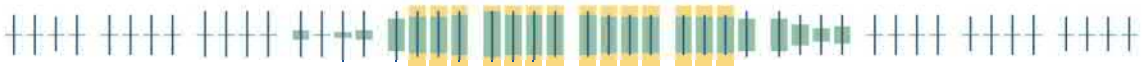
Chestnut-collared Longspur
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



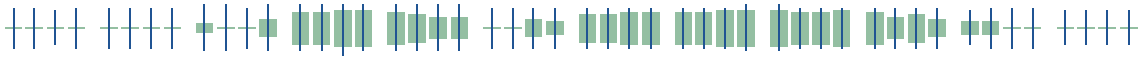
Golden Eagle
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Hudsonian Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Lark Bunting
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-billed Curlew
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Mccown's Longspur
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

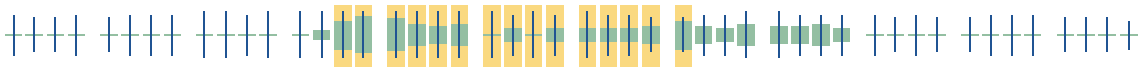
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Mountain Plover
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

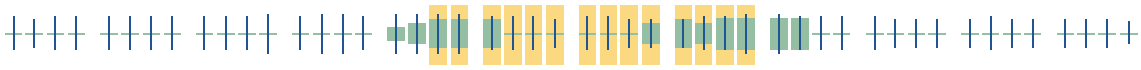
Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Willow Flycatcher
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of

presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work

conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 1
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): Great Plains Region Lat: 40.3848 Long: -104.6765 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	1	Y	FAC
2. Ulmus pumila	2	Y	UPL
3.			
4.			
	3	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix exigua	1	Y	FACW
2.			
3.			
4.			
5.			
	1	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Asclepias speciosa	4	N	FAC
2. Phleris arundinacea	90	Y	FACW
3. Cirsium arvense	1	N	UPL
4. Solidago missouriensis	1	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	96	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	91	x 2 =	182
FAC species	5	x 3 =	15
FACU species	1	x 4 =	4
UPL species	3	x 5 =	15
Column Totals:	100 (A)		216 (B)

Prevalence Index = B/A = 2.16

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Sandy	
2-6	10YR 3/3	100					Sandy	
6+	10YR 3/1	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ✓ No ___

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 8"

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sample area near water body

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 2
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Great Plains Region Lat: 40.3848 Long: -104.6765 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	1	Y	FAC
2. Ulmus pumila	2	Y	UPL
3. Elaeagnus angusti.folia	2	Y	FACU
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Ulmus pumila	1	Y	UPL
2.			
3.			
4.			
5.			
	1	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Bromus tectorum	70	Y	UPL
2. Pascopyrum smithii	5	N	FACU
3. Convolvulus arvensis	1	N	UPL
4. Tribulus terrestris	3	N	UPL
5. Salsola Kali	2	N	UPL
6. Capsella bursa-pastoris	10	N	FACU
7. Eleusine indica	3	N	FACU
8.			
9.			
10.			
	94	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 1 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.2 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species 1	x 3 = 3
FACU species 20	x 4 = 80
UPL species 79	x 5 = 395
Column Totals: 100 (A)	____ (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR 4/4	100					Sandy	Gravel @ 5+

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 3
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 4
Subregion (LRR): Great Plains Region Lat: 40.3848 Long: -104.67416 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Freshwater Pond
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus pumila	2	Y	UPL
2. Elaeagnus angustifolia	1	Y	FACU
3.			
4.			
	3	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Ulmus pumila	2	Y	UPL
2. Elaeagnus angustifolia	2	Y	FACU
3.			
4.			
5.			
	4	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Phleris arundinacea	76	Y	FACW
2. Melilotus indicus	5	N	FACU
3. Conyza canadensis	4	N	UPL
4. Asclepias speciosa	3	N	FAC
5. Convolvulus arvensis	3	N	UPL
6. Lepidium latifolium	2	N	FACW
7.			
8.			
9.			
10.			
	93	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 1 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.2 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	-	x 1 =	
FACW species	~~78~~	x 2 =	34
FAC species	3	x 3 =	9
FACU species	8	x 4 =	34
UPL species	11	x 5 =	55
Column Totals:	100 (A)		254 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
Point on bank.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/6	100					Sandy Gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 15"

Water Table Present? Yes ✓ No ___ Depth (inches): 15"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 10"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

OHWM. Point on slope of bank

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 4
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): None Slope (%):
Subregion (LRR): Great Plains Region Lat: 40.58.47 Long: -104.6745 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ✓	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ___ No ✓	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolium	2	Y	FACU
2. Ulmus pumila	5	Y	UPL
3.			
4.			
	7	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Melilotus indicus	9	N	FACU
2. Asclepias speciosa	15	N	FAC
3. Conyza canadensis	20	Y	UPL
4. Convolvulus arvensis	10	N	UPL
5. Salsola kali	15	N	UPL
6. Bromus inermis	15	N	UPL
7. Pascopyrum smithii	6	N	FACU
8. Bromus tectorum	3	N	UPL
9.			
10.			
	93	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	15	x 3 =	45
FACU species	17	x 4 =	68
UPL species	68	x 5 =	340
Column Totals:	100 (A)		453 (B)

Prevalence Index = B/A = 4.53

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:
Point collected on top of berm.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/4	100					Sandy Gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Gravel / Rock

Depth (inches): 6+

Hydric Soil Present? Yes ___ No ✓

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 5
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): Great Plains Region Lat: 40.38663 Long: -104.6718 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Area heavily disturbed. GPS data collected from edge of drop-off.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix exigua	50	Y	FACW
2.			
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Bromis inermis	20	Y	UPL
2. Bromus tectorum	10	Y	UPL
3. Onopordum acanthium	5	N	UPL
4. Asclepias speciosa	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	50	x 2 =	100
FAC species	5	x 3 =	15
FACU species	____	x 4 =	____
UPL species	35	x 5 =	175
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
Steep drop-off. Wetland point collected close to edge

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ___ No ✓

Remarks:

Very Sandy. Gravel substrate in areas. Steep drop-off approx. 6' above water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Point collected in upland due to 6' drop-off.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 6
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): Great Plains Region Lat: 40.3876 Long: -104.666856 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix exigua	50	Y	FACW
2.			
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Bromus inermis	10	Y	UPL
2. Lactuca serriola	10	Y	FAC
3. Agrostis gigantea	5	N	FACW
4. Conyza canadensis	5	N	UPL
5. Bromus tectorum	5	N	UPL
6.			
7.			
8.			
9.			
10.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	55	x 2 =	110
FAC species	10	x 3 =	30
FACU species	2	x 4 =	
UPL species	20	x 5 =	100
Column Totals:	85 (A)		240 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 1e

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Sandy Gravel	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 7
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR): Great Plains Region Lat: 40.3864 Long: -104.6722 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Freshwater Pond
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolium	5	Y	FACU
2.			
3.			
4.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Ulmus pumila	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Phleris arundinacea	25	Y	FACW
2. Bromis inermis	10	Y	UPL
3. Asclepias speciosa	5	N	FAC
4. Glandularia bipinnatifida	5	N	UPL
5. Conyza canadensis	1	N	UPL
6.			
7.			
8.			
9.			
10.			
	46 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 44

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 1 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	25	x 2 =	50
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	21	x 5 =	105
Column Totals:		(A)	190 (B)

Prevalence Index = B/A = 3.39

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-7	7.5YR 3/3	100					Sand	
7-14	10YR 4/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ✓ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 8"

Water Table Present? Yes ✓ No ___ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 8
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): Great Plains Region Lat: 40.3865 Long: -104.6722 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Ulmus pumila	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Conyza canadensis	10	N	UPL
2. Bromus inermis	10	N	UPL
3. Convolvulus arvensis	20	Y	UPL
4. Onopordum acanthium	15	N	UPL
5. Bromus tectorum	30	Y	UPL
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	____	x 2 =	____
FAC species	____	x 3 =	____
FACU species	____	x 4 =	____
UPL species	90	x 5 =	450
Column Totals:	90 (A)		450 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/3	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ____ No ✓

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 9
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 4
Subregion (LRR): Great Plains Region Lat: 40.3860 Long: -104.6737 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Freshwater Pond
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. Ulmus pumila	1	Y	UPL
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 5')			
1. Phleris arundinacea	60	Y	FACW
2. Bromis inermis	20	Y	UPL
3. Equisetum equisetum	15	N	FAC
4. Convolvulus arvensis	4	N	UPL
5. Equisetum equisetum			
6.			
7.			
8.			
9.			
10.			
	99 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	60	x 2 =	120
FAC species	15	x 3 =	45
FACU species	____	x 4 =	____
UPL species	25	x 5 =	125
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
Borderline hydrophytic vegetation

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100					Sand	
10-21	10YR 3/4	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ✓ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ✓ No ___

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): 15

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 13

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 10
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR): Great Plains Region Lat: 40.3852 Long: -104.67677 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	50	Y	FAC
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5')			
1. Phleris arundinacea	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	40	x 2 =	80
FAC species	50	x 3 =	150
FACU species	____	x 4 =	____
UPL species	____	x 5 =	____
Column Totals:	90 (A)		____ (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ✓ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ✓ No ___

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 5"

Water Table Present? Yes ✓ No ___ Depth (inches): 10"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 8"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 11
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): Great Plains Region Lat: 40.3852 Long: -104.6765 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Freshwater Pond
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus deltoides	25	Y	FAC
2. Ulmus pumila	20	Y	UPL
3.			
4.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Bromus tectorum	25	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	____	x 2 =	____
FAC species	25	x 3 =	75
FACU species	____	x 4 =	____
UPL species	45	x 5 =	225
Column Totals:	70 (A)		300 (B)

Prevalence Index = B/A = 4.28

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/4	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes ____ No ✓

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Greeley Fishing Pond City/County: Greeley / Weld Sampling Date: 8/22/18
Applicant/Owner: City of Greeley State: CO Sampling Point: 12
Investigator(s): Tyler Worley, Chad Kelly Section, Township, Range: S21 T5N R65W
Landform (hillslope, terrace, etc.): Plains (Open area) Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): Great Plains Region Lat: 40.3849 Long: -104.6760 Datum: NAD83
Soil Map Unit Name: Aquolls & Aquents, gravelly substratum NWI classification: Freshwater Pond
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
Area heavily disturbed

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus pumila	40	Y	UPL
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Phleum arundinacea	30	Y	FACW
2. Typha latifolia	20	Y	OBL
3. Bromus inermis	5	N	UPL
4. Poa pratensis	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	60	= Total Cover	
Woody Vine Stratum (Plot size: 5')			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC–): 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	30	x 2 =	60
FAC species		x 3 =	
FACU species	5	x 4 =	20
UPL species	45	x 5 =	225
Column Totals:	100 (A)		325 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
Borderline hydrophytic vegetation

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ✓ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Very Sandy. Gravel substrate in areas.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 10"

Water Table Present? Yes ✓ No ___ Depth (inches): 10"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 6"

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 1: Wetland. Point #1, near the southern end of the site adjacent to riverine.

Photo 2: Upland. Point #2, near the southern end of the site adjacent to riverine

Photo 3: Upland. Point #3, near the southern end of the site adjacent to pond.

Photo 4: Upland. Point #4, near the southern end of the site adjacent to pond.

Photo 5: Upland. Point #5, near the northwest portion of the site adjacent to riverine.

Photo 6: Upland. Point #6, near the northern boundary of the site adjacent to riverine.

Photo 7: Upland. Point #7, near the northern boundary of the site adjacent to pond.

Photo 8: Upland. Point #8, near the northern boundary of the site adjacent to pond.

Photo 9: Wetland. Point #10, near western boundary of the site adjacent to pond.

Photo 10: Non-wetland. Point #11, near western boundary of the site adjacent to pond.

Photo 11: Wetland. Point #12 near western boundary of the site adjacent to pond.

Table 1
Summary of Soil Analytical Results
Greeley Fishing Pond Natural Resources Evaluation
Greeley, Colorado
Terracon Project No. 21187023

Sample ID and Depth			SB-01 (4-8)	SB-01 (8-12)	SB-02 (4-8)	SB-02 (8-12)	SB-03 (4-8)	SB-03 (8-12)	SB-04 (4-8)	SB-04 (8-12)	SB-05	SB-06	SB-07 (4-8)	SB-07 (8-12)	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07
Collection Date			8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/23/18	8/23/18	8/30/18	8/30/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18
Parameter	**Eco Screening Level[2] (soil) mg/kg**	**Eco Screening Level[2] (sediment) mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
RCRA Metals (6010B / 7471)																					
Arsenic[1]	**5.700**	**5.900**	2.63	<0.200	**6.74**	<0.200	<0.200	<0.200	4.71	4.6	2.51	3.93	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Barium	**1.040**	**NE**	**26.9**	**9.44**	**55.3**	**12**	**15.4**	**14.7**	**121**	**77.5**	<0.5	<0.5	**29.7**	**74.4**	**76.6**	**82.9**	**17.5**	**30**	**13.6**	**9.17**	**29.5**
Beryllium	**1.060**	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	0.398	0.415	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	**0.002**	**0.596**	<0.5	<0.5	**0.675**	<0.5	<0.5	<0.5	**0.553**	**0.663**	<0.5	**0.635**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	**0.400**	**26.000**	**3.27**	**1.33**	**7.14**	**1.88**	**15.4**	**1.96**	**14.3**	**9.81**	**11.2**	**9.98**	**4.29**	**11.5**	**13.2**	**11.8**	**1.55**	**1.84**	<1.0	**1.71**	**4.58**
Lead	**0.054**	**30.200**	**25.4**	**1.37**	**64.3**	**9.77**	**16**	**7.65**	**120**	**92**	**82.7**	**43.9**	**5.8**	**7.59**	**13.3**	**12.8**	**3.68**	**4.9**	**2.89**	**4.29**	**4.49**
Mercury	**0.100**	**0.130**	**0.132**	0.0208	0.0939	0.024	0.044	0.0223	0.0783	0.143	0.0339	**0.165**	<0.02	0.0763	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Silver	**2.000**	**0.500**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**8.97**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	**5.400**	**16.000**	NA	NA	NA	NA	NA	NA	NA	NA	**11.4**	**52.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	**13.600**	**15.900**	NA	NA	NA	NA	NA	NA	NA	NA	7.25	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	**6.620**	**120.000**	NA	NA	NA	NA	NA	NA	NA	NA	**85.3**	**132**	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B) - Not Detected																					
Acetone	**2.5**	**0.0099**	**0.0259**	<0.025	**0.0368**	**0.0539**	<0.025	**0.0334**	**0.0593**	**0.0865**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Chlorobenzene	**0.05**	**0.00842**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00922**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
1,4-Dichlorobenzene	**0.01**	**0.031**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0219**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	**0.05**	**0.175**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.00278	<0.0025	0.0109	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
2-Butanone (MEK)	**NE**	**NE**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Tetrachloroethene	**0.01**	**0.19**	<0.0025	<0.0025	0.00283	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	**0.05**	**0.67**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00702	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	**0.05**	**0.433**	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	0.00799	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065
SVOCs (8270C)																					
Acenaphthene	**20**	**0.0067**	**0.0838**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	**0.1**	**0.0469**	0.146	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	**5.21**	**0.0317**	**0.86**	<0.033	**0.189**	**0.0339**	<0.033	<0.033	**0.156**	<0.033	**0.0429**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	**148**	**0.0319**	**1.06**	<0.033	**0.247**	0.0459	<0.033	<0.033	**0.192**	<0.033	**0.08**	<0.033	<0.033	<0.033	<0.033	**0.0373**	<0.033	<0.033	<0.033	**0.0359**	<0.033
Benzo(k)fluoranthene	**59.8**	**0.0272**	**0.3**	<0.033	**0.103**	<0.033	<0.033	<0.033	**0.0517**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(g,h,i)perylene	**119**	**0.0319**	**0.274**	<0.033	**0.154**	**0.0349**	<0.033	<0.033	**0.0935**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	**0.1**	**0.0319**	**0.796**	<0.033	**0.22**	**0.0394**	<0.033	<0.033	**0.149**	<0.033	**0.0522**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Chrysene	**4.73**	**0.0571**	**0.945**	<0.033	**0.231**	0.0372	<0.033	<0.033	**0.171**	<0.033	0.0475	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenz(a,h)anthracene	**18.4**	**0.031**	**2.74**	<0.33	**1.15**	**0.259**	<0.33	<0.33	**0.743**	<0.33	**0.207**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Fluoranthene	**0.1**	**0.111**	**1.37**	<0.033	**0.331**	0.0724	<0.033	<0.033	**0.308**	<0.033	0.0763	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	0.0513	<0.033
Indeno(1,2,3-cd)pyrene	**109**	**0.017**	**8.46**	**0.188**	**4.08**	**0.904**	<0.033	<0.033	**2.41**	**0.162**	**0.556**	<0.033	<0.033	**0.309**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenanthrene	**0.1**	**0.0419**	**0.586**	<0.033	**0.115**	**0.0574**	<0.033	<0.033	**0.131**	<0.033	**0.0472**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Pyrene	**0.1**	**0.053**	**1.42**	<0.033	**0.346**	**0.0706**	<0.033	<0.033	**0.286**	0.0364	**0.0783**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	0.0512	<0.033
Phenol	**0.05**	**0.0491**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.67	**1.25**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
2) Minimum ORNL RAIS Soil/S 4) Minimum ORN 4) Minimum ORN 4) Minimum 4) Minimum C 4) Minimum 4) Minimum C 4) Minimum 4) Minimum C 4) Minimum 4) Minimum C 4) Minimum 4) Minimum C 4) Minimur 4) Minimum 4) Minimum 4) Minimum C 4) Minimi 4) Minimi 4) Minimi 4) Minimi 4) Minimi 4) Minimi 4) Minimi 4) Minimi
Only detected analytes shown (concentrations that exceed screening value are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
SVOC = Semivolatile Organic Compounds
PCB = Polychlorinated Biphenyl
NA = Not Analyzed

Table 2
Summary of Surface Water Analytical Results
Greeley Fishing Pond Natural Resources Evaluation
Greeley, Colorado
Terracon Project No. 21187023

Sample ID		SW-1R	SW-2P	SW-3P	SW-4P
Collect Date		**8/23/18**	**8/24/18**	**8/24/18**	**8/24/18**
Parameter	**Eco Screening Level[4] (surface water) ug/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Dissolved RCRA Metals (6010B/7470A)					
Arsenic	**5.000**	<10	<10	<10	<10
Barium	**3.900**	**65.4**	**52.3**	**57.4**	**53.5**
Cyanide	**NE**	NA	NA	NA	NA
Selenium	**1.000**	<10	<10	<10	<10
Zinc	**21.000**	NA	NA	NA	NA
VOC (8260B)					
Chlorobenzene	**1.3**	<1.0	<1.0	<1.0	<1.0
Naphthalene	**1.1**	**9.99**	<5.0	<5.0	<5.0
PAHs (8270)					
Dibenz(a,h)anthracene	**5**	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-cd)pyrene	**4.3**	<1.0	<1.0	<1.0	<1.0
Additional Parameters - mg/L					
Dissolved Solids	**NE**	755	379	405	384
Suspended Solids	**NE**	31	15.6	51.2	6.83
Hardness	**NE**	427	238	200	279
Alkalinity	**NE**	204	125	130	127
Nitrate-Nitrite	**NE**	3.42	0.265	0.647	0.28
Total Phosphorus	**0.1**	**0.352**	<0.1	**0.16**	<0.1

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (December 30, 2016)
2) 400 mg/L or 1.25 times background level, whichever is least restrictive
3) <180 mg/L is considered "very hard" water
4) Minimum ORNL RAIS Surface Water Screening Value (available at: https://rais.ornl.gov/tools/eco_search.php)
Only detected analytes shown (concentrations that exceed ecological screening values are **bold**)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
NA = Not Analyzed

Limited Hazardous Materials Investigation

Greeley Fishing Pond
East of 31st Street at 1st Avenue
Greeley, Weld County, Colorado

November 8, 2018
Terracon Project No. 21187023

Prepared for:
City of Greeley – Public Works Department
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

November 8, 2018

City of Greeley – Public Works Department
1001 9th Avenue
Greeley, Colorado 80631

Attn: Mr. Brian Ward
P: (970) 350-9357
E: Brian.Ward@greeleygov.com

Re: Limited Hazardous Materials Investigation Report
Greeley Fishing Pond
East of 31st Street at 1st Avenue
Greeley, Weld County, Colorado
Terracon Project No. 21187023

Dear Mr. Ward:

Terracon Consultants, Inc. (Terracon) is pleased to submit our report of Limited Hazardous Materials Investigation activities including soil, groundwater, soil gas, surface water, and sediment sampling activities completed at the site referenced above. Terracon conducted the Investigation in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018.

Terracon appreciates this opportunity to provide environmental consulting services to The City of Greeley. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Michael J. Skridulis
Environmental Department Manager

John C. Graves, P.G.
Regional Manager/Senior Principal

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This Limited Hazardous Materials Investigation activities including soil, groundwater, soil gas, surface water, and sediment sampling activities was completed in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018. A total of 10 soil borings, 8 monitoring wells, 7 soil vapor samples, 4 surface water samples, and 7 sediment samples were installed and collected to confirm sampling results completed by other consultants; further delineate and evaluate contaminants of concern to the property's surficial/subsurface soil, groundwater, and soil gas; and evaluate the project site for application to the State of Colorado Voluntary Cleanup Program (VCP). Soil, groundwater, soil gas, surface water, and sediment samples were collected and analyzed in accordance with the procedures outlined in Section 3 of this report.

A summary of our findings, conclusions, and recommendations is provided below. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

Findings

The lithology encountered at the site consists of silty sands mixed with solid waste debris and coal ash to boring termination between approximately 12 to 13 feet bgs. Groundwater was observed at approximate depths between 7 and 9 feet bgs during drilling activities.

Semi-volatile organic compound (SVOCs) and arsenic constituents were reported at concentrations above regulatory values in soil samples collected during this investigation.

SVOCs were initially reported above CDPHE Reg 41 in grab groundwater samples collected during the investigation. However, SVOCs were not reported above CDPHE Reg 41 in any of the groundwater samples collected from replacement 2-inch wells after they were allowed to be properly developed and sampled.

VOC constituents detected in the soil gas samples were compared to the 2016 CDPHE Indoor Air Screening Concentrations (ASC) – Residential and Worker Remediation Goals, and the June 2017 United States Environmental Protection Agency (USEPA) Residential and Industrial Indoor Air Regional Screening Levels (RSLs), after applying a 3% attenuation factor for subslab soil gas per the USEPA Office of Solid Waste and Emergency Response (OSWER) Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015). Reference to the OSWER guidance is not meant to imply that the scope of this soil gas investigation was designed to include the guidance's subsurface characterization criteria or that Terracon conducted a detailed vapor intrusion risk assessment.

Reported concentrations are also summarized in Table 3 of Appendix B and the laboratory report is provided in Appendix D of this report.

VOCs were reported above residential RSLs at SVP-02, SVP-03, and SVP-02R after applying the 3% attenuation factor.

Conclusions

Based on results of the investigation, solid waste and SVOC contaminated soil is present on the southeastern portion of the project site. The contamination is likely derived from historical dumping operations performed on this portion of the property including solid waste and coal ash media. Based on results, it appears the contamination is currently isolated to on-site soils.

Recommendations

The objective of the investigation was to confirm sampling results completed by other consultants, further delineate and evaluate contaminants of concern to the property's surficial/subsurface soil, groundwater, and soil gas; and evaluate the project site for application to the State of Colorado Voluntary Cleanup Program (VCP).

The results of this and other's investigations have been discussed in a meeting with the CDPHE VCP program manager on October 10, 2018. CDPHE has recommended application to the VCP with remedial actions including a vegetative cover for the portion of the site associated with historical solid waste operations, permeant groundwater monitoring program, and an environmental covenant for the areas to be remediated. Terracon recommends the continuation of these action items.

1.0 SITE DESCRIPTION

Site Name	Greeley Fishing Pond Hazardous Materials Investigation
Site Location	East of 31st Street at 1st Avenue, Greeley, Colorado

A Topographic Map showing the site location is included as Exhibit 1 and a Site Diagram is included as Exhibit 2 and Exhibit 3 in Appendix A.

2.0 SCOPE OF SERVICES

Terracon conducted a hazardous materials investigation at the site including, soil, groundwater, soil gas, surface water, and sediment sampling in general accordance with the Greeley Fishing Pond Hazardous Materials Assessment Project Request for Proposals (RFP #FA18-04-040) and Terracon's contract with the City of Greeley (P.O.# 18000913) issued June 6, 2018.

The proposed Greeley Fishing Pond Redevelopment site consists of three adjacent parcels identified as Weld County Assessor Parcel numbers 096121217001 (16.14-acres), 096121201023 (18.72-acres), and 096121100029 (3.79-acres). The parcels are located southeast of the City of Greeley, Weld County, Colorado. The parcels lie on the east side of 31st Street at 1st Avenue and make up the Greeley Fishing Pond and associated open space.

The property is owned by the City of Greeley (City) and has been allocated as future open space by the City of Greeley Public Works Department. The City is planning to convert the property to public open space trails with unrestricted access to the Greeley Fishing Pond.

The objective of the environmental services was to confirm sampling results completed by other consultants, further delineate and evaluate contaminants of concern to the property's surficial/subsurface soil, groundwater, or soil gas, and presence of methane, and evaluate the project site for application to the State of Colorado Voluntary Cleanup Program (VCP).

2.1 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, express or implied, regarding the findings, conclusions, or recommendations. Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These Investigation services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not intended to be in strict conformance with ASTM E1903-11.

2.2 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this Investigation. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

2.3 Reliance

This report has been prepared for the exclusive use of the City of Greeley, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the City of Greeley and Terracon. Any unauthorized distribution or reuse is at the City's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, Investigation Report, and Terracon's Agreement with the City. The limitation of liability defined in the terms and conditions of the Agreement is the aggregate limit of Terracon's liability to the City of Greeley and all relying parties unless otherwise agreed in writing.

3.0 FIELD INVESTIGATION

3.1 Safety and Subsurface Utilities

Terracon is committed to the safety of all its employees. As such, and in accordance with our Incident and Injury Free® safety goals, Terracon conducted the fieldwork under a site-specific health and safety plan. The plan identified site-specific job hazards and proper pre-task planning procedures. Work was performed using Occupational Safety & Health Administration (OSHA) Level D work attire consisting of hard hats, high-visibility attire, safety glasses, protective gloves, and protective boots. Terracon contacted Colorado 811 and requested location and markings for subsurface utilities that the service was responsible for before commencing intrusive activities at the site.

3.2 Sampling and Analytical Program Summary

Initially, seven soil borings (SB-01 through SB-07) were advanced on the site and completed as 1-inch or 2-inch groundwater monitoring wells to a maximum depth of approximately 13 feet below

ground surface (bgs). Soil borings were advanced to complete additional investigation and delineation of potential impacted soil areas in the vicinity of the historical solid waste disposal area. After receipt of the laboratory analytical results, additional soil borings and groundwater monitoring wells were advanced and installed to complete confirmatory samples (SB-02R and SB-05R) and a background sampling point (SB-08).

Five of the soil borings were completed as 1-inch groundwater monitoring wells (MW-01, MW-02, MW-04, MW-05, and MW-07) to depths approximately 13 feet bgs. One soil boring was completed as a 2-inch groundwater monitoring well to approximately 15 feet bgs. Depth to groundwater was observed between 9.8 (MW-04) and 11.30 (MW-02) feet below top of casing (btoc) at the site on August 24, 2018.

Three additional monitoring wells were installed at the site as 2-inch monitoring wells in October 2018. Based on elevated SVOCs reported from initial sampling results in the 1-inch monitoring wells MW-02 and MW-05; MW-02R and MW-05R were installed as replacement 2-inch wells, which could be properly developed to assist in delineating SVOCs in groundwater at the site. Monitoring well MW-08 was installed as an upgradient baseline sampling location to assist with determining the source of contaminants.

Five soil vapor samples were collected from soil vapor points installed next to the monitoring well locations MW-01 through MW-04 and MW-07 (SVP-01 through SVP-04, and SVP-07). The soil vapor points were installed to confirm previously completed soil vapor sampling results from Quantum and to facilitate additional soil vapor sampling for delineation of potential soil vapor concerns. An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory.

Four surface water (SW-1R and SW-2P through SW-4P) and seven sediment samples (SS-01 through SS-07) were collected at the property to investigate quality of pond water, pond sediment, pond inlet/outlet bank sediment, and river bank water and sediment to assist in delineation of potential contamination from on-site sources.

SAMPLING AND ANALYTICAL PROGRAM	
Area of Concern	**Greeley Fishing Pond**
Soil Borings (Total Depth)	SB-01 through SB-07 (13 feet)
Groundwater	MW-01 through MW-05, MW-07, MW-02R, MW-05R, MW-08
Soil Vapor Points	SVP-01 through SVP-04, SVP-07, SVP-02R, SVP-02RB
Surface Water	SW-1R, SW-2P through SW-4P

SAMPLING AND ANALYTICAL PROGRAM	
Area of Concern	**Greeley Fishing Pond**
Sediment	SS-01 through SS-07
Soil Analysis	VOCs – EPA 8260 SVOC's – EPA 8070 SIM RCRA 8 metals – EPA 6010/6020
Groundwater Analysis	VOCs – EPA 8260 SVOC's – EPA 8070 SIM Dissolved RCRA 8 metals – EPA 6010/6020
Soil Gas Analysis	VOCs – EPA TO-15 Fixed gasses and methane – EPA D1946
Surface Water	VOCs – EPA 8260 SVOC's – EPA 8070 SIM Total and dissolved RCRA 8 metals – EPA 8020 PCBs – EPA 8082 Herbicides – EPA 8151 Pesticides – EPA 8081 TDS – EPA 2540 C-2011 TSS – EPA 2540 D-2011 Nitrate/nitrite – EPA 353.2 Total phosphorous – EPA 365.4 Hardness – EPA 130.1 Alkalinity – EPA 2320 B-2011
Sediment	VOCs – EPA 8260 SVOC's – EPA 8070 SIM RCRA 8 metals – EPA 8020 PCBs – EPA 8082 Herbicides – EPA 8151 Pesticides – EPA 8081

EPA = Environmental Protection Agency; SW-846 analytical methods
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
RCRA = Resource Conservation and Recovery Act
PCBs = polychlorinated biphenyls
TDS = total dissolved solids
TSS = total suspended solids

3.3 Field Procedures

3.3.1 Soil Boring Advancement

Drilling services were performed using a direct-push technology (DPT) Geoprobe® drilling rig for facilitation of soil sample collection and installation of the monitoring wells. Oversight of the drilling activities was conducted by a Terracon field professional. Soil samples were collected using 4-foot direct-push sampling tubes lined with dedicated PVC liners. Drilling equipment was cleaned using a high-pressure washer prior to beginning the project. Non-dedicated sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to the beginning of the project and between each sampling point.

Soil samples were collected continuously and observed to document soil lithology, color, moisture content and sensory evidence of impairment. The soil samples were field-screened at 1-foot intervals using a photoionization detector (PID) equipped with a 10.6 electron volt ultraviolet lamp source to qualitatively evaluate the potential volatile organic vapors to indicate the presence of VOCs. Terracon calibrated the PID in accordance with the manufacturer's recommendations before the field activities. The boring logs attached in Appendix C include the lithology and field screening results for each soil boring completed as part of this investigation.

Terracon's soil sampling program involved assigning two soil samples from each soil boring, with the exception of SB-05, SB-06, and SB-08, which involved assigning one soil sample from each boring for laboratory analysis. The soil sample selected for laboratory analysis was collected from the interval exhibiting the highest PID reading and/or highest likelihood of a release based on the field professional's judgment. Soil sample intervals for each boring are presented on the soil boring logs included in Appendix C.

3.3.2 Groundwater Monitoring Well Installation

Monitoring wells were constructed to approximately 12 to 13 feet bgs using 1.0-inch or 2.0-inch diameter polyvinyl chloride (PVC) with 10 feet of factory slotted well screen and approximately 5 feet of blank PVC casing to surface with 2 to 3 feet of "stick-up" well completions. A silica sand filter pack was placed around the well screen to approximately one foot above the top of well screen, followed by a hydrated bentonite seal, and approximately 0.5 feet of sand to the surface. The monitoring wells were fitted with J-plug well caps and were left as "stick-up" well completions. The well construction details are provided on the soil boring logs presented in Appendix C.

Depth to groundwater ranged from 9.80 feet below top of monitoring well casing (TOC) in MW-04 to 11.30 feet below TOC in MW-02. Monitoring wells were developed by repeatedly surging the wells with a 1-inch or 2-inch diameter PVC surge block and purging the groundwater from the wells with a single-use PVC bailer. Monitoring wells were sampled after development and subsequent recharge time.

The TOCs were surveyed using a level, tripod and rod to establish the relative elevation of ground surface and TOC at each monitoring well constructed on-site.

3.3.3 Soil Vapor Point Installation

Soil gas points, consisting of 8.0-inch long stainless steel screened points and Teflon tubing, were placed into each SVP boring at an approximate depth of 5-feet bgs and backfilled with silica sand to approximately 6 inches above the top of the screen, followed by hydrated bentonite to near surface. Locations are depicted on Exhibit 2 and Exhibit 3 in Appendix A.

Sampling of the soil gas points was performed by a Terracon Environmental Professional allowing the soil gas points time to equilibrate. Soil gas sampling was conducted within a polyethylene shroud placed over the sample point. Extracted soil gas was screened in the field utilizing a Multi-Rae multi-gas meter, which was calibrated prior to use in accordance with the manufacturer's specifications. The Multi-Rae was used to assess potential explosive gas (methane) and VOCs. Sample tubing was connected to the sampling point and routed to the exterior of the shroud. Leak detection was conducted by introducing helium tracer gas into the sampling shroud through a separate port prior to sampling and using a portable helium gas detector to monitor for potential leaks in the sampling train. A peristaltic pump was utilized to purge the sample train tubing prior to collecting the laboratory sample within laboratory supplied 1-liter summa canisters. Field measurements by the portable helium gas detector were within acceptable levels (less than [<]5 percent [%] of the helium concentration in the shroud was detected through the sampling train).

After purging the sampling point of approximately three sampling train volumes and observing that there were no detected leaks, a laboratory-supplied 1-liter summa canister was filled with soil gas for laboratory analysis. The canister was connected to the sampling point using dedicated nylon sample tubing and was equipped with a laboratory-supplied flow regulator allowing for sample collection at a low-flow rate (i.e. <200 milliliters per minute [ml/min]).

Upon completion of sample collection, the summa canister valve was closed, secured, and appropriately labeled with pertinent sample information. Canister pressures were recorded prior to and after sample collection. The sample canisters were placed into a shipping container and transported under chain-of-custody to ESC Lab Sciences (ESC) located in Mt. Juliet, Tennessee for analysis.

3.3.4 Surface Water and Sediment Sampling

Surface water and sediment samples were collected by a Terracon Scientist. Surface water samples were collected directly into laboratory supplied sample bottles from sampling locations. Sediment samples SS-03 through SS-07 were collected using a stainless-steel trowel and soil collected was placed directly into laboratory provided sample bottles. Sediment samples SS-01 an SS-02 were collected from the sediment at the bottom of the Greeley Fishing Pond. A stainless-steel grab sampler was lowered to the bottom of the pond. The sampler was retrieved and water

was allowed to drain out of the sampler before the sediment samples were placed into laboratory certified sample bottles. Non-dedicated sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to the beginning of the project and before collecting each soil sample.

4.0 FIELD INVESTIGATION RESULTS

4.1 Geology/Hydrogeology

The boring logs contained in Appendix C detail the observed soil stratigraphy. In general, Terracon encountered silty sands mixed with solid waste debris and coal ash to boring termination between approximately 12 to 13 feet bgs. Groundwater was observed at approximate depths between 7 and 9 feet bgs during drilling activities. Groundwater flow at the site is generally to the east toward the South Platte River as outlined on Figure 4.

4.2 Field Screening

The field screening results are summarized on the boring logs contained in Appendix C. PID readings above 1 part per million (ppm) were observed at a maximum concentration of 24.1 ppm in soil boring SB-01 at an approximate depth of 8 to 12 feet bgs.

5.0 ANALYTICAL RESULTS

The laboratory analytical reports and chain-of-custody records are attached in Appendix D. The following sections describe the results of the analytical testing performed as part of this limited site investigation. The constituents of concern concentrations were compared to the May 2016, USEPA Residential and Industrial Regional Screening Levels (RSLs) and March 2014 CDPHE Groundwater Protection Values (GPVs) for soil. Groundwater analytical results were compared to December 30, 2016 CDPHE Regulation 41 Groundwater Quality Standards (GWQSs). CDPHE January 2016 Residential and Industrial Air Screening Concentrations (ASCs) and the June 2017 USEPA Residential and Industrial Indoor Air RSLs, after applying a 3% attenuation factor for the vapor intrusion screening level (VISL) for subslab soil gas per the USEPA OSWER Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015) were used for soil gas comparison.

5.1 Soil Sample Results

The groundwater analytical data and corresponding action levels are summarized in Table 1 (Appendix B).

Arsenic was reported in soil samples SB-01, SB-02, SB-04 through SB-06, SB-02R, and SB-05R above the EPA Residential and Industrial RSLs of 0.68 mg/kg and 3.0 mg/kg, respectively. These values are below Colorado Department of Public Health and Environment (CDPHE) background Risk Management Guidance for Evaluating Arsenic.

Benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil samples SB-01, SB-02, and SB-03 at concentrations above their respective EPA Residential and/or Industrial RSLs.

Benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were reported in soil sample SB-05 at concentrations above their respective EPA Residential and/or Industrial RSLs.

Indeno(1,2,3-cd)pyrene were reported in soil sample SB-07 at a concentration above its EPA Industrial RSL.

5.2 Groundwater Sample Results

The groundwater analytical data and corresponding action levels are summarized in Table 2 (Appendix B).

SVOCs were reported above CDPHE Reg. 41 values in the groundwater samples collected from MW-02 and MW-05. Dibenz(a,h)anthracene (5.29 µg/L), and indeno(1,2,3-cd)pyrene (28.3 µg/L) were reported above CDPHE Reg. 41 in the groundwater sample collected from MW-02 and indeno(1,2,3-cd)pyrene (1.03 µg/L) was reported above CDPHE Reg. 41 in the groundwater sample collected from MW-05.

Based on the potential for SVOC contaminants to be present in the soil sediments in the wells, 2-inch monitoring wells were installed to replace the 1-inch monitoring wells at these locations. The 2-inch monitoring wells allow for groundwater samples to be collected with less sediment and laboratory results to have a more accurate representation of dissolved contaminants in groundwater. After reinstallation and development of the replacement 2-inch monitoring wells, SVOCs were not reported above CDPHE Reg 41 in the groundwater samples collected from replacement wells MW-02R or MW-05R.

5.3 Soil Gas Sample Results

VOC constituents reported in the soil gas samples were compared to the 2016 CDPHE Indoor Air Screening Concentrations (ASC) – Residential and Worker Remediation Goals, and the June 2017 USEPA Residential and Industrial Indoor Air RSLs, after applying a 3% attenuation factor for subslab soil gas per the USEPA OSWER Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015). Reference to the OSWER guidance is not meant to imply that the scope of this soil gas investigation was designed to include the guidance's subsurface characterization criteria or that

Terracon conducted a detailed vapor intrusion risk assessment. A summary of the analytical results is provided below. The soil gas analytical data reported above laboratory detection limits and corresponding action levels are summarized in Table 3 (Appendix B).

Chloroform was reported from the soil vapor samples collected from SVP-03 (33 µg/m^3) and SVP-02R (6.13) exceeding the EPA vapor intrusion screening level (VISL) of 4 µg/m^3.

Tetrachloroethene ([PCE] 652 µg/m^3) was reported at concentrations exceeding EPA VISL of 367 µg/m^3 for the soil vapor sample collected from SVP-02R.

Trichloroethene (TCE) was reported from the soil vapor samples collected from SVP-02 (32.4 µg/m^3) and SVP-02R (47.8 µg/m^3) exceeding the EPA VISL of 16 µg/m^3.

Methane was not reported in any of the soil gas samples collected as part of this investigation above its respective laboratory detection limit.

5.4 Surface Water and Sediment Sample Results

Four surface water (SW-1R and SW-2P through SW-4P) and seven sediment samples (SS-01 through SS-07) were collected at the property to investigate quality of pond water, pond sediment, pond inlet/outlet bank sediment, and river bank water and sediment to assist in delineation of potential contamination from on-site sources.

Although some surface water and sediment samples were reported with levels of analyzed constituents above laboratory detection limits, none of the reported results were in exceedance of their respective regulatory levels.

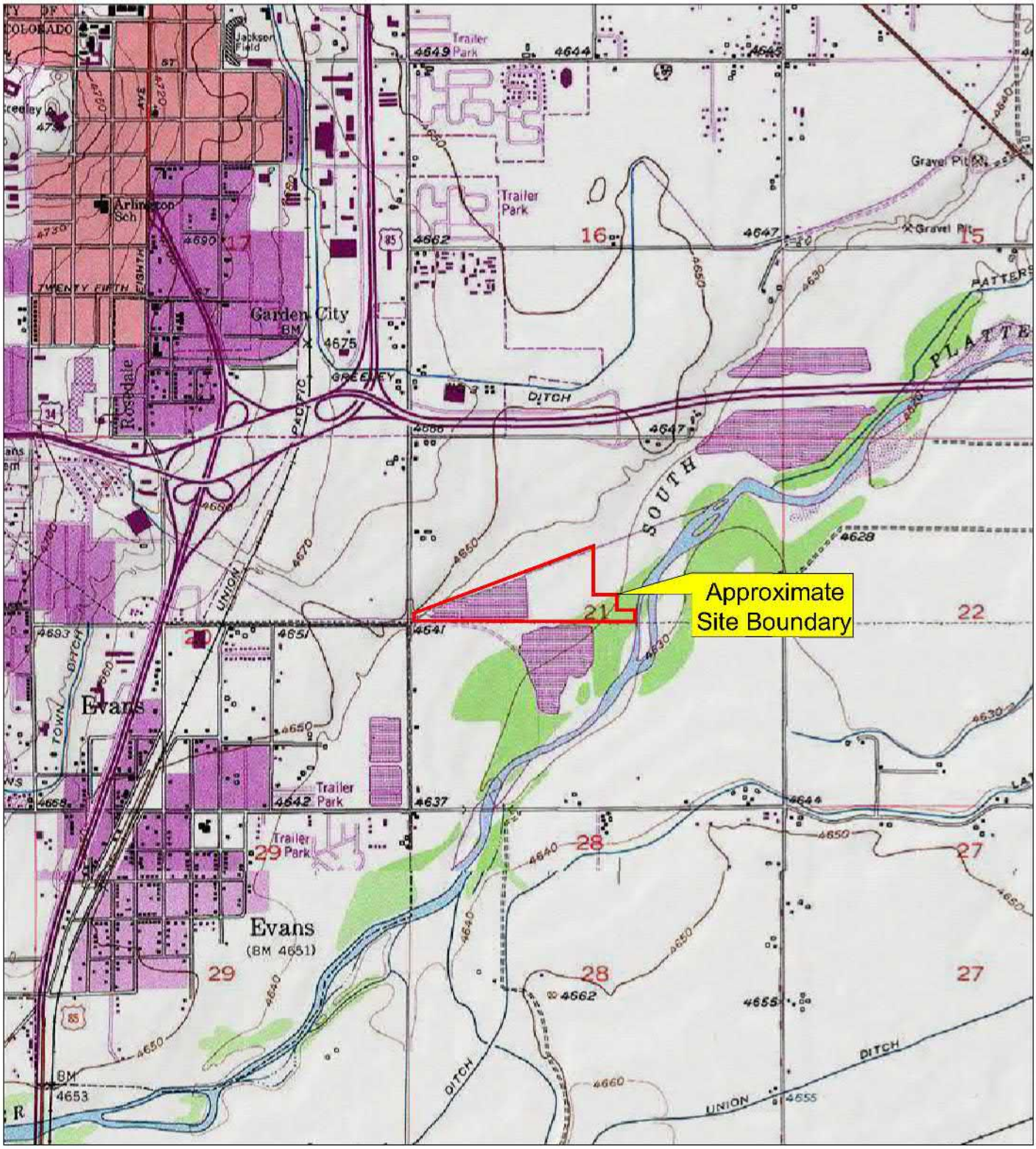
APPENDIX A – EXHIBITS

Exhibit 1 – Topographic Map

Exhibit 2 – Site Diagram-A

Exhibit 3 – Site Diagram-B

Exhibit 4 – Groundwater Contour Map



0 .5 1 MILES

1000 0 1000 2000 3000 4000 5000 FEET

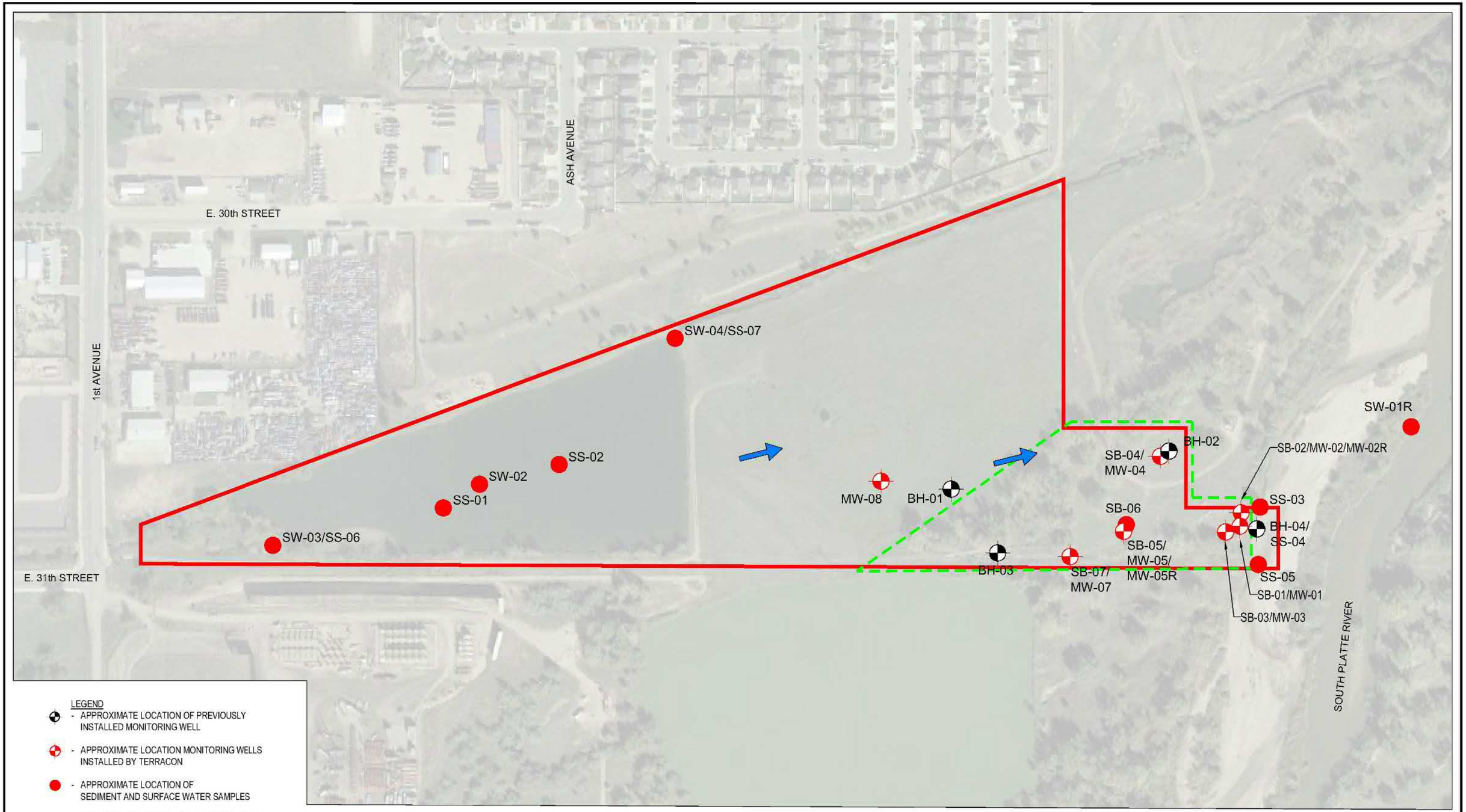
1 .5 0 KILOMETERS 1

1000 0 METERS 1000

APPROXIMATE SCALE

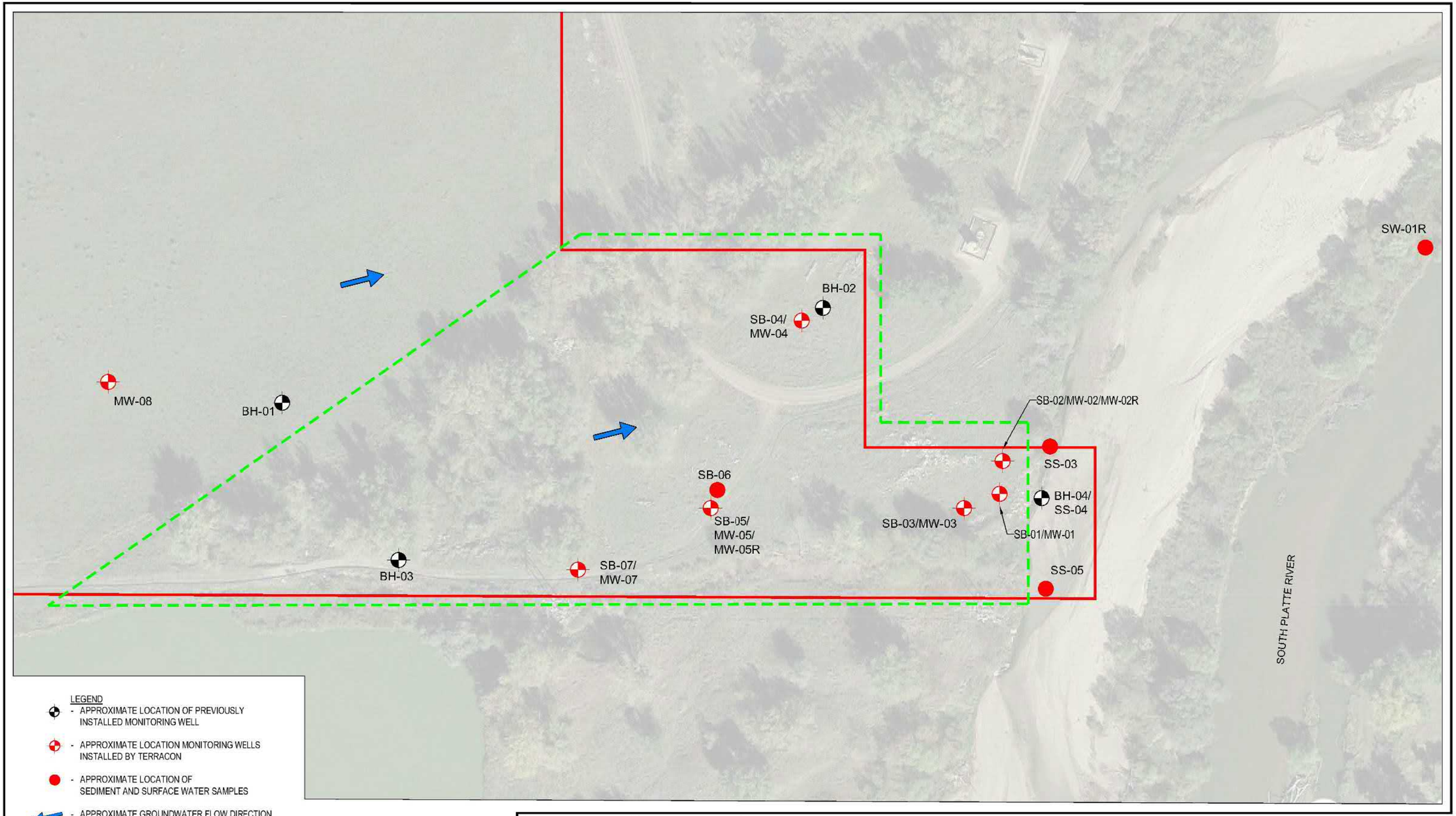
Topographic map image courtesy of the U.S. Geological Survey
Quadrangle includes Greeley, CO (1978)

Project Mngr: MJS	Project No.: 21187023	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP
Drawn By: JAS	Scale: AS-SHOWN	1289 1st Avenue Greeley, CO 80631	GREELEY FISHING POND CITY OF GREELEY 31st STREET AND 1st AVENUE GREELEY, COLORADO
Checked By: MJS	File No.: 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8539	FIG. No. 1
Approved By: JCG	Date: NOVEMBER_2018		



Project Mngr: MJS	Project No. 21187023	Terracon Consulting Engineers and Scientists	SITE DIAGRAM - A
Drawn By: JAS	Scale: AS-SHOWN	1289 1stAvenue Greeley, CO 80631	GREELEY FISHING POND
Checked By: MJS	File No. 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8639	CITY OF GREELEY
Approved By: JCG	Date: NOVEMBER_2018		31st STREET AND 1st AVENUE
			GREELEY, COLORADO

FIG. No. 2



LEGEND

- APPROXIMATE LOCATION OF PREVIOUSLY INSTALLED MONITORING WELL
- APPROXIMATE LOCATION MONITORING WELLS INSTALLED BY TERRACON
- APPROXIMATE LOCATION OF SEDIMENT AND SURFACE WATER SAMPLES
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BOUNDARY OF HISTORICAL SOLID WASTE AREA

N

0 100'

SCALE

Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

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Consulting Engineers and Scientists
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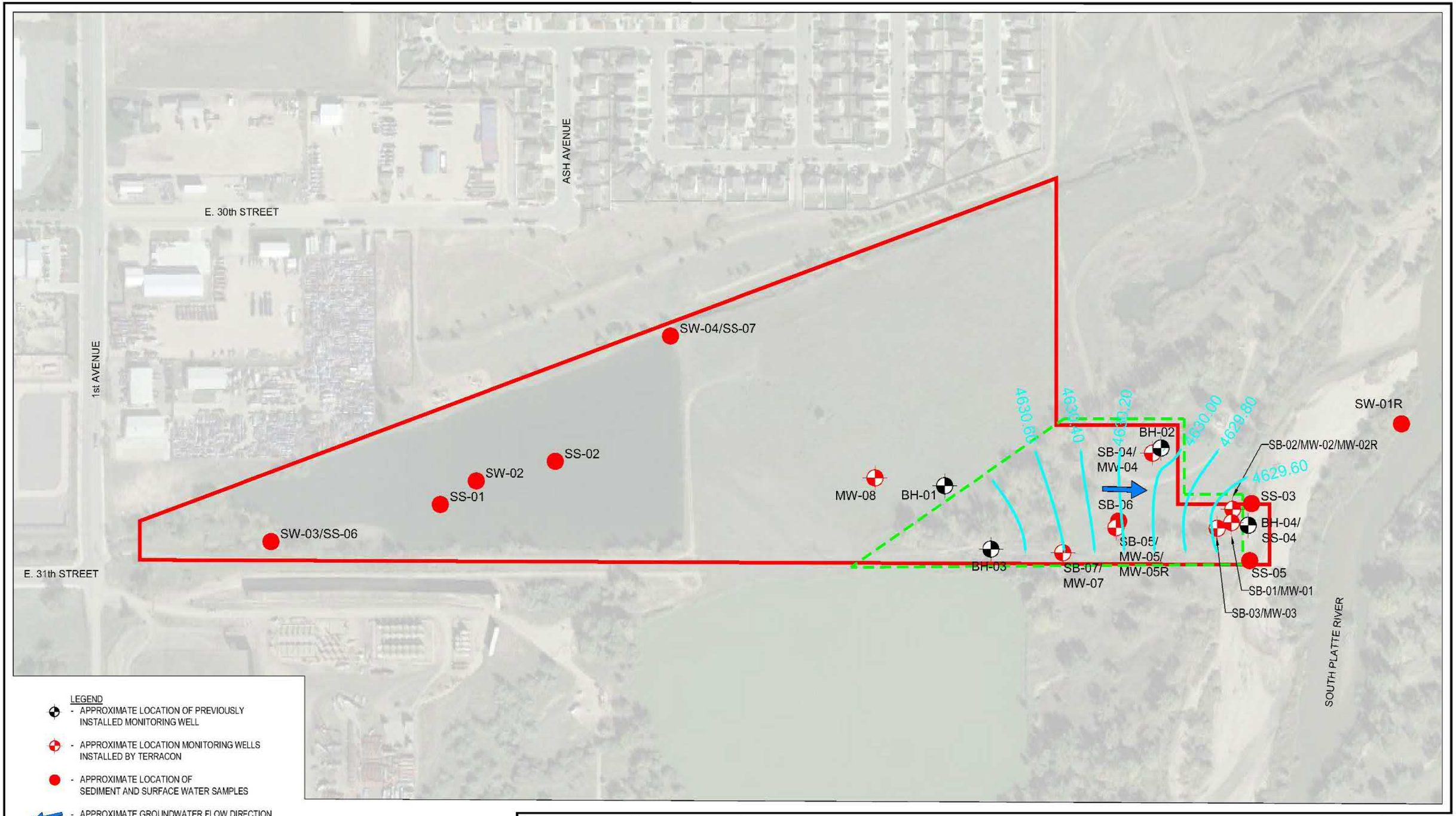
SITE DIAGRAM - B

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 3



Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

Terracon
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GROUNDWATER CONTOUR MAP

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 4

APPENDIX B – TABLES

Table 1 – Soil Analytical Summary
Table 2 – Groundwater Analytical Summary
Table 3 – Soil Gas Analytical Summary

Table 1
Summary of Soil Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID and Depth				SB-01 (4-8)	SB-01 (8-12)	SB-02 (4-8)	SB-02 (8-12)	SB-03 (4-8)	SB-03 (8-12)	SB-04 (4-8)	SB-04 (8-12)	SB-05	SB-06	SB-07 (4-8)	SB-07 (8-12)	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SB-02R (0-4)	SB-02R (4-8)	SB-05R (0-4)	SB-05R (4-8)	SB-08 (0-4)
Collection Date				8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/23/18	8/23/18	8/30/18	8/30/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	10/5/18	10/5/18	10/5/18	10/5/18	10/5/18
Parameter	**Residential RSL**	**Industrial RSL**	**CDPHE GPV**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RCRA Metals (6010B / 7471)																											
Arsenic[1]	0.68	3.0	NE	**2.63**	<0.200	**6.74**	<0.200	<0.200	<0.200	**4.71**	**4.6**	**2.51**	**3.93**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**4.05**	**3.42**	**3.66**	**5.94**	<2.00
Barium	15,000	220,000	NE	**26.9**	**9.44**	**55.3**	**12**	**15.4**	**14.7**	**121**	**77.5**	<0.5	<0.5	**29.7**	**74.4**	**76.6**	**82.9**	**17.5**	**30**	**13.6**	**9.17**	**29.5**	**57.3**	**62.7**	**173**	**104**	**153**
Beryllium	16	230	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.398**	**0.415**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	980	NE	<0.5	<0.5	**0.675**	<0.5	<0.5	<0.5	**0.553**	**0.663**	<0.5	**0.635**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.676**	**0.803**	<0.5
Chromium	NE	NE	NE	**3.27**	**1.33**	**7.14**	**1.88**	**15.4**	**1.96**	**14.3**	**9.81**	**11.2**	**9.98**	**4.29**	**11.5**	**13.2**	**11.8**	**1.55**	**1.84**	<1.0	**1.71**	**4.58**	**6.32**	**7.68**	**11.3**	**9.69**	**20.7**
Lead	400	800	NE	**25.4**	**1.37**	**64.3**	**9.77**	**16**	**7.65**	**120**	**92**	**82.7**	**43.9**	**5.8**	**7.59**	**13.3**	**12.8**	**3.68**	**4.9**	**2.89**	**4.29**	**4.49**	**39.2**	**45.9**	**61.9**	**47.1**	**12.3**
Mercury	11	46	NE	**0.132**	**0.0208**	**0.0939**	**0.024**	**0.044**	**0.0223**	**0.0783**	**0.143**	**0.0339**	**0.165**	<0.02	**0.0763**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.146**	**0.121**	**0.152**	**0.106**	**0.152**
Silver	390	5,800	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**8.97**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	3,100	47,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**11.4**	**52.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	22,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.25**	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	350,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**85.3**	**132**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B) - Not Detected																											
Acetone	61,000	670,000	32	**0.0259**	<0.025	**0.0368**	**0.0539**	<0.025	**0.0334**	**0.0593**	**0.0865**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.0773**	<0.025
Chlorobenzene	280	1,300	5.3	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00922**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00389**	<0.0025
1,4-Dichlorobenzene	2.6	11	7.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0219**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	5.8	25	100	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00278**	<0.0025	**0.0109**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
2-Butanone (MEK)	27,000	190,000	18	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.306	<0.0025
Tetrachloroethene	24	100	1.9	<0.0025	<0.0025	**0.00283**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	4,900	47,000	50	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.00702**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	580	2,500	75	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	**0.00799**	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065
SVOCs (8270C)																											
Acenaphthene	3,600	45,000	1000	**0.0838**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	18,000	230,000	1000	**0.146**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	0.16	2.9	1000	**0.86**	<0.033	**0.189**	**0.0339**	<0.033	<0.033	**0.156**	<0.033	**0.0429**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	0.16	2.9	1000	**1.06**	<0.033	**0.247**	**0.0459**	<0.033	<0.033	**0.192**	<0.033	**0.08**	<0.033	<0.033	<0.033	<0.033	**0.0373**	<0.033	<0.033	<0.033	**0.0359**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(k)fluoranthene	1.6	29	1000	**0.3**	<0.033	**0.103**	<0.033	<0.033	<0.033	**0.0517**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(g,h,i)perylene	NE	NE	NE	**0.274**	<0.033	**0.154**	**0.0349**	<0.033	<0.033	**0.0935**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	0.016	0.29	1000	**0.796**	<0.033	**0.22**	**0.0394**	<0.033	<0.033	**0.149**	<0.033	**0.0522**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Chrysene	16	290	1000	**0.945**	<0.033	**0.231**	**0.0372**	<0.033	<0.033	**0.171**	<0.033	**0.0475**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenz(a,h)anthracene	0.016	0.29	1000	**2.74**	<0.33	**1.15**	**0.259**	<0.33	<0.33	**0.743**	<0.33	**0.207**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Fluoranthene	2,400	30,000	1000	**1.37**	<0.033	**0.331**	**0.0724**	<0.033	<0.033	**0.308**	<0.033	**0.0763**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0513**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Indeno(1,2,3-cd)pyrene	0.16	2.9	1000	**8.46**	**0.188**	**4.08**	**0.904**	<0.033	<0.033	**2.41**	**0.162**	**0.556**	<0.033	<0.033	**0.309**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenanthrene	NE	NE	NE	**0.586**	<0.033	**0.115**	**0.0574**	<0.033	<0.033	**0.131**	<0.033	**0.0472**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Pyrene	1,800	23,000	1000	**1.42**	<0.033	**0.346**	**0.0706**	<0.033	<0.033	**0.286**	**0.0364**	**0.0783**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0512**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenol	19,000	250,000	47	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.67	**1.25**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
Only detected analytes shown (detected concentrations are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
SVOC = Semivolatile Organic Compounds
PCB = Polychlorinated Biphenyl
NA = Not Analyzed

Table 2
Summary of Groundwater Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05	MW-07	SW-1R	SW-2P	SW-3P	SW-4P	MW-02R	MW-05R	MW-08
Collect Date		8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/23/18	8/24/18	8/24/18	8/24/18	10/9/18	10/9/18	10/9/18
Parameter	CDPHE Reg. 41 Groundwater Standard[1]	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dissolved RCRA Metals (6010B/7470A)														
Arsenic	**10**	<10	<10	<10	<10	**4.8**	<10	<10	<10	<10	<10	<10	<10	<10
Barium	**2,000**	**126**	**114**	**122**	**55.1**	NA	**198**	**65.4**	**52.3**	**57.4**	**53.5**	**112**	**92.9**	**46.9**
Cyanide	**200**	NA	NA	NA	NA	**12.8**	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**50**	**13.9**	<10	<10	<10	<10	**12.6**	<10	<10	<10	<10	<10	<10	<10
Zinc	**5,000**	NA	NA	NA	NA	**422**	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B)														
Chlorobenzene	**100**	<1.0	<1.0	<1.0	<1.0	**1.77**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	**140**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.99**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
PAHs (8270)														
Dibenz(a,h)anthracene	**0.0048**	<1.0	**5.29**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-cd)pyrene	**0.0048**	<1.0	**28.3**	<1.0	<1.0	**1.03**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Additional Parameters - mg/L														
Dissolved Solids	**400[2]**	NA	NA	NA	NA	NA	NA	**755**	**379**	**405**	**384**	NA	NA	NA
Suspended Solids	**NE**	NA	NA	NA	NA	NA	NA	**31**	**15.6**	**51.2**	**6.83**	NA	NA	NA
Hardness	**<180[3]**	NA	NA	NA	NA	NA	NA	**427**	**238**	**200**	**279**	NA	NA	NA
Alkalinity	**150**	NA	NA	NA	NA	NA	NA	**204**	**125**	**130**	**127**	NA	NA	NA
Nitrate-Nitrite	**100**	NA	NA	NA	NA	NA	NA	**3.42**	**0.265**	**0.647**	**0.28**	NA	NA	NA
Total Phosphorus	**NE**	NA	NA	NA	NA	NA	NA	**0.352**	<0.1	**0.16**	<0.1	NA	NA	NA

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (December 30, 2016)
2) 400 mg/L or 1.25 times background level, whichever is least restrictive
3) <180 mg/L is considered "very hard" water
Only detected analytes shown (detected concentrations are **bold**)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
NA = Not Analyzed

Table 3
Summary of Soil Gas Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID			BH-01	BH-02	BH-03	BH-04	SVP-01	SVP-02	SVP-03	SVP-04	SVP-07	SVP-02R	SVP-02RB
Collect Date			3/6/2018	3/6/2018	3/6/2018	3/6/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	10/9/2018	10/9/2018
Parameter	**Residential RSL**	**Residential VISL[1]**	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
VOC (TO-15)													
TPH (GC/MS) Low Fraction	**31**	**1,033**	<1.9	<1.9	<1.9	<1.9	**789**	**599**	**418**	**1,580**	<413	NA	NA
Acetone	**32,000**	**1,066,667**	<19	<20	**22**	**30**	**43.4**	**14.1**	**17.9**	**56**	**15.2**	**9.28**	**7.81**
Benzene	**0.36**	**12**	<1.9	<1.9	<1.9	<1.9	**1.86**	<1.28	<1.28	**7.16**	<1.28	<1.28	<1.28
Carbon disulfide	**73**	**2,433**	<1.9	<1.9	<1.9	<1.9	**2.8**	<1.24	**7.23**	**10.2**	<1.24	<1.24	<1.24
Chloroform	**0.12**	**4**	<1.9	2	<1.9	<1.9	<1.95	**3.78**	**33**	**3.4**	<1.95	**6.13**	<1.95
Chloromethane	**94**	**3,133**	<1.9	<1.9	<1.9	<1.9	<0.826	<0.826	<0.826	**2.66**	<0.826	<0.826	**0.916**
Cyclohexane	**630**	**21,000**	<1.9	<1.9	<1.9	<1.9	**3.23**	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
1,3-Dichlorobenzene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<2.40	<2.40	<2.40	**2.63**	<2.40	<2.40	<2.40
cis-1,2-Dichloroethene	**NE**	**NE**	<1.9	<2	<1.9	2	<1.59	**1.99**	<1.59	<1.59	<1.59	**3.04**	<1.59
trans-1,2-Dichloroethene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.59	**3.26**	<1.59	<1.59	<1.59	**5.39**	<1.59
1,4-Dioxane	**0.56**	**19**	<1.9	<1.9	<1.9	<1.9	<1.44	<1.44	<1.44	**3.46**	<1.44	<1.44	<1.44
Ethanol	**NE**	**NE**	<19	<20	**47**	**80**	**73.4**	**21.1**	**16.3**	**23.1**	**9.45**	**7.26**	**7.44**
Ethylbenzene	**1.1**	**37**	<1.9	<1.9	<1.9	<1.9	**3.12**	**1.87**	**12.9**	**29.1**	<1.73	<1.73	<1.73
4-Ethyltoluene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.96	<1.96	<1.96	**4.23**	<1.96	<1.96	<1.96
Trichlorofluoromethane	**NE**	**NE**	<1.9	**5.7**	<1.9	**2.7**	**6.49**	**6.92**	**9.68**	**4.6**	<2.25	**12.4**	<2.25
Dichlorodifluoromethane	**100**	**3,333**	**2.1**	**27**	<1.9	**7.4**	**7.73**	**32.9**	**6.01**	**9.43**	**12.9**	**19.6**	**2.06**
1,2-Dichlorotetrafluoroethane	**NE**	**NE**	<1.9	**8.3**	<1.9	**4.9**	**106**	**567**	**127**	**10.4**	<2.80	**110**	<2.80
Heptane	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	**4.65**	<1.64	<1.64	<1.64	<1.64	<1.64	<1.64
n-Hexane	**730**	**24,333**	<1.9	<1.9	<1.9	<1.9	**5.86**	**2.62**	**5.87**	**4.3**	<1.41	<1.41	**1.58**
Isopropylbenzene	**420**	**14,000**	<1.9	<1.9	<1.9	<1.9	<1.97	<1.97	**2.5**	**5.32**	<1.97	<1.97	<1.97
Methylene Chloride	**100**	**3,333**	**15**	<1.9	<1.9	<1.9	**28.1**	**25.3**	**17.2**	**16.6**	**2.47**	**1.54**	**4.65**
2-Butanone (MEK)	**5,200**	**173,333**	<1.9	<1.9	<1.9	<1.9	**7.65**	<10.2	<10.2	**11.9**	<10.2	<10.2	<10.2
2-Propanol	**210**	**7,000**	<19	<20	<19	**26**	**26.4**	**8.94**	<6.15	**23.4**	**8.4**	<6.15	<6.15
Propene	**3,100**	**103,333**	<1.9	<1.9	<1.9	<1.9	**3.7**	<1.38	**11.6**	**2.96**	<1.38	<1.38	<1.38
Styrene	**1,000**	**33,333**	<1.9	<1.9	<1.9	<1.9	**3.98**	**1.82**	**11**	**66.9**	<1.70	<1.70	<1.70
Tetrachloroethylene	**11**	**367**	<1.9	**45**	<1.9	**84**	**70.2**	**348**	**46.3**	**117**	<2.72	**652**	<2.72
Tetrahydrofuran	**2,100**	**70,000**	<1.9	<1.9	<1.9	<1.9	**5.1**	<1.18	<1.18	**3.63**	<1.18	<1.18	<1.18
Toluene	**5,200**	**173,333**	<1.9	<1.9	**2.2**	**6.7**	**20.7**	<1.51	**2.79**	**24.9**	<1.51	<1.51	<1.51
1,1,1-Trichloroethane	**5,200**	**173,333**	<1.9	**41**	<1.9	<1.9	<2.18	<2.18	<2.18	**6.23**	<2.18	<2.18	<2.18
Trichloroethylene	**0.48**	**16**	<1.9	<1.9	<1.9	**9.8**	<2.14	**32.4**	**3.08**	<2.14	<2.14	**47.8**	<2.14
1,2,4-Trimethylbenzene	**7.3**	**243**	<1.9	<1.9	<1.9	<1.9	**2.22**	<1.96	<1.96	**4.93**	<1.96	<1.96	<1.96
m&p-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<3.47	<3.47	**4.88**	**19.4**	<3.47	**6.34**	<3.47
o-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<1.73	<1.73	**1.84**	**8.2**	<1.73	**2.21**	<1.73
Fixed Gasses by D1946 (%)													
Methane	**NE**	**NE**	NA	NA	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Carbon Monoxide	**NE**	**NE**	NA	NA	NA	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Carbon Dioxide	**NE**	**NE**	**0.438**	**2.01**	**0.592**	**0.974**	<0.5	<0.5	<0.5	**0.972**	<0.5	<0.5	<0.5
Oxygen	**NE**	**NE**	**21.9**	**20.3**	**21.7**	**21.4**	**16.7**	**16.8**	**16.4**	**16.8**	**16.8**	NA	NA

1) VISL - Vapor Intrusion Screening Level (calculated by dividing the RSL for residential indoor air by the State approved 3% [0.03] attenuation factor).
RSL = USEPA Indoor Air Regional Screening Level (HQ=0.1 June 2017)
ASC = CDPHE Air Screening Concentrations, Remediation Goals (January 2016)
ND = Not Detected
NE = Not Established
NA = Not Applicable
Only detected analytes shown (detected concentrations are **bold**)

APPENDIX C – SOIL BORING LOGS

WELL LOG NO. SB-01/MW-01

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS (Well Completion: Aboveground)
0.3	**TOPSOIL**	Stickup - 1" PVC
	SILTY SAND (ML), light brown	Bentonite chips with 1" PVC riser pipe
6.5	**SANDY SILT WITH GRAVEL (ML)**, light gray to light brown	1" PVC pipe in sand
10.5		
11.0	**SILTY SAND (SM)**	
	SILTY CLAY (CL-ML), light gray	1" PVC screen in sand
12.5	**GRAVEL (GW)**	
16.0	***Boring Terminated at 16 Feet***	

DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
			50	ND
5			60	4.9
10	▽		60	24.1
15			60	4.6

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *8.73 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 08-23-2018
Well Completed: 08-23-2018
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 21187023
Exhibit: B-1

WELL LOG NO. SB-02/MW-02

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS
0.5	**FILL - FILL**, fill with sand and silt, light brown to light brownish gray, coal and landfill trash on surface	Well Completion: Aboveground Stickup - 1" PVC
	SILTY CLAY WITH SAND (CL-ML), light brown	Bentonite chips with 1" PVC riser pipe
5.0	**SAND (SP)**, fine to medium grained	1" PVC pipe in sand
7.0	**SILT WITH SAND (ML)**, some clay	
8.0	**LEAN CLAY (CL)**	
8.5	**SAND**, fine to medium grained	
9.5	**SAND WITH GRAVEL (SP)**, with waste, black to brown, 6-inch interval of black material at 10', grading to light gray/brown	1" PVC screen in sand
16.0	***Boring Terminated at 16 Feet***	

DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
			50	ND
5			60	2.2
10	▽		50	ND
15			50	1.2

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.2 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 08-23-2018
Well Completed: 08-23-2018
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 21187023
Exhibit: B-2

WELL LOG NO. SB-02R/MW-02R

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS (Well Completion: Aboveground)	OVA/PID (ppm)
	WELL GRADED SAND WITH GRAVEL (SW), fine to medium grained, light brown	Stickup - 2" PVC; Bentonite chips with 2" PVC riser pipe	1.8
6.0		2" PVC pipe in sand	
	POORLY GRADED SAND WITH GRAVEL (SP), coarse grained, light brown		1.3
7.0			
	SAND WITH GRAVEL (SW), fine to medium grained, brown to light brown		ND
11.0			
	POORLY GRADED SAND (SP), medium to coarse grained, brown, with black staining at 11.5'	2" PVC screen in sand	
13.0			ND
	POORLY GRADED SAND WITH GRAVEL (SP), coarse grained, brown with staining at 13-14'		
16.0			
	Boring Terminated at 16 Feet		

DEPTH (ft): 5, 10, 15

WATER LEVEL OBSERVATIONS: ▽ 11 feet during drilling

SAMPLE TYPE

RECOVERY (%)

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *11 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 10-05-2018 | Well Completed: 10-05-2018

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 21187023 | Exhibit: B-3

WELL LOG NO. SB-03/MW-03

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
0.5	**TOPSOIL**	Well Completion: Aboveground Stickup - 2" PVC Bentonite chips with 2" PVC riser pipe 2" PVC pipe in sand					
	SILT WITH SAND (ML)					20	ND
4.0	**SILTY SAND WITH GRAVEL (SP-SM)**, brown gray, grading to light brown at 7'		5	▽		10	ND
8.0	**SAND WITH CLAY AND GRAVEL (GC-GM)**, light gray						
9.0	**SAND WITH GRAVEL (SP)**, brown	2" PVC screen in sand	10			60	ND
12.0	***Boring Terminated at 12 Feet***						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *7.36 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 08-23-2018 | Well Completed: 08-23-2018

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 21187023 | Exhibit: B-4

WELL LOG NO. SB-04/MW-04

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
0.3	**TOPSOIL**	Stickup - 1" PVC Bentonite chips with 1" PVC riser pipe 1" PVC pipe in sand					
	SILT WITH SAND (ML), brown to black					50	ND
6.0	**SAND WITH GRAVEL**, with waste at 9-10', black to gray, grading to brown with depth		5			40	ND
		1" PVC screen in sand	10	▽		80	ND
12.0	***Boring Terminated at 12 Feet***						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *8.66 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 08-23-2018 | Well Completed: 08-23-2018

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 21187023 | Exhibit: B-5

WELL LOG NO. SB-05/MW-05

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
0.8	**TOPSOIL**	Stickup - 1" PVC Bentonite chips with 1" PVC riser pipe 1" PVC pipe in sand					
4.0	**SILT WITH SAND (ML)**, brown, red mottling present with green-blue copper oxidation					40	ND
8.0	**NO RECOVERY - ASSUMED LITHOLOGY**		5			0	NA
10.0	**SAND WITH SILT (SP-SM)**, black with red/oxidized grains			▽			
12.0	**SILTY CLAYEY SAND (SC-SM)**, dark gray	1" PVC screen in sand	10			5	ND
	Boring Terminated at 12 Feet						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *9.47 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 08-23-2018 | Well Completed: 08-23-2018

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 21187023 | Exhibit: B-6

WELL LOG NO. SB-05R/MW-05R

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley, Greeley, Colorado

SITE: East of 31st Street and 1st Avenue, Greeley, Colorado

LOCATION See Exhibit A-2

INSTALLATION DETAILS — Well Completion: Aboveground

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
1.0	**TOPSOIL**, dark brown sandy clay	Stickup - 2" PVC					
		Bentonite chips with 2" PVC riser pipe					ND
6.0	**SAND (SW)**, with concrete and brick debris, brown to light brown	2" PVC pipe in sand	5				
8.0	**CLAYEY SAND (SC)**, dark brown, staining			▽			ND
14.0	**POORLY GRADED SAND (SP)**, coarse grained, dark brown to black, staining	2" PVC screen in sand	10				ND
16.0	**POORLY GRADED SAND WITH GRAVEL (SP)**, coarse grained, light brown		15				ND

Boring Terminated at 16 Feet

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *7 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 10-05-2018	Well Completed: 10-05-2018
Drill Rig: Geoprobe	Driller: Drill Pro
Project No.: 21187023	Exhibit: B-7

BORING LOG NO. SB-06

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
		TOPSOIL					
	1.0	**SILT WITH SAND (ML)**, 6-inches of red mottling present at 3-4'				70	ND
	5.5	**WASTE/TRASH**, black with plastic, trash, tires, other household waste materials	5			60	ND
	6.5	**SILTY SAND WITH GRAVEL (SM)**, with waste, black to gray unconsolidated material to bottom of borehole					
			10			5	ND
	12.0	***Boring Terminated at 12 Feet***					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Soil boring - no groundwater measured

Terracon
1289 1st Ave
Greeley, CO

Boring Started: 08-23-2018 | Boring Completed: 08-23-2018

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 21187023 | Exhibit: B-8

WELL LOG NO. SB-07/MW-07

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS
0.5	**TOPSOIL**	Stickup - 1" PVC Bentonite chips with 1" PVC riser pipe 1" PVC pipe in sand
	SILT WITH SAND (ML), trace coal throughout upper 4' of boring	
6.0	**SAND WITH GRAVEL (SP)**	
8.0	**SANDY SILT WITH GRAVEL (ML)**, light brown to gray	1" PVC screen in sand
12.0	***Boring Terminated at 12 Feet***	

DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
			50	ND
5			50	ND
10	▽		75	ND

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *9.83 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 08-23-2018
Well Completed: 08-23-2018
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 21187023
Exhibit: B-9

WELL LOG NO. SB-08/MW-08

PROJECT: City of Greeley Fishing Ponds

CLIENT: City of Greeley
Greeley, Colorado

SITE: East of 31st Street and 1st Avenue
Greeley, Colorado

LOCATION See Exhibit A-2

GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (%)	OVA/PID (ppm)
			Well Completion: Aboveground					
		TOPSOIL, brown, dry sandy clay	Stickup - 2" PVC Bentonite chips with 2" PVC riser pipe 2" PVC pipe in sand					
	1.5	**CLAY (CL)**, with fine sand, dark brown						ND
	4.0	**POORLY GRADED SAND WITH GRAVEL (SP)**, coarse grained, light brown		5				ND
			2" PVC screen in sand	10				ND
	12.0	***Boring Terminated at 12 Feet***						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with bentonite chips upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *4 feet during drilling*

Terracon
1289 1st Ave
Greeley, CO

Well Started: 10-05-2018 | Well Completed: 10-05-2018

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 21187023 | Exhibit: B-10

APPENDIX D – ANALYTICAL REPORTS AND CHAINS OF CUSTODY

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 11, 2018

Terracon - Fort Collins, CO

Sample Delivery Group:	L1021223
Samples Received:	08/28/2018
Project Number:	21187023
Description:	Greeley Fishing Pond

Report To: Aaron Varnell
1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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SB-05 L1021223-01 Solid

Collected by: Aaron Varnell
Collected date/time: 08/23/18 13:45
Received date/time: 08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9012B	WG1158746	1	08/29/18 14:02	08/30/18 09:10	KK
Wet Chemistry by Method 9066	WG1157904	1	08/29/18 08:01	08/29/18 12:20	KK
Mercury by Method 7471A	WG1158967	1	08/29/18 11:32	08/30/18 12:25	EL
Metals (ICP) by Method 6010B	WG1158775	1	08/30/18 18:14	08/31/18 20:21	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1160864	1	08/23/18 13:45	09/02/18 22:15	JHH
Pesticides (GC) by Method 8081	WG1159150	1	08/30/18 09:14	08/30/18 19:21	RP
Polychlorinated Biphenyls (GC) by Method 8082	WG1159150	1	08/30/18 09:14	08/30/18 17:13	RP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159826	1	09/04/18 09:40	09/05/18 01:44	SNR

SB-05 L1021223-02 Solid

Collected by: Aaron Varnell
Collected date/time: 08/23/18 14:40
Received date/time: 08/28/18 08:45

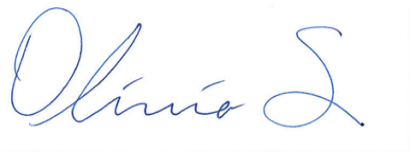
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9012B	WG1158746	1	08/29/18 14:02	08/30/18 09:11	KK
Wet Chemistry by Method 9066	WG1157904	1	08/29/18 08:01	08/29/18 12:22	KK
Mercury by Method 7471A	WG1158967	1	08/29/18 11:32	08/30/18 12:33	EL
Metals (ICP) by Method 6010B	WG1158775	1	08/30/18 18:14	08/31/18 20:24	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1160864	1	08/23/18 14:40	09/02/18 22:33	JHH
Pesticides (GC) by Method 8081	WG1159150	10	08/30/18 09:14	08/31/18 11:22	TD
Polychlorinated Biphenyls (GC) by Method 8082	WG1159150	1	08/30/18 09:14	08/30/18 17:26	RP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159826	5	09/04/18 09:40	09/05/18 03:40	SNR
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159826	50	09/04/18 09:40	09/05/18 13:46	CJR

MW-05 L1021223-03 GW

Collected by: Aaron Varnell
Collected date/time: 08/24/18 13:50
Received date/time: 08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 4500CN E-2011	WG1159364	1	08/30/18 12:57	08/30/18 17:05	KK
Wet Chemistry by Method 9066	WG1159671	1	09/02/18 08:56	09/04/18 09:02	KK
Mercury by Method 7470A	WG1163505	1	09/10/18 09:52	09/11/18 09:07	ABL
Metals (ICP) by Method 6010B	WG1162930	1.8	09/10/18 23:19	09/11/18 11:05	CCE
Metals (ICPMS) by Method 6020	WG1162700	1	09/10/18 11:58	09/11/18 00:34	LD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 18:48	08/28/18 18:48	TJJ
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1160600	1	09/01/18 22:13	09/01/18 22:13	ACG
Pesticides (GC) by Method 8081	WG1158589	1	08/28/18 16:29	08/29/18 14:24	VKS
Polychlorinated Biphenyls (GC) by Method 8082	WG1158589	1	08/28/18 16:29	08/29/18 17:32	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159178	1	08/31/18 16:24	09/01/18 16:29	SNR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	08/30/2018 09:10	WG1158746

Wet Chemistry by Method 9066

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Total Phenol by 4AAP	ND		0.670	1	08/29/2018 12:20	WG1157904

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0339		0.0200	1	08/30/2018 12:25	WG1158967

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Antimony	ND		2.00	1	08/31/2018 20:21	WG1158775
Arsenic	2.51		2.00	1	08/31/2018 20:21	WG1158775
Beryllium	0.398		0.200	1	08/31/2018 20:21	WG1158775
Cadmium	ND		0.500	1	08/31/2018 20:21	WG1158775
Chromium	11.2		1.00	1	08/31/2018 20:21	WG1158775
Copper	11.4		2.00	1	08/31/2018 20:21	WG1158775
Lead	82.7		0.500	1	08/31/2018 20:21	WG1158775
Nickel	7.25		2.00	1	08/31/2018 20:21	WG1158775
Selenium	ND		2.00	1	08/31/2018 20:21	WG1158775
Silver	ND		1.00	1	08/31/2018 20:21	WG1158775
Thallium	ND		2.00	1	08/31/2018 20:21	WG1158775
Zinc	85.3		5.00	1	08/31/2018 20:21	WG1158775

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/02/2018 22:15	WG1160864
Bromodichloromethane	ND		0.00250	1	09/02/2018 22:15	WG1160864
Bromoform	ND		0.0250	1	09/02/2018 22:15	WG1160864
Bromomethane	ND		0.0125	1	09/02/2018 22:15	WG1160864
Carbon tetrachloride	ND		0.00500	1	09/02/2018 22:15	WG1160864
Chlorobenzene	ND		0.00250	1	09/02/2018 22:15	WG1160864
Chlorodibromomethane	ND		0.00250	1	09/02/2018 22:15	WG1160864
Chloroethane	ND		0.00500	1	09/02/2018 22:15	WG1160864
Chloroform	ND		0.00250	1	09/02/2018 22:15	WG1160864
Chloromethane	ND		0.0125	1	09/02/2018 22:15	WG1160864
1,2-Dichlorobenzene	ND		0.00500	1	09/02/2018 22:15	WG1160864
1,3-Dichlorobenzene	ND		0.00500	1	09/02/2018 22:15	WG1160864
1,4-Dichlorobenzene	ND		0.00500	1	09/02/2018 22:15	WG1160864
1,1-Dichloroethane	ND		0.00250	1	09/02/2018 22:15	WG1160864
1,2-Dichloroethane	ND	J3	0.00250	1	09/02/2018 22:15	WG1160864
1,1-Dichloroethene	ND		0.00250	1	09/02/2018 22:15	WG1160864
trans-1,2-Dichloroethene	ND		0.00500	1	09/02/2018 22:15	WG1160864
1,2-Dichloropropane	ND		0.00500	1	09/02/2018 22:15	WG1160864
cis-1,3-Dichloropropene	ND		0.00250	1	09/02/2018 22:15	WG1160864
trans-1,3-Dichloropropene	ND		0.00500	1	09/02/2018 22:15	WG1160864
Ethylbenzene	ND		0.00250	1	09/02/2018 22:15	WG1160864
Methylene Chloride	ND	J3	0.0250	1	09/02/2018 22:15	WG1160864
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/02/2018 22:15	WG1160864

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Tetrachloroethene	ND		0.00250	1	09/02/2018 22:15	WG1160864
Toluene	ND		0.00500	1	09/02/2018 22:15	WG1160864
1,1,1-Trichloroethane	ND		0.00250	1	09/02/2018 22:15	WG1160864
1,1,2-Trichloroethane	ND		0.00250	1	09/02/2018 22:15	WG1160864
Trichloroethene	ND		0.00100	1	09/02/2018 22:15	WG1160864
Vinyl chloride	ND		0.00250	1	09/02/2018 22:15	WG1160864
(S) Toluene-d8	*104*		*75.0-131*		*09/02/2018 22:15*	WG1160864
(S) Dibromofluoromethane	*97.4*		*65.0-129*		*09/02/2018 22:15*	WG1160864
(S) a,a,a-Trifluorotoluene	*100*		*80.0-120*		*09/02/2018 22:15*	WG1160864
(S) 4-Bromofluorobenzene	*107*		*67.0-138*		*09/02/2018 22:15*	WG1160864

Pesticides (GC) by Method 8081

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aldrin	ND		0.0200	1	08/30/2018 19:21	WG1159150
Alpha BHC	ND		0.0200	1	08/30/2018 19:21	WG1159150
Beta BHC	ND		0.0200	1	08/30/2018 19:21	WG1159150
Delta BHC	ND		0.0200	1	08/30/2018 19:21	WG1159150
Gamma BHC	ND		0.0200	1	08/30/2018 19:21	WG1159150
Chlordane	ND		0.200	1	08/30/2018 19:21	WG1159150
4,4-DDD	ND		0.0200	1	08/30/2018 19:21	WG1159150
4,4-DDE	ND		0.0200	1	08/30/2018 19:21	WG1159150
4,4-DDT	ND		0.0200	1	08/30/2018 19:21	WG1159150
Dieldrin	ND		0.0200	1	08/30/2018 19:21	WG1159150
Endosulfan I	ND		0.0200	1	08/30/2018 19:21	WG1159150
Endosulfan II	ND		0.0200	1	08/30/2018 19:21	WG1159150
Endosulfan sulfate	ND		0.0200	1	08/30/2018 19:21	WG1159150
Endrin	ND		0.0200	1	08/30/2018 19:21	WG1159150
Endrin aldehyde	ND		0.0200	1	08/30/2018 19:21	WG1159150
Endrin ketone	ND		0.0200	1	08/30/2018 19:21	WG1159150
Heptachlor	ND		0.0200	1	08/30/2018 19:21	WG1159150
Heptachlor epoxide	ND		0.0200	1	08/30/2018 19:21	WG1159150
Hexachlorobenzene	ND		0.0200	1	08/30/2018 19:21	WG1159150
Methoxychlor	ND		0.0200	1	08/30/2018 19:21	WG1159150
Toxaphene	ND		0.400	1	08/30/2018 19:21	WG1159150
(S) Decachlorobiphenyl	*78.9*		*10.0-135*		*08/30/2018 19:21*	WG1159150
(S) Tetrachloro-m-xylene	*83.6*		*10.0-139*		*08/30/2018 19:21*	WG1159150

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.0170	1	08/30/2018 17:13	WG1159150
PCB 1221	ND		0.0170	1	08/30/2018 17:13	WG1159150
PCB 1232	ND		0.0170	1	08/30/2018 17:13	WG1159150
PCB 1242	ND		0.0170	1	08/30/2018 17:13	WG1159150
PCB 1248	ND		0.0170	1	08/30/2018 17:13	WG1159150
PCB 1254	ND		0.0170	1	08/30/2018 17:13	WG1159150
PCB 1260	ND		0.0170	1	08/30/2018 17:13	WG1159150
(S) Decachlorobiphenyl	*62.1*		*10.0-135*		*08/30/2018 17:13*	WG1159150
(S) Tetrachloro-m-xylene	*75.2*		*10.0-139*		*08/30/2018 17:13*	WG1159150

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Acenaphthylene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Anthracene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Benzidine	ND	J4	0.333	1	09/05/2018 01:44	WG1159826
Benzo(a)anthracene	0.0429		0.0330	1	09/05/2018 01:44	WG1159826
Benzo(b)fluoranthene	0.0800		0.0330	1	09/05/2018 01:44	WG1159826
Benzo(k)fluoranthene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Benzo(g,h,i)perylene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Benzo(a)pyrene	0.0522		0.0330	1	09/05/2018 01:44	WG1159826
Bis(2-chlorethoxy)methane	ND		0.333	1	09/05/2018 01:44	WG1159826
Bis(2-chloroethyl)ether	ND		0.333	1	09/05/2018 01:44	WG1159826
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/05/2018 01:44	WG1159826
4-Bromophenyl-phenylether	ND		0.333	1	09/05/2018 01:44	WG1159826
2-Chloronaphthalene	ND		0.0330	1	09/05/2018 01:44	WG1159826
4-Chlorophenyl-phenylether	ND		0.333	1	09/05/2018 01:44	WG1159826
Chrysene	0.0475		0.0330	1	09/05/2018 01:44	WG1159826
Dibenz(a,h)anthracene	0.207		0.0330	1	09/05/2018 01:44	WG1159826
3,3-Dichlorobenzidine	ND		0.333	1	09/05/2018 01:44	WG1159826
2,4-Dinitrotoluene	ND		0.333	1	09/05/2018 01:44	WG1159826
2,6-Dinitrotoluene	ND		0.333	1	09/05/2018 01:44	WG1159826
Fluoranthene	0.0763		0.0330	1	09/05/2018 01:44	WG1159826
Fluorene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Hexachlorobenzene	ND		0.333	1	09/05/2018 01:44	WG1159826
Hexachloro-1,3-butadiene	ND		0.333	1	09/05/2018 01:44	WG1159826
Hexachlorocyclopentadiene	ND		0.333	1	09/05/2018 01:44	WG1159826
Hexachloroethane	ND		0.333	1	09/05/2018 01:44	WG1159826
Indeno(1,2,3-cd)pyrene	0.556		0.0330	1	09/05/2018 01:44	WG1159826
Isophorone	ND		0.333	1	09/05/2018 01:44	WG1159826
Naphthalene	ND		0.0330	1	09/05/2018 01:44	WG1159826
Nitrobenzene	ND		0.333	1	09/05/2018 01:44	WG1159826
n-Nitrosodimethylamine	ND		0.333	1	09/05/2018 01:44	WG1159826
n-Nitrosodiphenylamine	ND		0.333	1	09/05/2018 01:44	WG1159826
n-Nitrosodi-n-propylamine	ND		0.333	1	09/05/2018 01:44	WG1159826
Phenanthrene	0.0472		0.0330	1	09/05/2018 01:44	WG1159826
Benzylbutyl phthalate	ND		0.333	1	09/05/2018 01:44	WG1159826
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/05/2018 01:44	WG1159826
Di-n-butyl phthalate	ND		0.333	1	09/05/2018 01:44	WG1159826
Diethyl phthalate	ND		0.333	1	09/05/2018 01:44	WG1159826
Dimethyl phthalate	ND		0.333	1	09/05/2018 01:44	WG1159826
Di-n-octyl phthalate	ND		0.333	1	09/05/2018 01:44	WG1159826
Pyrene	0.0783		0.0330	1	09/05/2018 01:44	WG1159826
1,2,4-Trichlorobenzene	ND		0.333	1	09/05/2018 01:44	WG1159826
4-Chloro-3-methylphenol	ND		0.333	1	09/05/2018 01:44	WG1159826
2-Chlorophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
2,4-Dichlorophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
2,4-Dimethylphenol	ND		0.333	1	09/05/2018 01:44	WG1159826
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/05/2018 01:44	WG1159826
2,4-Dinitrophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
2-Nitrophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
4-Nitrophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
Pentachlorophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
Phenol	ND		0.333	1	09/05/2018 01:44	WG1159826
2,4,6-Trichlorophenol	ND		0.333	1	09/05/2018 01:44	WG1159826
(S) 2-Fluorophenol	*76.5*		*12.0-120*		*09/05/2018 01:44*	WG1159826
(S) Phenol-d5	*65.6*		*10.0-120*		*09/05/2018 01:44*	WG1159826
(S) Nitrobenzene-d5	*66.4*		*10.0-122*		*09/05/2018 01:44*	WG1159826

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) 2-Fluorobiphenyl	*68.8*		*15.0-120*		*09/05/2018 01:44*	WG1159826
(S) 2,4,6-Tribromophenol	*76.7*		*10.0-127*		*09/05/2018 01:44*	WG1159826
(S) p-Terphenyl-d14	*77.6*		*10.0-120*		*09/05/2018 01:44*	WG1159826

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	08/30/2018 09:11	WG1158746

Wet Chemistry by Method 9066

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Total Phenol by 4AAP	1.25		0.670	1	08/29/2018 12:22	WG1157904

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.165		0.0200	1	08/30/2018 12:33	WG1158967

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Antimony	ND		2.00	1	08/31/2018 20:24	WG1158775
Arsenic	3.93		2.00	1	08/31/2018 20:24	WG1158775
Beryllium	0.415		0.200	1	08/31/2018 20:24	WG1158775
Cadmium	0.635		0.500	1	08/31/2018 20:24	WG1158775
Chromium	9.98		1.00	1	08/31/2018 20:24	WG1158775
Copper	52.4		2.00	1	08/31/2018 20:24	WG1158775
Lead	43.9		0.500	1	08/31/2018 20:24	WG1158775
Nickel	6.70		2.00	1	08/31/2018 20:24	WG1158775
Selenium	ND		2.00	1	08/31/2018 20:24	WG1158775
Silver	8.97		1.00	1	08/31/2018 20:24	WG1158775
Thallium	ND		2.00	1	08/31/2018 20:24	WG1158775
Zinc	132		5.00	1	08/31/2018 20:24	WG1158775

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	09/02/2018 22:33	WG1160864
Bromodichloromethane	ND		0.00250	1	09/02/2018 22:33	WG1160864
Bromoform	ND		0.0250	1	09/02/2018 22:33	WG1160864
Bromomethane	ND		0.0125	1	09/02/2018 22:33	WG1160864
Carbon tetrachloride	ND		0.00500	1	09/02/2018 22:33	WG1160864
Chlorobenzene	0.00922		0.00250	1	09/02/2018 22:33	WG1160864
Chlorodibromomethane	ND		0.00250	1	09/02/2018 22:33	WG1160864
Chloroethane	ND		0.00500	1	09/02/2018 22:33	WG1160864
Chloroform	ND		0.00250	1	09/02/2018 22:33	WG1160864
Chloromethane	ND		0.0125	1	09/02/2018 22:33	WG1160864
1,2-Dichlorobenzene	ND		0.00500	1	09/02/2018 22:33	WG1160864
1,3-Dichlorobenzene	ND		0.00500	1	09/02/2018 22:33	WG1160864
1,4-Dichlorobenzene	0.0219		0.00500	1	09/02/2018 22:33	WG1160864
1,1-Dichloroethane	ND		0.00250	1	09/02/2018 22:33	WG1160864
1,2-Dichloroethane	ND	J3	0.00250	1	09/02/2018 22:33	WG1160864
1,1-Dichloroethene	ND		0.00250	1	09/02/2018 22:33	WG1160864
trans-1,2-Dichloroethene	ND		0.00500	1	09/02/2018 22:33	WG1160864
1,2-Dichloropropane	ND		0.00500	1	09/02/2018 22:33	WG1160864
cis-1,3-Dichloropropene	ND		0.00250	1	09/02/2018 22:33	WG1160864
trans-1,3-Dichloropropene	ND		0.00500	1	09/02/2018 22:33	WG1160864
Ethylbenzene	0.0109		0.00250	1	09/02/2018 22:33	WG1160864
Methylene Chloride	ND	J3	0.0250	1	09/02/2018 22:33	WG1160864
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/02/2018 22:33	WG1160864

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Tetrachloroethene	ND		0.00250	1	09/02/2018 22:33	WG1160864
Toluene	0.00702		0.00500	1	09/02/2018 22:33	WG1160864
1,1,1-Trichloroethane	ND		0.00250	1	09/02/2018 22:33	WG1160864
1,1,2-Trichloroethane	ND		0.00250	1	09/02/2018 22:33	WG1160864
Trichloroethene	ND		0.00100	1	09/02/2018 22:33	WG1160864
Vinyl chloride	ND		0.00250	1	09/02/2018 22:33	WG1160864
(S) Toluene-d8	*94.3*		*75.0-131*		*09/02/2018 22:33*	WG1160864
(S) Dibromofluoromethane	*88.6*		*65.0-129*		*09/02/2018 22:33*	WG1160864
(S) a,a,a-Trifluorotoluene	*101*		*80.0-120*		*09/02/2018 22:33*	WG1160864
(S) 4-Bromofluorobenzene	*109*		*67.0-138*		*09/02/2018 22:33*	WG1160864

Pesticides (GC) by Method 8081

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aldrin	ND		0.200	10	08/31/2018 11:22	WG1159150
Alpha BHC	ND		0.200	10	08/31/2018 11:22	WG1159150
Beta BHC	ND		0.200	10	08/31/2018 11:22	WG1159150
Delta BHC	ND		0.200	10	08/31/2018 11:22	WG1159150
Gamma BHC	ND		0.200	10	08/31/2018 11:22	WG1159150
Chlordane	ND		2.00	10	08/31/2018 11:22	WG1159150
4,4-DDD	ND		0.200	10	08/31/2018 11:22	WG1159150
4,4-DDE	ND		0.200	10	08/31/2018 11:22	WG1159150
4,4-DDT	ND		0.200	10	08/31/2018 11:22	WG1159150
Dieldrin	ND		0.200	10	08/31/2018 11:22	WG1159150
Endosulfan I	ND		0.200	10	08/31/2018 11:22	WG1159150
Endosulfan II	ND		0.200	10	08/31/2018 11:22	WG1159150
Endosulfan sulfate	ND		0.200	10	08/31/2018 11:22	WG1159150
Endrin	ND		0.200	10	08/31/2018 11:22	WG1159150
Endrin aldehyde	ND		0.200	10	08/31/2018 11:22	WG1159150
Endrin ketone	ND		0.200	10	08/31/2018 11:22	WG1159150
Heptachlor	ND		0.200	10	08/31/2018 11:22	WG1159150
Heptachlor epoxide	ND		0.200	10	08/31/2018 11:22	WG1159150
Hexachlorobenzene	ND		0.200	10	08/31/2018 11:22	WG1159150
Methoxychlor	ND		0.200	10	08/31/2018 11:22	WG1159150
Toxaphene	ND		4.00	10	08/31/2018 11:22	WG1159150
(S) Decachlorobiphenyl	*47.7*		*10.0-135*		*08/31/2018 11:22*	WG1159150
(S) Tetrachloro-m-xylene	*59.6*		*10.0-139*		*08/31/2018 11:22*	WG1159150

Sample Narrative:

L1021223-02 WG1159150: Dilution due to matrix

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.0170	1	08/30/2018 17:26	WG1159150
PCB 1221	ND		0.0170	1	08/30/2018 17:26	WG1159150
PCB 1232	ND		0.0170	1	08/30/2018 17:26	WG1159150
PCB 1242	ND		0.0170	1	08/30/2018 17:26	WG1159150
PCB 1248	ND		0.0170	1	08/30/2018 17:26	WG1159150
PCB 1254	ND		0.0170	1	08/30/2018 17:26	WG1159150
PCB 1260	ND		0.0170	1	08/30/2018 17:26	WG1159150
(S) Decachlorobiphenyl	*46.6*		*10.0-135*		*08/30/2018 17:26*	WG1159150
(S) Tetrachloro-m-xylene	*77.7*		*10.0-139*		*08/30/2018 17:26*	WG1159150

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.165	5	09/05/2018 03:40	WG1159826
Acenaphthylene	ND		0.165	5	09/05/2018 03:40	WG1159826
Anthracene	ND		0.165	5	09/05/2018 03:40	WG1159826
Benzidine	ND	J4	1.67	5	09/05/2018 03:40	WG1159826
Benzo(a)anthracene	ND		0.165	5	09/05/2018 03:40	WG1159826
Benzo(b)fluoranthene	ND		1.65	50	09/05/2018 13:46	WG1159826
Benzo(k)fluoranthene	ND		1.65	50	09/05/2018 13:46	WG1159826
Benzo(g,h,i)perylene	ND		1.65	50	09/05/2018 13:46	WG1159826
Benzo(a)pyrene	ND		1.65	50	09/05/2018 13:46	WG1159826
Bis(2-chlorethoxy)methane	ND		1.67	5	09/05/2018 03:40	WG1159826
Bis(2-chloroethyl)ether	ND		1.67	5	09/05/2018 03:40	WG1159826
Bis(2-chloroisopropyl)ether	ND		1.67	5	09/05/2018 03:40	WG1159826
4-Bromophenyl-phenylether	ND		1.67	5	09/05/2018 03:40	WG1159826
2-Chloronaphthalene	ND		0.165	5	09/05/2018 03:40	WG1159826
4-Chlorophenyl-phenylether	ND		1.67	5	09/05/2018 03:40	WG1159826
Chrysene	ND		0.165	5	09/05/2018 03:40	WG1159826
Dibenz(a,h)anthracene	ND		1.65	50	09/05/2018 13:46	WG1159826
3,3-Dichlorobenzidine	ND		1.67	5	09/05/2018 03:40	WG1159826
2,4-Dinitrotoluene	ND		1.67	5	09/05/2018 03:40	WG1159826
2,6-Dinitrotoluene	ND		1.67	5	09/05/2018 03:40	WG1159826
Fluoranthene	ND		0.165	5	09/05/2018 03:40	WG1159826
Fluorene	ND		0.165	5	09/05/2018 03:40	WG1159826
Hexachlorobenzene	ND		1.67	5	09/05/2018 03:40	WG1159826
Hexachloro-1,3-butadiene	ND		1.67	5	09/05/2018 03:40	WG1159826
Hexachlorocyclopentadiene	ND		1.67	5	09/05/2018 03:40	WG1159826
Hexachloroethane	ND		1.67	5	09/05/2018 03:40	WG1159826
Indeno(1,2,3-cd)pyrene	ND		1.65	50	09/05/2018 13:46	WG1159826
Isophorone	ND		1.67	5	09/05/2018 03:40	WG1159826
Naphthalene	ND		0.165	5	09/05/2018 03:40	WG1159826
Nitrobenzene	ND		1.67	5	09/05/2018 03:40	WG1159826
n-Nitrosodimethylamine	ND		1.67	5	09/05/2018 03:40	WG1159826
n-Nitrosodiphenylamine	ND		1.67	5	09/05/2018 03:40	WG1159826
n-Nitrosodi-n-propylamine	ND		1.67	5	09/05/2018 03:40	WG1159826
Phenanthrene	ND		0.165	5	09/05/2018 03:40	WG1159826
Benzylbutyl phthalate	ND		1.67	5	09/05/2018 03:40	WG1159826
Bis(2-ethylhexyl)phthalate	ND		1.67	5	09/05/2018 03:40	WG1159826
Di-n-butyl phthalate	ND		1.67	5	09/05/2018 03:40	WG1159826
Diethyl phthalate	ND		1.67	5	09/05/2018 03:40	WG1159826
Dimethyl phthalate	ND		1.67	5	09/05/2018 03:40	WG1159826
Di-n-octyl phthalate	ND		1.67	5	09/05/2018 03:40	WG1159826
Pyrene	ND		0.165	5	09/05/2018 03:40	WG1159826
1,2,4-Trichlorobenzene	ND		1.67	5	09/05/2018 03:40	WG1159826
4-Chloro-3-methylphenol	ND		1.67	5	09/05/2018 03:40	WG1159826
2-Chlorophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
2,4-Dichlorophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
2,4-Dimethylphenol	ND		1.67	5	09/05/2018 03:40	WG1159826
4,6-Dinitro-2-methylphenol	ND		1.67	5	09/05/2018 03:40	WG1159826
2,4-Dinitrophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
2-Nitrophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
4-Nitrophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
Pentachlorophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
Phenol	ND		1.67	5	09/05/2018 03:40	WG1159826
2,4,6-Trichlorophenol	ND		1.67	5	09/05/2018 03:40	WG1159826
(S) 2-Fluorophenol	*68.6*		*12.0-120*		*09/05/2018 03:40*	WG1159826
(S) 2-Fluorophenol	*73.0*	J7	*12.0-120*		*09/05/2018 13:46*	WG1159826
(S) Phenol-d5	*51.1*	J7	*10.0-120*		*09/05/2018 13:46*	WG1159826

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*56.3*		*10.0-120*		*09/05/2018 03:40*	WG1159826
(S) Nitrobenzene-d5	*60.1*		*10.0-122*		*09/05/2018 03:40*	WG1159826
(S) Nitrobenzene-d5	*60.1*	J7	*10.0-122*		*09/05/2018 13:46*	WG1159826
(S) 2-Fluorobiphenyl	*58.3*	J7	*15.0-120*		*09/05/2018 13:46*	WG1159826
(S) 2-Fluorobiphenyl	*60.1*		*15.0-120*		*09/05/2018 03:40*	WG1159826
(S) 2,4,6-Tribromophenol	*25.2*	J7	*10.0-127*		*09/05/2018 13:46*	WG1159826
(S) 2,4,6-Tribromophenol	*60.4*		*10.0-127*		*09/05/2018 03:40*	WG1159826
(S) p-Terphenyl-d14	*80.4*		*10.0-120*		*09/05/2018 03:40*	WG1159826
(S) p-Terphenyl-d14	*60.7*	J7	*10.0-120*		*09/05/2018 13:46*	WG1159826

Sample Narrative:

L1021223-02 WG1159826: Dilution due to matrix

L1021223-02 WG1159826: IS/SURR failed on lower dilution.

Wet Chemistry by Method 4500CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Cyanide	0.0128		0.00500	1	08/30/2018 17:05	WG1159364

Wet Chemistry by Method 9066

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Total Phenol by 4AAP	ND		0.0400	1	09/04/2018 09:02	WG1159671

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury,Dissolved	ND		0.000200	1	09/11/2018 09:07	WG1163505

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Beryllium,Dissolved	ND		0.00360	1.8	09/11/2018 11:05	WG1162930
Cadmium,Dissolved	ND		0.00360	1.8	09/11/2018 11:05	WG1162930
Chromium,Dissolved	ND		0.0180	1.8	09/11/2018 11:05	WG1162930
Copper,Dissolved	ND		0.0180	1.8	09/11/2018 11:05	WG1162930
Nickel,Dissolved	ND		0.0180	1.8	09/11/2018 11:05	WG1162930
Selenium,Dissolved	ND		0.0180	1.8	09/11/2018 11:05	WG1162930
Silver,Dissolved	ND		0.00900	1.8	09/11/2018 11:05	WG1162930
Zinc,Dissolved	0.422		0.0900	1.8	09/11/2018 11:05	WG1162930

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Antimony,Dissolved	ND		0.00200	1	09/11/2018 00:34	WG1162700
Arsenic,Dissolved	0.00488		0.00200	1	09/11/2018 00:34	WG1162700
Lead,Dissolved	ND		0.00200	1	09/11/2018 00:34	WG1162700
Thallium,Dissolved	ND		0.00200	1	09/11/2018 00:34	WG1162700

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	08/28/2018 18:48	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 18:48	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 18:48	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 18:48	WG1158665
Chlorobenzene	0.00177		0.00100	1	08/28/2018 18:48	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 18:48	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 18:48	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 18:48	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 18:48	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 18:48	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 18:48	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 18:48	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 18:48	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 18:48	WG1158665
Ethylbenzene	ND		0.00100	1	09/01/2018 22:13	WG1160600
Methylene Chloride	ND		0.00500	1	08/28/2018 18:48	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 18:48	WG1158665
Toluene	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 18:48	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 18:48	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 18:48	WG1158665
(S) Toluene-d8	*98.9*		*80.0-120*		*08/28/2018 18:48*	WG1158665
(S) Toluene-d8	*107*		*80.0-120*		*09/01/2018 22:13*	WG1160600
(S) Dibromofluoromethane	*95.7*		*75.0-120*		*08/28/2018 18:48*	WG1158665
(S) Dibromofluoromethane	*97.3*		*75.0-120*		*09/01/2018 22:13*	WG1160600
(S) a,a,a-Trifluorotoluene	*99.9*		*80.0-120*		*08/28/2018 18:48*	WG1158665
(S) a,a,a-Trifluorotoluene	*103*		*80.0-120*		*09/01/2018 22:13*	WG1160600
(S) 4-Bromofluorobenzene	*97.1*		*77.0-126*		*08/28/2018 18:48*	WG1158665
(S) 4-Bromofluorobenzene	*103*		*77.0-126*		*09/01/2018 22:13*	WG1160600

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aldrin	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Alpha BHC	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Beta BHC	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Delta BHC	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Gamma BHC	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Chlordane	ND		0.000500	1	08/29/2018 14:24	WG1158589
4,4-DDD	ND		0.0000500	1	08/29/2018 14:24	WG1158589
4,4-DDE	ND		0.0000500	1	08/29/2018 14:24	WG1158589
4,4-DDT	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Dieldrin	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Endosulfan I	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Endosulfan II	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Endosulfan sulfate	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Endrin	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Endrin aldehyde	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Endrin ketone	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Heptachlor	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Heptachlor epoxide	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Hexachlorobenzene	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Methoxychlor	ND		0.0000500	1	08/29/2018 14:24	WG1158589
Toxaphene	ND		0.000500	1	08/29/2018 14:24	WG1158589
(S) Decachlorobiphenyl	*50.5*		*10.0-128*		*08/29/2018 14:24*	WG1158589
(S) Tetrachloro-m-xylene	*68.8*		*10.0-127*		*08/29/2018 14:24*	WG1158589

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000500	1	08/29/2018 17:32	WG1158589
PCB 1221	ND		0.000500	1	08/29/2018 17:32	WG1158589
PCB 1232	ND		0.000500	1	08/29/2018 17:32	WG1158589
PCB 1242	ND		0.000500	1	08/29/2018 17:32	WG1158589

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
PCB 1248	ND		0.000500	1	08/29/2018 17:32	WG1158589
PCB 1254	ND		0.000500	1	08/29/2018 17:32	WG1158589
PCB 1260	ND		0.000500	1	08/29/2018 17:32	WG1158589
(S) Decachlorobiphenyl	*78.5*		*10.0-128*		*08/29/2018 17:32*	WG1158589
(S) Tetrachloro-m-xylene	*82.2*		*10.0-127*		*08/29/2018 17:32*	WG1158589

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Acenaphthylene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Anthracene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Benzidine	ND		0.0100	1	09/01/2018 16:29	WG1159178
Benzo(a)anthracene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Benzo(b)fluoranthene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Benzo(k)fluoranthene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Benzo(g,h,i)perylene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Benzo(a)pyrene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Bis(2-chlorethoxy)methane	ND		0.0100	1	09/01/2018 16:29	WG1159178
Bis(2-chloroethyl)ether	ND		0.0100	1	09/01/2018 16:29	WG1159178
Bis(2-chloroisopropyl)ether	ND		0.0100	1	09/01/2018 16:29	WG1159178
4-Bromophenyl-phenylether	ND		0.0100	1	09/01/2018 16:29	WG1159178
2-Chloronaphthalene	ND		0.00100	1	09/01/2018 16:29	WG1159178
4-Chlorophenyl-phenylether	ND		0.0100	1	09/01/2018 16:29	WG1159178
Chrysene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Dibenz(a,h)anthracene	ND		0.00100	1	09/01/2018 16:29	WG1159178
3,3-Dichlorobenzidine	ND		0.0100	1	09/01/2018 16:29	WG1159178
2,4-Dinitrotoluene	ND		0.0100	1	09/01/2018 16:29	WG1159178
2,6-Dinitrotoluene	ND		0.0100	1	09/01/2018 16:29	WG1159178
Fluoranthene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Fluorene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Hexachlorobenzene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Hexachloro-1,3-butadiene	ND		0.0100	1	09/01/2018 16:29	WG1159178
Hexachlorocyclopentadiene	ND		0.0100	1	09/01/2018 16:29	WG1159178
Hexachloroethane	ND		0.0100	1	09/01/2018 16:29	WG1159178
Indeno(1,2,3-cd)pyrene	0.00103		0.00100	1	09/01/2018 16:29	WG1159178
Isophorone	ND		0.0100	1	09/01/2018 16:29	WG1159178
Naphthalene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Nitrobenzene	ND		0.0100	1	09/01/2018 16:29	WG1159178
n-Nitrosodimethylamine	ND		0.0100	1	09/01/2018 16:29	WG1159178
n-Nitrosodiphenylamine	ND		0.0100	1	09/01/2018 16:29	WG1159178
n-Nitrosodi-n-propylamine	ND		0.0100	1	09/01/2018 16:29	WG1159178
Phenanthrene	ND		0.00100	1	09/01/2018 16:29	WG1159178
Benzylbutyl phthalate	ND		0.00300	1	09/01/2018 16:29	WG1159178
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	09/01/2018 16:29	WG1159178
Di-n-butyl phthalate	ND		0.00300	1	09/01/2018 16:29	WG1159178
Diethyl phthalate	ND		0.00300	1	09/01/2018 16:29	WG1159178
Dimethyl phthalate	ND	J4	0.00300	1	09/01/2018 16:29	WG1159178
Di-n-octyl phthalate	ND		0.00300	1	09/01/2018 16:29	WG1159178
Pyrene	ND		0.00100	1	09/01/2018 16:29	WG1159178
1,2,4-Trichlorobenzene	ND		0.0100	1	09/01/2018 16:29	WG1159178
4-Chloro-3-methylphenol	ND		0.0100	1	09/01/2018 16:29	WG1159178
2-Chlorophenol	ND	J3 J4	0.0100	1	09/01/2018 16:29	WG1159178
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	09/01/2018 16:29	WG1159178
2,4-Dimethylphenol	ND		0.0100	1	09/01/2018 16:29	WG1159178
4,6-Dinitro-2-methylphenol	ND	J3	0.0100	1	09/01/2018 16:29	WG1159178

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,4-Dinitrophenol	ND		0.0100	1	09/01/2018 16:29	WG1159178
2-Nitrophenol	ND	J3	0.0100	1	09/01/2018 16:29	WG1159178
4-Nitrophenol	ND		0.0100	1	09/01/2018 16:29	WG1159178
Pentachlorophenol	ND	J3	0.0100	1	09/01/2018 16:29	WG1159178
Phenol	ND		0.0100	1	09/01/2018 16:29	WG1159178
2,4,6-Trichlorophenol	ND		0.0100	1	09/01/2018 16:29	WG1159178
(S) 2-Fluorophenol	*34.5*		*10.0-120*		*09/01/2018 16:29*	WG1159178
(S) Phenol-d5	*23.6*		*10.0-120*		*09/01/2018 16:29*	WG1159178
(S) Nitrobenzene-d5	*48.7*		*10.0-127*		*09/01/2018 16:29*	WG1159178
(S) 2-Fluorobiphenyl	*66.2*		*10.0-130*		*09/01/2018 16:29*	WG1159178
(S) 2,4,6-Tribromophenol	*53.0*		*10.0-155*		*09/01/2018 16:29*	WG1159178
(S) p-Terphenyl-d14	*68.8*		*10.0-128*		*09/01/2018 16:29*	WG1159178

Method Blank (MB)

(MB) R3338137-1 08/30/18 16:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L1019437-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1019437-02 08/30/18 16:39 • (DUP) R3338137-4 08/30/18 16:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.00218	1	0.000		20

L1021103-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1021103-02 08/30/18 16:58 • (DUP) R3338137-7 08/30/18 16:59

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338137-2 08/30/18 16:35 • (LCSD) R3338137-3 08/30/18 16:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	0.100	0.103	0.102	103	102	85.0-115			0.976	20

L1019950-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1019950-02 08/30/18 16:41 • (MS) R3338137-5 08/30/18 16:42 • (MSD) R3338137-6 08/30/18 16:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	0.100	0.0120	0.115	0.136	103	124	1	75.0-125			16.7	20

L1021184-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021184-01 08/30/18 17:01 • (MS) R3338137-8 08/30/18 17:02 • (MSD) R3338137-9 08/30/18 17:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	0.100	ND	0.101	0.0988	101	98.8	1	75.0-125			2.20	20

Method Blank (MB)

(MB) R3337883-1 08/30/18 08:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1021153-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1021153-02 08/30/18 08:59 • (DUP) R3337883-4 08/30/18 09:00

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337883-2 08/30/18 08:55 • (LCSD) R3337883-3 08/30/18 08:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.56	2.48	103	99.0	50.0-150			3.52	20

L1021153-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021153-03 08/30/18 09:01 • (MS) R3337883-5 08/30/18 09:02 • (MSD) R3337883-6 08/30/18 09:03

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	1.67	ND	1.45	1.41	86.8	84.8	1	75.0-125			2.31	20

Method Blank (MB)

(MB) R3337624-1 08/29/18 12:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Total Phenol by 4AAP	U		0.220	0.670

L1021153-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1021153-03 08/29/18 12:11 • (DUP) R3337624-6 08/29/18 12:11

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Phenol by 4AAP	ND	0.498	1	0.000		20

L1021223-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1021223-01 08/29/18 12:20 • (DUP) R3337624-8 08/29/18 12:21

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Phenol by 4AAP	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337624-2 08/29/18 12:02 • (LCSD) R3337624-3 08/29/18 12:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Total Phenol by 4AAP	8.33	8.55	8.60	103	103	90.0-110			0.583	20

L1021153-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021153-02 08/29/18 12:06 • (MS) R3337624-4 08/29/18 12:07 • (MSD) R3337624-5 08/29/18 12:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Total Phenol by 4AAP	16.7	ND	11.8	11.9	70.6	71.5	1	90.0-110	J6	J6	1.26	20

L1021153-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1021153-04 08/29/18 12:17 • (MS) R3337624-7 08/29/18 12:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Total Phenol by 4AAP	16.7	ND	12.5	71.0	1	90.0-110	J6

Method Blank (MB)

(MB) R3338809-1 09/04/18 08:48

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Total Phenol by 4AAP	U		0.00830	0.0400

L1020799-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1020799-01 09/04/18 08:55 • (DUP) R3338809-6 09/04/18 08:58

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Phenol by 4AAP	U	0.000	1	0.000		20

L1021261-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1021261-02 09/04/18 09:04 • (DUP) R3338809-7 09/04/18 09:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Phenol by 4AAP	0.120	0.143	1	17.2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338809-2 09/04/18 08:49 • (LCSD) R3338809-3 09/04/18 08:50

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Total Phenol by 4AAP	0.500	0.456	0.470	91.2	94.0	90.0-110			3.02	20

L1020068-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020068-02 09/04/18 08:52 • (MS) R3338809-4 09/04/18 08:53 • (MSD) R3338809-5 09/04/18 08:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Total Phenol by 4AAP	1.00	ND	0.834	0.564	83.4	56.4	1	90.0-110	J6	J3 J6	38.7	20

L1021627-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1021627-02 09/04/18 09:10 • (MS) R3338809-8 09/04/18 09:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Total Phenol by 4AAP	1.00	ND	0.765	76.5	1	90.0-110	J6

Method Blank (MB)

(MB) R3340852-1 09/11/18 08:49

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3340852-3 09/11/18 08:59 • (LCSD) R3340852-2 09/11/18 08:54

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	0.00292	0.00282	97.3	94.0	80.0-120			3.45	20

L1023878-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1023878-01 09/11/18 08:57 • (MS) R3340852-4 09/11/18 09:02 • (MSD) R3340852-5 09/11/18 09:04

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	U	0.00249	0.00250	82.9	83.4	1	75.0-125			0.702	20

Method Blank (MB)

(MB) R3338042-1 08/30/18 11:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338042-2 08/30/18 11:16 • (LCSD) R3338042-3 08/30/18 11:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.257	0.261	85.6	86.9	80.0-120			1.54	20

L1020654-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020654-01 08/30/18 11:21 • (MS) R3338042-4 08/30/18 11:31 • (MSD) R3338042-5 08/30/18 11:33

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.359	0.00849	0.310	0.334	84.0	90.8	1	75.0-125			7.48	20

Method Blank (MB)

(MB) R3338497-1 08/31/18 19:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		0.750	2.00
Arsenic	U		0.460	2.00
Beryllium	U		0.0700	0.200
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Copper	U		0.530	2.00
Lead	U		0.190	0.500
Nickel	U		0.490	2.00
Selenium	U		0.620	2.00
Silver	U		0.120	1.00
Thallium	U		0.650	2.00
Zinc	U		0.590	5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338497-2 08/31/18 19:33 • (LCSD) R3338497-3 08/31/18 19:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	100	91.0	92.3	91.0	92.3	80.0-120			1.44	20
Arsenic	100	92.0	93.3	92.0	93.3	80.0-120			1.39	20
Beryllium	100	102	103	102	103	80.0-120			1.08	20
Cadmium	100	92.5	93.5	92.5	93.5	80.0-120			1.09	20
Chromium	100	95.0	96.8	95.0	96.8	80.0-120			1.87	20
Copper	100	97.1	97.6	97.1	97.6	80.0-120			0.536	20
Lead	100	94.5	96.1	94.5	96.1	80.0-120			1.60	20
Nickel	100	97.4	98.9	97.4	98.9	80.0-120			1.52	20
Selenium	100	89.0	90.7	89.0	90.7	80.0-120			1.84	20
Silver	20.0	18.0	18.3	90.0	91.4	80.0-120			1.54	20
Thallium	100	98.1	99.0	98.1	99.0	80.0-120			0.849	20
Zinc	100	99.3	101	99.3	101	80.0-120			1.33	20

L1020934-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020934-01 08/31/18 19:38 • (MS) R3338497-6 08/31/18 19:46 • (MSD) R3338497-7 08/31/18 19:49

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	115	U	97.4	92.2	84.8	80.2	1	75.0-125			5.56	20
Arsenic	115	U	106	104	92.4	90.6	1	75.0-125			1.96	20

L1020934-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020934-01 08/31/18 19:38 • (MS) R3338497-6 08/31/18 19:46 • (MSD) R3338497-7 08/31/18 19:49

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Beryllium	115	0.100	120	117	104	102	1	75.0-125			2.08	20
Cadmium	115	U	108	106	94.2	92.6	1	75.0-125			1.76	20
Chromium	115	3.81	114	114	95.9	95.4	1	75.0-125			0.505	20
Copper	115	2.14	115	114	98.5	97.5	1	75.0-125			1.04	20
Lead	115	2.96	114	112	96.7	95.0	1	75.0-125			1.73	20
Nickel	115	2.74	118	116	99.8	98.3	1	75.0-125			1.49	20
Selenium	115	U	104	101	90.1	87.5	1	75.0-125			2.89	20
Silver	23.0	U	21.2	20.6	92.1	89.7	1	75.0-125			2.64	20
Thallium	115	U	115	112	99.8	97.7	1	75.0-125			2.15	20
Zinc	115	7.72	121	121	98.4	98.8	1	75.0-125			0.292	20

Method Blank (MB)

(MB) R3340862-1 09/11/18 10:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Beryllium,Dissolved	U		0.000700	0.00200
Cadmium,Dissolved	U		0.000700	0.00200
Chromium,Dissolved	U		0.00140	0.0100
Copper,Dissolved	U		0.00530	0.0100
Nickel,Dissolved	U		0.00490	0.0100
Selenium,Dissolved	U		0.00740	0.0100
Silver,Dissolved	U		0.00280	0.00500
Zinc,Dissolved	U		0.00590	0.0500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3340862-2 09/11/18 10:50 • (LCSD) R3340862-3 09/11/18 10:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Beryllium,Dissolved	1.00	1.00	0.996	100	99.6	80.0-120			0.529	20
Cadmium,Dissolved	1.00	0.992	0.990	99.2	99.0	80.0-120			0.137	20
Chromium,Dissolved	1.00	0.993	0.988	99.3	98.8	80.0-120			0.534	20
Copper,Dissolved	1.00	1.02	1.00	102	100	80.0-120			1.43	20
Nickel,Dissolved	1.00	0.976	0.971	97.6	97.1	80.0-120			0.538	20
Selenium,Dissolved	1.00	1.00	0.992	100	99.2	80.0-120			0.888	20
Silver,Dissolved	0.200	0.192	0.189	95.8	94.3	80.0-120			1.54	20
Zinc,Dissolved	1.00	0.972	0.967	97.2	96.7	80.0-120			0.472	20

L1023595-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1023595-01 09/11/18 10:55 • (MS) R3340862-5 09/11/18 11:00 • (MSD) R3340862-6 09/11/18 11:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Beryllium,Dissolved	1.00	0.00153	0.998	0.999	99.7	99.8	1	75.0-125			0.0804	20
Cadmium,Dissolved	1.00	0.00150	1.01	1.01	101	101	1	75.0-125			0.150	20
Chromium,Dissolved	1.00	0.00345	0.966	0.961	96.2	95.8	1	75.0-125			0.422	20
Copper,Dissolved	1.00	0.00631	1.04	1.04	104	104	1	75.0-125			0.311	20
Nickel,Dissolved	1.00	U	0.966	0.963	96.6	96.3	1	75.0-125			0.332	20
Selenium,Dissolved	1.00	U	1.02	1.02	102	102	1	75.0-125			0.418	20
Silver,Dissolved	0.200	U	0.197	0.197	98.3	98.7	1	75.0-125			0.449	20
Zinc,Dissolved	1.00	0.0390	0.938	0.938	89.9	89.9	1	75.0-125			0.0814	20

Method Blank (MB)

(MB) R3340741-1 09/11/18 00:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony,Dissolved	U		0.000754	0.00200
Arsenic,Dissolved	U		0.000250	0.00200
Lead,Dissolved	0.000317	J	0.000240	0.00200
Thallium,Dissolved	U		0.000190	0.00200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3340741-2 09/11/18 00:05 • (LCSD) R3340741-3 09/11/18 00:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony,Dissolved	0.0500	0.0530	0.0536	106	107	80.0-120			1.04	20
Arsenic,Dissolved	0.0500	0.0470	0.0488	94.0	97.7	80.0-120			3.89	20
Lead,Dissolved	0.0500	0.0458	0.0458	91.7	91.5	80.0-120			0.158	20
Thallium,Dissolved	0.0500	0.0468	0.0470	93.6	93.9	80.0-120			0.360	20

L1022689-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022689-01 09/11/18 00:15 • (MS) R3340741-5 09/11/18 00:24 • (MSD) R3340741-6 09/11/18 00:29

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony,Dissolved	0.0500	ND	0.0555	0.0562	111	112	1	75.0-125			1.34	20
Arsenic,Dissolved	0.0500	0.00678	0.0541	0.0544	94.6	95.3	1	75.0-125			0.697	20
Lead,Dissolved	0.0500	ND	0.0470	0.0469	91.8	91.6	1	75.0-125			0.249	20
Thallium,Dissolved	0.0500	ND	0.0478	0.0487	95.5	97.5	1	75.0-125			1.99	20

Method Blank (MB)

(MB) R3338545-4 08/28/18 15:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
2-Chloroethyl vinyl ether	U		0.00301	0.0500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
Methylene Chloride	U		0.00100	0.00500
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Vinyl chloride	U		0.000259	0.00100
(S) Toluene-d8	*98.1*			*80.0-120*
(S) Dibromofluoromethane	*96.3*			*75.0-120*
(S) a,a,a-Trifluorotoluene	*101*			*80.0-120*
(S) 4-Bromofluorobenzene	*99.7*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338545-1 08/28/18 13:17 • (LCSD) R3338545-2 08/28/18 14:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0247	0.0253	98.8	101	70.0-123			2.36	20
Bromodichloromethane	0.0250	0.0254	0.0259	101	104	75.0-120			2.26	20
Bromoform	0.0250	0.0300	0.0298	120	119	68.0-132			0.576	20
Bromomethane	0.0250	0.0214	0.0246	85.5	98.6	10.0-160			14.2	25
Carbon tetrachloride	0.0250	0.0231	0.0243	92.4	97.1	68.0-126			4.92	20
Chlorobenzene	0.0250	0.0269	0.0272	108	109	80.0-121			0.960	20
Chlorodibromomethane	0.0250	0.0279	0.0277	112	111	77.0-125			0.771	20
Chloroethane	0.0250	0.0210	0.0241	84.1	96.4	47.0-150			13.6	20
2-Chloroethyl vinyl ether	0.125	0.136	0.132	109	106	51.0-160			2.88	20
Chloroform	0.0250	0.0253	0.0257	101	103	73.0-120			1.72	20
Chloromethane	0.0250	0.0195	0.0206	77.9	82.6	41.0-142			5.83	20
1,2-Dichlorobenzene	0.0250	0.0250	0.0255	100	102	79.0-121			2.00	20
1,3-Dichlorobenzene	0.0250	0.0256	0.0263	102	105	79.0-120			2.82	20
1,4-Dichlorobenzene	0.0250	0.0252	0.0259	101	103	79.0-120			2.72	20
1,1-Dichloroethane	0.0250	0.0258	0.0261	103	104	70.0-126			1.13	20
1,2-Dichloroethane	0.0250	0.0245	0.0249	98.0	99.6	70.0-128			1.60	20
1,1-Dichloroethene	0.0250	0.0228	0.0231	91.4	92.4	71.0-124			1.08	20
trans-1,2-Dichloroethene	0.0250	0.0257	0.0267	103	107	73.0-120			3.67	20
1,2-Dichloropropane	0.0250	0.0256	0.0267	103	107	77.0-125			3.95	20
cis-1,3-Dichloropropene	0.0250	0.0275	0.0274	110	110	80.0-123			0.485	20
trans-1,3-Dichloropropene	0.0250	0.0277	0.0274	111	110	78.0-124			0.908	20
Methylene Chloride	0.0250	0.0223	0.0230	89.4	91.8	67.0-120			2.71	20
1,1,2,2-Tetrachloroethane	0.0250	0.0276	0.0273	110	109	65.0-130			1.06	20
Tetrachloroethene	0.0250	0.0271	0.0274	108	110	72.0-132			1.27	20
Toluene	0.0250	0.0256	0.0257	102	103	79.0-120			0.229	20
1,1,1-Trichloroethane	0.0250	0.0236	0.0249	94.2	99.7	73.0-124			5.64	20
1,1,2-Trichloroethane	0.0250	0.0268	0.0263	107	105	80.0-120			2.00	20
Trichloroethene	0.0250	0.0267	0.0269	107	108	78.0-124			0.687	20
Vinyl chloride	0.0250	0.0220	0.0247	87.8	99.0	67.0-131			12.0	20
(S) Toluene-d8				*100*	*98.5*	*80.0-120*				
(S) Dibromofluoromethane				*96.2*	*95.9*	*75.0-120*				
(S) a,a,a-Trifluorotoluene				*98.1*	*99.1*	*80.0-120*				
(S) 4-Bromofluorobenzene				*98.8*	*97.5*	*77.0-126*				

L1021202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021202-01 08/28/18 18:09 • (MS) R3338545-5 08/28/18 21:59 • (MSD) R3338545-6 08/28/18 22:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.209	0.203	0.244	0.000	138	1	17.0-158	E V	E	18.3	27
Bromodichloromethane	0.0250	U	0.0265	0.0303	106	121	1	31.0-150			13.7	27
Bromoform	0.0250	U	0.0291	0.0342	117	137	1	29.0-150			15.9	29
Bromomethane	0.0250	U	0.0191	0.0284	76.5	114	1	10.0-160		J3	39.0	38
Carbon tetrachloride	0.0250	U	0.0277	0.0327	111	131	1	23.0-159			16.5	28
Chlorobenzene	0.0250	U	0.0270	0.0305	108	122	1	33.0-152			12.1	27
Chlorodibromomethane	0.0250	U	0.0277	0.0312	111	125	1	37.0-149			12.0	27
Chloroethane	0.0250	0.00617	0.0220	0.0334	63.3	109	1	10.0-160		J3	41.3	30
2-Chloroethyl vinyl ether	0.125	U	ND	ND	0.000	0.000	1	10.0-160	J6	J6	0.000	31
Chloroform	0.0250	U	0.0280	0.0318	112	127	1	29.0-154			12.8	28
Chloromethane	0.0250	U	0.0188	0.0227	75.4	90.8	1	10.0-160			18.5	29
1,2-Dichlorobenzene	0.0250	U	0.0246	0.0293	98.4	117	1	34.0-149			17.5	28
1,3-Dichlorobenzene	0.0250	U	0.0252	0.0311	101	124	1	36.0-146			20.7	27
1,4-Dichlorobenzene	0.0250	U	0.0246	0.0295	98.5	118	1	35.0-142			17.9	27
1,1-Dichloroethane	0.0250	U	0.0282	0.0320	113	128	1	25.0-158			12.8	27
1,2-Dichloroethane	0.0250	U	0.0263	0.0294	105	118	1	29.0-151			11.3	27
1,1-Dichloroethene	0.0250	U	0.0279	0.0341	112	136	1	11.0-160			19.8	29
trans-1,2-Dichloroethene	0.0250	U	0.0279	0.0315	111	126	1	17.0-153			12.3	27
1,2-Dichloropropane	0.0250	U	0.0266	0.0308	106	123	1	30.0-156			14.5	27
cis-1,3-Dichloropropene	0.0250	U	0.0274	0.0310	110	124	1	34.0-149			12.1	28
trans-1,3-Dichloropropene	0.0250	U	0.0272	0.0305	109	122	1	32.0-149			11.4	28
Methylene Chloride	0.0250	U	0.0253	0.0304	101	121	1	23.0-144			18.2	28
1,1,2,2-Tetrachloroethane	0.0250	U	0.0284	0.0336	114	134	1	33.0-150			16.7	28
Tetrachloroethene	0.0250	U	0.0274	0.0313	110	125	1	10.0-160			13.2	27
Toluene	0.0250	0.220	0.197	0.239	0.000	75.5	1	26.0-154	V	E	19.4	28
1,1,1-Trichloroethane	0.0250	U	0.0276	0.0328	110	131	1	23.0-160			17.1	28
1,1,2-Trichloroethane	0.0250	U	0.0268	0.0303	107	121	1	35.0-147			12.4	27
Trichloroethene	0.0250	U	0.0270	0.0318	108	127	1	10.0-160			16.3	25
Vinyl chloride	0.0250	U	0.0225	0.0297	90.0	119	1	10.0-160		J3	27.5	27
(S) Toluene-d8					*99.9*	*96.8*		*80.0-120*				
(S) Dibromofluoromethane					*101*	*102*		*75.0-120*				
(S) a,a,a-Trifluorotoluene					*97.5*	*100*		*80.0-120*				
(S) 4-Bromofluorobenzene					*99.9*	*100*		*77.0-126*				

Method Blank (MB)

(MB) R3338906-3 09/01/18 20:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethylbenzene	U		0.000384	0.00100
(S) Toluene-d8	*108*			*80.0-120*
(S) Dibromofluoromethane	*96.7*			*75.0-120*
(S) a,a,a-Trifluorotoluene	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*106*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338906-1 09/01/18 19:22 • (LCSD) R3338906-2 09/01/18 19:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.0250	0.0256	0.0251	102	100	79.0-123			2.17	20
(S) Toluene-d8				*105*	*106*	*80.0-120*				
(S) Dibromofluoromethane				*95.3*	*95.1*	*75.0-120*				
(S) a,a,a-Trifluorotoluene				*104*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*99.2*	*98.3*	*77.0-126*				

Method Blank (MB)

(MB) R3339309-3 09/02/18 21:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
Ethylbenzene	U		0.000530	0.00250
Methylene Chloride	U		0.00664	0.0250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	U		0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Vinyl chloride	U		0.000683	0.00250
(S) Toluene-d8	*105*			*75.0-131*
(S) Dibromofluoromethane	*96.5*			*65.0-129*
(S) a,a,a-Trifluorotoluene	*99.9*			*80.0-120*
(S) 4-Bromofluorobenzene	*104*			*67.0-138*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339309-1 09/02/18 20:42 • (LCSD) R3339309-2 09/02/18 21:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.126	0.115	101	91.7	70.0-123			9.80	20
Bromodichloromethane	0.125	0.130	0.123	104	98.1	73.0-121			6.07	20
Bromoform	0.125	0.150	0.131	120	105	64.0-132			13.4	20
Bromomethane	0.125	0.123	0.130	98.5	104	56.0-147			5.65	20
Carbon tetrachloride	0.125	0.141	0.142	113	114	66.0-128			0.868	20
Chlorobenzene	0.125	0.127	0.136	102	109	76.0-128			6.42	20
Chlorodibromomethane	0.125	0.143	0.142	114	114	74.0-127			0.436	20
Chloroethane	0.125	0.143	0.143	114	114	61.0-134			0.242	20
Chloroform	0.125	0.127	0.109	102	87.0	72.0-123			15.5	20
Chloromethane	0.125	0.148	0.141	119	113	51.0-138			5.25	20
1,2-Dichlorobenzene	0.125	0.135	0.130	108	104	76.0-124			3.34	20
1,3-Dichlorobenzene	0.125	0.128	0.127	102	102	76.0-125			0.521	20
1,4-Dichlorobenzene	0.125	0.129	0.123	103	98.2	77.0-121			4.99	20
1,1-Dichloroethane	0.125	0.136	0.117	109	93.3	70.0-127			15.3	20
1,2-Dichloroethane	0.125	0.135	0.102	108	81.8	65.0-131		J3	27.9	20
1,1-Dichloroethene	0.125	0.127	0.125	101	99.7	65.0-131			1.58	20
trans-1,2-Dichloroethene	0.125	0.133	0.117	106	93.6	71.0-125			12.8	20
1,2-Dichloropropane	0.125	0.136	0.124	109	99.0	74.0-125			9.52	20
cis-1,3-Dichloropropene	0.125	0.132	0.138	105	110	76.0-127			4.75	20
trans-1,3-Dichloropropene	0.125	0.139	0.139	111	112	73.0-127			0.195	20
Ethylbenzene	0.125	0.127	0.141	102	112	74.0-126			10.0	20
Methylene Chloride	0.125	0.115	0.0894	92.3	71.5	68.0-123		J3	25.4	20
1,1,2,2-Tetrachloroethane	0.125	0.131	0.119	105	95.4	68.0-128			9.45	20
Tetrachloroethene	0.125	0.129	0.139	103	112	70.0-136			7.62	20
Toluene	0.125	0.120	0.130	96.2	104	75.0-121			7.87	20
1,1,1-Trichloroethane	0.125	0.124	0.127	99.0	101	69.0-126			2.36	20
1,1,2-Trichloroethane	0.125	0.139	0.136	111	109	78.0-123			2.02	20
Trichloroethene	0.125	0.138	0.138	110	111	76.0-126			0.367	20
Vinyl chloride	0.125	0.133	0.134	106	107	63.0-134			0.763	20
(S) Toluene-d8				*100*	*108*	*75.0-131*				
(S) Dibromofluoromethane				*103*	*84.9*	*65.0-129*				
(S) a,a,a-Trifluorotoluene				*101*	*105*	*80.0-120*				
(S) 4-Bromofluorobenzene				*103*	*98.2*	*67.0-138*				

Method Blank (MB)

(MB) R3337691-3 08/29/18 11:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aldrin	U		0.00000813	0.0000500
Alpha BHC	U		0.0000166	0.0000500
Beta BHC	U		0.0000184	0.0000500
Delta BHC	U		0.0000197	0.0000500
Gamma BHC	U		0.0000176	0.0000500
4,4-DDD	U		0.0000170	0.0000500
4,4-DDE	U		0.0000164	0.0000500
4,4-DDT	U		0.0000177	0.0000500
Dieldrin	U		0.00000751	0.0000500
Endosulfan I	U		0.0000179	0.0000500
Endosulfan II	U		0.0000176	0.0000500
Endosulfan sulfate	U		0.0000196	0.0000500
Endrin	U		0.0000189	0.0000500
Endrin aldehyde	U		0.0000142	0.0000500
Endrin ketone	U		0.0000170	0.0000500
Heptachlor	U		0.0000108	0.0000500
Heptachlor epoxide	U		0.0000175	0.0000500
Hexachlorobenzene	U		0.0000134	0.0000500
Methoxychlor	U		0.0000193	0.0000500
Chlordane	U		0.0000977	0.000500
Toxaphene	U		0.000168	0.000500
(S) Decachlorobiphenyl	*77.9*			*10.0-128*
(S) Tetrachloro-m-xylene	*57.1*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337691-1 08/29/18 10:50 • (LCSD) R3337691-2 08/29/18 11:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aldrin	0.00100	0.000742	0.000763	74.2	76.3	22.0-124			2.79	34
Alpha BHC	0.00100	0.000919	0.000960	91.9	96.0	54.0-130			4.36	23
Beta BHC	0.00100	0.000885	0.000896	88.5	89.6	53.0-136			1.24	20
Delta BHC	0.00100	0.000904	0.000931	90.4	93.1	54.0-133			2.94	20
Gamma BHC	0.00100	0.000911	0.000950	91.1	95.0	55.0-129			4.19	20
4,4-DDD	0.00100	0.000953	0.000978	95.3	97.8	56.0-140			2.59	22
4,4-DDE	0.00100	0.000911	0.000920	91.1	92.0	52.0-128			0.983	22
4,4-DDT	0.00100	0.000964	0.000991	96.4	99.1	50.0-141			2.76	23
Dieldrin	0.00100	0.000925	0.000976	92.5	97.6	59.0-133			5.37	20
Endosulfan I	0.00100	0.000899	0.000920	89.9	92.0	57.0-131			2.31	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337691-1 08/29/18 10:50 • (LCSD) R3337691-2 08/29/18 11:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Endosulfan II	0.00100	0.000949	0.000976	94.9	97.6	58.0-133			2.81	20
Endosulfan sulfate	0.00100	0.000849	0.000955	84.9	95.5	58.0-133			11.8	21
Endrin	0.00100	0.000968	0.000992	96.8	99.2	57.0-134			2.45	21
Endrin aldehyde	0.00100	0.000851	0.000935	85.1	93.5	53.0-129			9.41	20
Endrin ketone	0.00100	0.00100	0.00103	100	103	60.0-145			2.96	20
Heptachlor	0.00100	0.000818	0.000838	81.8	83.8	27.0-132			2.42	31
Heptachlor epoxide	0.00100	0.000884	0.000897	88.4	89.7	57.0-130			1.46	20
Hexachlorobenzene	0.00100	0.000756	0.000781	75.6	78.1	30.0-114			3.25	30
Methoxychlor	0.00100	0.00108	0.00106	108	106	54.0-155			1.87	24
(S) Decachlorobiphenyl				*76.1*	*85.6*	*10.0-128*				
(S) Tetrachloro-m-xylene				*64.0*	*56.1*	*10.0-127*				

Method Blank (MB)

(MB) R3338279-3 08/30/18 15:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aldrin	U		0.00135	0.0200
Alpha BHC	U		0.00136	0.0200
Beta BHC	U		0.00160	0.0200
Delta BHC	U		0.00143	0.0200
Gamma BHC	U		0.00145	0.0200
4,4-DDD	U		0.00156	0.0200
4,4-DDE	U		0.00154	0.0200
4,4-DDT	U		0.00200	0.0200
Dieldrin	U		0.00152	0.0200
Endosulfan I	U		0.00149	0.0200
Endosulfan II	U		0.00160	0.0200
Endosulfan sulfate	U		0.00151	0.0200
Endrin	U		0.00157	0.0200
Endrin aldehyde	U		0.00129	0.0200
Endrin ketone	U		0.00165	0.0200
Heptachlor	U		0.00154	0.0200
Heptachlor epoxide	U		0.00161	0.0200
Hexachlorobenzene	U		0.00124	0.0200
Methoxychlor	U		0.00178	0.0200
Chlordane	U		0.0390	0.200
Toxaphene	U		0.0360	0.400
(S) Decachlorobiphenyl	*95.3*			*10.0-135*
(S) Tetrachloro-m-xylene	*87.1*			*10.0-139*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338279-1 08/30/18 15:24 • (LCSD) R3338279-2 08/30/18 15:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aldrin	0.0666	0.0495	0.0591	74.3	88.7	34.0-136			17.7	38
Alpha BHC	0.0666	0.0552	0.0592	82.9	88.9	34.0-139			6.99	38
Beta BHC	0.0666	0.0486	0.0606	73.0	91.0	34.0-133			22.0	37
Delta BHC	0.0666	0.0542	0.0586	81.4	88.0	34.0-135			7.80	38
Gamma BHC	0.0666	0.0536	0.0578	80.5	86.8	34.0-136			7.54	38
4,4-DDD	0.0666	0.0507	0.0652	76.1	97.9	33.0-141			25.0	39
4,4-DDE	0.0666	0.0497	0.0627	74.6	94.1	34.0-134			23.1	38
4,4-DDT	0.0666	0.0576	0.0657	86.5	98.6	30.0-143			13.1	40
Dieldrin	0.0666	0.0495	0.0669	74.3	100	35.0-137			29.9	37
Endosulfan I	0.0666	0.0475	0.0617	71.3	92.6	34.0-134			26.0	37

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338279-1 08/30/18 15:24 • (LCSD) R3338279-2 08/30/18 15:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Endosulfan II	0.0666	0.0475	0.0644	71.3	96.7	35.0-132			30.2	38
Endosulfan sulfate	0.0666	0.0500	0.0638	75.1	95.8	35.0-132			24.3	37
Endrin	0.0666	0.0542	0.0644	81.4	96.7	34.0-137			17.2	37
Endrin aldehyde	0.0666	0.0442	0.0559	66.4	83.9	23.0-121			23.4	39
Endrin ketone	0.0666	0.0542	0.0656	81.4	98.5	35.0-144			19.0	37
Heptachlor	0.0666	0.0591	0.0612	88.7	91.9	36.0-141			3.49	37
Heptachlor epoxide	0.0666	0.0481	0.0617	72.2	92.6	36.0-134			24.8	37
Hexachlorobenzene	0.0666	0.0493	0.0531	74.0	79.7	33.0-129			7.42	37
Methoxychlor	0.0666	0.0684	0.0680	103	102	28.0-150			0.587	38
(S) Decachlorobiphenyl				*73.0*	*84.8*	*10.0-135*				
(S) Tetrachloro-m-xylene				*72.1*	*82.3*	*10.0-139*				

L1020657-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020657-01 08/30/18 16:38 • (MS) R3338279-4 08/30/18 16:53 • (MSD) R3338279-5 08/30/18 17:08

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aldrin	0.0666	ND	0.0600	0.0580	90.1	87.1	1	20.0-135			3.39	37
Alpha BHC	0.0666	ND	0.0625	0.0616	93.8	92.5	1	27.0-140			1.45	35
Beta BHC	0.0666	ND	0.0633	0.0622	95.0	93.4	1	23.0-141			1.75	37
Delta BHC	0.0666	ND	0.0626	0.0618	94.0	92.8	1	21.0-138			1.29	35
Gamma BHC	0.0666	ND	0.0609	0.0598	91.4	89.8	1	27.0-137			1.82	36
4,4-DDD	0.0666	ND	0.0670	0.0641	101	96.2	1	15.0-152			4.42	39
4,4-DDE	0.0666	ND	0.0710	0.0676	107	102	1	10.0-152			4.91	40
4,4-DDT	0.0666	ND	0.0752	0.0714	113	107	1	10.0-151			5.18	40
Dieldrin	0.0666	ND	0.0675	0.0645	101	96.8	1	17.0-145			4.55	37
Endosulfan I	0.0666	ND	0.0619	0.0591	92.9	88.7	1	20.0-137			4.63	36
Endosulfan II	0.0666	ND	0.0688	0.0663	103	99.5	1	15.0-141			3.70	37
Endosulfan sulfate	0.0666	ND	0.0668	0.0639	100	95.9	1	15.0-143			4.44	38
Endrin	0.0666	ND	0.0653	0.0625	98.0	93.8	1	19.0-143			4.38	37
Endrin aldehyde	0.0666	ND	0.0821	0.0814	123	122	1	10.0-139			0.856	40
Endrin ketone	0.0666	ND	0.0680	0.0649	102	97.4	1	17.0-149			4.67	38
Heptachlor	0.0666	ND	0.0622	0.0604	93.4	90.7	1	22.0-138			2.94	37
Heptachlor epoxide	0.0666	ND	0.0625	0.0601	93.8	90.2	1	22.0-138			3.92	36
Hexachlorobenzene	0.0666	ND	0.0554	0.0541	83.2	81.2	1	25.0-126			2.37	35
Methoxychlor	0.0666	ND	0.0795	0.0763	119	115	1	10.0-159			4.11	40
(S) Decachlorobiphenyl					*80.0*	*77.0*		*10.0-135*				
(S) Tetrachloro-m-xylene					*83.2*	*81.7*		*10.0-139*				

Method Blank (MB)

(MB) R3337589-1 08/29/18 08:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
PCB 1260	U		0.000120	0.000500
PCB 1016	U		0.000100	0.000500
PCB 1221	U		0.0000730	0.000500
PCB 1232	U		0.0000420	0.000500
PCB 1242	U		0.0000470	0.000500
PCB 1248	U		0.0000860	0.000500
PCB 1254	U		0.0000470	0.000500
(S) Decachlorobiphenyl	*86.5*			*10.0-128*
(S) Tetrachloro-m-xylene	*80.8*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337589-2 08/29/18 09:06 • (LCSD) R3337589-3 08/29/18 09:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.00250	0.00217	0.00227	86.8	90.8	42.0-131			4.50	25
PCB 1016	0.00250	0.00256	0.00264	102	106	36.0-135			3.08	29
(S) Decachlorobiphenyl				*82.3*	*84.1*	*10.0-128*				
(S) Tetrachloro-m-xylene				*75.1*	*72.7*	*10.0-127*				

Method Blank (MB)

(MB) R3338194-1 08/30/18 14:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0170
PCB 1221	U		0.00537	0.0170
PCB 1232	U		0.00417	0.0170
PCB 1242	U		0.00318	0.0170
PCB 1248	U		0.00315	0.0170
PCB 1254	U		0.00472	0.0170
PCB 1260	U		0.00494	0.0170
(S) Decachlorobiphenyl	*59.0*			*10.0-135*
(S) Tetrachloro-m-xylene	*74.8*			*10.0-139*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338194-2 08/30/18 14:55 • (LCSD) R3338194-3 08/30/18 15:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.113	0.105	67.7	62.9	12.0-145			7.34	40
PCB 1016	0.167	0.143	0.127	85.6	76.0	13.0-144			11.9	40
(S) Decachlorobiphenyl				*69.4*	*65.8*	*10.0-135*				
(S) Tetrachloro-m-xylene				*84.7*	*78.7*	*10.0-139*				

L1020891-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020891-04 08/30/18 16:04 • (MS) R3338194-4 08/30/18 16:18 • (MSD) R3338194-5 08/30/18 16:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.194	ND	0.0784	0.119	40.4	61.1	1	10.0-160		J3	40.7	38
PCB 1016	0.194	ND	0.120	0.165	61.7	85.0	1	10.0-160			31.8	37
(S) Decachlorobiphenyl					*71.0*	*95.5*		*10.0-135*				
(S) Tetrachloro-m-xylene					*70.4*	*89.3*		*10.0-139*				

Method Blank (MB)

(MB) R3338534-3 09/01/18 09:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.000316	0.00100
Acenaphthylene	U		0.000309	0.00100
Anthracene	U		0.000291	0.00100
Benzidine	U		0.00432	0.0100
Benzo(a)anthracene	U		0.0000975	0.00100
Benzo(b)fluoranthene	U		0.0000896	0.00100
Benzo(k)fluoranthene	U		0.000355	0.00100
Benzo(a)pyrene	U		0.000340	0.00100
Bis(2-chlorethoxy)methane	U		0.000329	0.0100
Bis(2-chloroethyl)ether	U		0.00162	0.0100
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100
4-Bromophenyl-phenylether	U		0.000335	0.0100
Benzo(g,h,i)perylene	U		0.000161	0.00100
2-Chloronaphthalene	U		0.000330	0.00100
4-Chlorophenyl-phenylether	U		0.000303	0.0100
Chrysene	U		0.000332	0.00100
Dibenz(a,h)anthracene	U		0.000279	0.00100
3,3-Dichlorobenzidine	U		0.00202	0.0100
2,4-Dinitrotoluene	U		0.00165	0.0100
2,6-Dinitrotoluene	U		0.000279	0.0100
Fluoranthene	U		0.000310	0.00100
Fluorene	U		0.000323	0.00100
Hexachlorobenzene	U		0.000341	0.00100
Hexachloro-1,3-butadiene	U		0.000329	0.0100
Hexachlorocyclopentadiene	U		0.00233	0.0100
Hexachloroethane	U		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000272	0.0100
Naphthalene	U		0.000372	0.00100
Nitrobenzene	U		0.000367	0.0100
n-Nitrosodimethylamine	U		0.00126	0.0100
n-Nitrosodiphenylamine	U		0.00119	0.0100
n-Nitrosodi-n-propylamine	U		0.000403	0.0100
Phenanthrene	U		0.000366	0.00100
Benzylbutyl phthalate	U		0.000275	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300
Di-n-butyl phthalate	U		0.000266	0.00300
Diethyl phthalate	U		0.000282	0.00300
Dimethyl phthalate	U		0.000283	0.00300
Di-n-octyl phthalate	U		0.000278	0.00300

Method Blank (MB)

(MB) R3338534-3 09/01/18 09:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Pyrene	U		0.000330	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.0100
4-Chloro-3-methylphenol	U		0.000263	0.0100
2-Chlorophenol	U		0.000283	0.0100
2,4-Dichlorophenol	U		0.000284	0.0100
2,4-Dimethylphenol	U		0.000624	0.0100
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100
2,4-Dinitrophenol	U		0.00325	0.0100
2-Nitrophenol	U		0.000320	0.0100
4-Nitrophenol	U		0.00201	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.000334	0.0100
2,4,6-Trichlorophenol	U		0.000297	0.0100
(S) 2-Fluorophenol	*33.0*			*10.0-120*
(S) Phenol-d5	*20.3*			*10.0-120*
(S) Nitrobenzene-d5	*55.9*			*10.0-127*
(S) 2-Fluorobiphenyl	*63.5*			*10.0-130*
(S) 2,4,6-Tribromophenol	*49.6*			*10.0-155*
(S) p-Terphenyl-d14	*69.1*			*10.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338534-1 09/01/18 08:45 • (LCSD) R3338534-2 09/01/18 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0500	0.0304	0.0320	60.8	64.0	45.0-120			5.13	20
Benzidine	0.0500	0.0101	0.00989	20.2	19.8	1.00-120			2.10	36
Benzo(a)anthracene	0.0500	0.0347	0.0354	69.4	70.8	47.0-120			2.00	20
Benzo(b)fluoranthene	0.0500	0.0330	0.0331	66.0	66.2	46.0-120			0.303	20
Benzo(k)fluoranthene	0.0500	0.0341	0.0350	68.2	70.0	46.0-120			2.60	21
Benzo(a)pyrene	0.0500	0.0328	0.0329	65.6	65.8	47.0-120			0.304	20
Bis(2-chlorethoxy)methane	0.0500	0.0268	0.0257	53.6	51.4	33.0-120			4.19	24
Bis(2-chloroethyl)ether	0.0500	0.0269	0.0242	53.8	48.4	23.0-120			10.6	33
Bis(2-chloroisopropyl)ether	0.0500	0.0290	0.0272	58.0	54.4	28.0-120			6.41	31
4-Bromophenyl-phenylether	0.0500	0.0347	0.0369	69.4	73.8	45.0-120			6.15	20
2-Chloronaphthalene	0.0500	0.0321	0.0315	64.2	63.0	37.0-120			1.89	25
4-Chlorophenyl-phenylether	0.0500	0.0339	0.0351	67.8	70.2	44.0-120			3.48	20
Chrysene	0.0500	0.0337	0.0347	67.4	69.4	48.0-120			2.92	20
Dibenz(a,h)anthracene	0.0500	0.0327	0.0335	65.4	67.0	47.0-120			2.42	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338534-1 09/01/18 08:45 • (LCSD) R3338534-2 09/01/18 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	0.0329	0.0336	65.8	67.2	41.0-120			2.11	22
3,3-Dichlorobenzidine	0.0500	0.0349	0.0363	69.8	72.6	44.0-120			3.93	20
Acenaphthylene	0.0500	0.0323	0.0320	64.6	64.0	43.0-120			0.933	22
2,4-Dinitrotoluene	0.0500	0.0363	0.0365	72.6	73.0	49.0-124			0.549	20
2,6-Dinitrotoluene	0.0500	0.0323	0.0333	64.6	66.6	46.0-120			3.05	21
Fluoranthene	0.0500	0.0353	0.0365	70.6	73.0	51.0-120			3.34	20
Fluorene	0.0500	0.0333	0.0347	66.6	69.4	47.0-120			4.12	20
Hexachlorobenzene	0.0500	0.0375	0.0393	75.0	78.6	44.0-120			4.69	20
Hexachloro-1,3-butadiene	0.0500	0.0312	0.0294	62.4	58.8	19.0-120			5.94	32
Hexachlorocyclopentadiene	0.0500	0.0297	0.0279	59.4	55.8	15.0-120			6.25	31
Hexachloroethane	0.0500	0.0271	0.0248	54.2	49.6	15.0-120			8.86	37
Indeno(1,2,3-cd)pyrene	0.0500	0.0347	0.0353	69.4	70.6	49.0-122			1.71	20
Isophorone	0.0500	0.0285	0.0282	57.0	56.4	36.0-120			1.06	23
Benzo(g,h,i)perylene	0.0500	0.0347	0.0349	69.4	69.8	48.0-121			0.575	20
Naphthalene	0.0500	0.0293	0.0273	58.6	54.6	27.0-120			7.07	27
Nitrobenzene	0.0500	0.0280	0.0260	56.0	52.0	27.0-120			7.41	29
n-Nitrosodimethylamine	0.0500	0.0162	0.0125	32.4	25.0	10.0-120			25.8	40
n-Nitrosodiphenylamine	0.0500	0.0332	0.0346	66.4	69.2	47.0-120			4.13	20
n-Nitrosodi-n-propylamine	0.0500	0.0277	0.0264	55.4	52.8	31.0-120			4.81	28
Phenanthrene	0.0500	0.0316	0.0334	63.2	66.8	46.0-120			5.54	20
Benzylbutyl phthalate	0.0500	0.0275	0.0257	55.0	51.4	43.0-121			6.77	20
Bis(2-ethylhexyl)phthalate	0.0500	0.0310	0.0322	62.0	64.4	43.0-122			3.80	20
Di-n-butyl phthalate	0.0500	0.0322	0.0326	64.4	65.2	49.0-121			1.23	20
Diethyl phthalate	0.0500	0.0288	0.0296	57.6	59.2	48.0-122			2.74	20
Dimethyl phthalate	0.0500	0.0224	0.0213	44.8	42.6	48.0-120	J4	J4	5.03	20
Di-n-octyl phthalate	0.0500	0.0330	0.0335	66.0	67.0	42.0-125			1.50	20
Pyrene	0.0500	0.0344	0.0359	68.8	71.8	47.0-120			4.27	20
1,2,4-Trichlorobenzene	0.0500	0.0298	0.0276	59.6	55.2	24.0-120			7.67	29
4-Chloro-3-methylphenol	0.0500	0.0274	0.0241	54.8	48.2	40.0-120			12.8	21
2-Chlorophenol	0.0500	0.0210	0.0120	42.0	24.0	25.0-120		J3 J4	54.5	35
2,4-Dichlorophenol	0.0500	0.0256	0.0179	51.2	35.8	36.0-120		J3 J4	35.4	26
2,4-Dimethylphenol	0.0500	0.0241	0.0193	48.2	38.6	33.0-120			22.1	26
4,6-Dinitro-2-methylphenol	0.0500	0.0320	0.0242	64.0	48.4	38.0-138		J3	27.8	25
2,4-Dinitrophenol	0.0500	0.0219	0.0166	43.8	33.2	10.0-120			27.5	39
2-Nitrophenol	0.0500	0.0260	0.0185	52.0	37.0	31.0-120		J3	33.7	29
4-Nitrophenol	0.0500	0.0150	0.0144	30.0	28.8	10.0-120			4.08	33
Pentachlorophenol	0.0500	0.0350	0.0253	70.0	50.6	23.0-120		J3	32.2	25
Phenol	0.0500	0.0113	0.00904	22.6	18.1	10.0-120			22.2	36
2,4,6-Trichlorophenol	0.0500	0.0304	0.0252	60.8	50.4	42.0-120			18.7	23
(S) 2-Fluorophenol				*31.4*	*21.8*	*10.0-120*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338534-1 09/01/18 08:45 • (LCSD) R3338534-2 09/01/18 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) Phenol-d5				*20.8*	*16.3*	*10.0-120*				
(S) Nitrobenzene-d5				*53.4*	*47.4*	*10.0-127*				
(S) 2-Fluorobiphenyl				*61.0*	*60.9*	*10.0-130*				
(S) 2,4,6-Tribromophenol				*66.0*	*58.0*	*10.0-155*				
(S) p-Terphenyl-d14				*66.1*	*68.0*	*10.0-128*				

Method Blank (MB)

(MB) R3339117-3 09/04/18 22:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0330
Acenaphthylene	U		0.00671	0.0330
Anthracene	U		0.00632	0.0330
Benzidine	U		0.0637	0.333
Benzo(a)anthracene	U		0.00428	0.0330
Benzo(b)fluoranthene	U		0.00695	0.0330
Benzo(k)fluoranthene	U		0.00582	0.0330
Benzo(g,h,i)perylene	U		0.00721	0.0330
Benzo(a)pyrene	U		0.00548	0.0330
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
2-Chloronaphthalene	U		0.00639	0.0330
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0330
Dibenz(a,h)anthracene	U		0.00821	0.0330
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0330
Fluorene	U		0.00682	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0330
Isophorone	U		0.00522	0.333
Naphthalene	U		0.00889	0.0330
Nitrobenzene	U		0.00695	0.333
n-Nitrosodimethylamine	U		0.0647	0.333
n-Nitrosodiphenylamine	U		0.0900	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0330
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333

Method Blank (MB)

(MB) R3339117-3 09/04/18 22:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Pyrene	U		0.0123	0.0330
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*79.9*			*10.0-122*
(S) 2-Fluorobiphenyl	*82.9*			*15.0-120*
(S) p-Terphenyl-d14	*85.0*			*10.0-120*
(S) Phenol-d5	*74.9*			*10.0-120*
(S) 2-Fluorophenol	*84.5*			*12.0-120*
(S) 2,4,6-Tribromophenol	*94.7*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339117-1 09/04/18 21:31 • (LCSD) R3339117-2 09/04/18 21:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.666	0.527	0.568	79.1	85.3	38.0-120			7.49	22
Acenaphthylene	0.666	0.527	0.550	79.1	82.6	40.0-120			4.27	22
Anthracene	0.666	0.521	0.538	78.2	80.8	42.0-120			3.21	20
Benzidine	0.666	ND	ND	0.000	0.000	1.00-120	J4	J4	0.000	40
Benzo(a)anthracene	0.666	0.562	0.592	84.4	88.9	44.0-120			5.20	20
Benzo(b)fluoranthene	0.666	0.532	0.565	79.9	84.8	43.0-120			6.02	22
Benzo(k)fluoranthene	0.666	0.563	0.597	84.5	89.6	44.0-120			5.86	21
Benzo(g,h,i)perylene	0.666	0.558	0.604	83.8	90.7	43.0-120			7.92	22
Benzo(a)pyrene	0.666	0.553	0.571	83.0	85.7	45.0-120			3.20	20
Bis(2-chlorethoxy)methane	0.666	0.382	0.384	57.4	57.7	20.0-120			0.522	23
Bis(2-chloroethyl)ether	0.666	0.475	0.471	71.3	70.7	16.0-120			0.846	31
Bis(2-chloroisopropyl)ether	0.666	0.482	0.461	72.4	69.2	23.0-120			4.45	30
4-Bromophenyl-phenylether	0.666	0.589	0.588	88.4	88.3	40.0-120			0.170	21
2-Chloronaphthalene	0.666	0.515	0.533	77.3	80.0	35.0-120			3.44	24

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339117-1 09/04/18 21:31 • (LCSD) R3339117-2 09/04/18 21:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.666	0.568	0.588	85.3	88.3	40.0-120			3.46	22
Chrysene	0.666	0.551	0.595	82.7	89.3	43.0-120			7.68	20
Dibenz(a,h)anthracene	0.666	0.531	0.563	79.7	84.5	44.0-120			5.85	22
3,3-Dichlorobenzidine	0.666	0.458	0.483	68.8	72.5	28.0-120			5.31	23
2,4-Dinitrotoluene	0.666	0.627	0.668	94.1	100	45.0-120			6.33	21
2,6-Dinitrotoluene	0.666	0.575	0.617	86.3	92.6	42.0-120			7.05	21
Fluoranthene	0.666	0.571	0.591	85.7	88.7	44.0-120			3.44	21
Fluorene	0.666	0.552	0.569	82.9	85.4	41.0-120			3.03	22
Hexachlorobenzene	0.666	0.602	0.620	90.4	93.1	39.0-120			2.95	21
Hexachloro-1,3-butadiene	0.666	0.477	0.468	71.6	70.3	15.0-120			1.90	28
Hexachlorocyclopentadiene	0.666	0.502	0.503	75.4	75.5	15.0-120			0.199	31
Hexachloroethane	0.666	0.472	0.474	70.9	71.2	17.0-120			0.423	31
Indeno(1,2,3-cd)pyrene	0.666	0.560	0.593	84.1	89.0	45.0-120			5.72	21
Isophorone	0.666	0.405	0.406	60.8	61.0	23.0-120			0.247	23
Naphthalene	0.666	0.419	0.410	62.9	61.6	18.0-120			2.17	24
Nitrobenzene	0.666	0.414	0.414	62.2	62.2	17.0-120			0.000	26
n-Nitrosodimethylamine	0.666	0.372	0.365	55.9	54.8	10.0-125			1.90	33
n-Nitrosodiphenylamine	0.666	0.557	0.572	83.6	85.9	40.0-120			2.66	21
n-Nitrosodi-n-propylamine	0.666	0.472	0.474	70.9	71.2	26.0-120			0.423	27
Phenanthrene	0.666	0.559	0.571	83.9	85.7	42.0-120			2.12	20
Benzylbutyl phthalate	0.666	0.586	0.618	88.0	92.8	40.0-120			5.32	21
Bis(2-ethylhexyl)phthalate	0.666	0.609	0.641	91.4	96.2	41.0-120			5.12	21
Di-n-butyl phthalate	0.666	0.614	0.638	92.2	95.8	43.0-120			3.83	20
Diethyl phthalate	0.666	0.562	0.590	84.4	88.6	43.0-120			4.86	21
Dimethyl phthalate	0.666	0.570	0.599	85.6	89.9	43.0-120			4.96	22
Di-n-octyl phthalate	0.666	0.660	0.704	99.1	106	40.0-120			6.45	21
Pyrene	0.666	0.596	0.629	89.5	94.4	41.0-120			5.39	21
1,2,4-Trichlorobenzene	0.666	0.445	0.448	66.8	67.3	17.0-120			0.672	26
4-Chloro-3-methylphenol	0.666	0.461	0.472	69.2	70.9	28.0-120			2.36	20
2-Chlorophenol	0.666	0.549	0.549	82.4	82.4	28.0-120			0.000	28
2,4-Dichlorophenol	0.666	0.477	0.489	71.6	73.4	25.0-120			2.48	21
2,4-Dimethylphenol	0.666	0.442	0.431	66.4	64.7	15.0-120			2.52	26
4,6-Dinitro-2-methylphenol	0.666	0.645	0.663	96.8	99.5	16.0-120			2.75	33
2,4-Dinitrophenol	0.666	0.488	0.530	73.3	79.6	10.0-120			8.25	40
2-Nitrophenol	0.666	0.495	0.484	74.3	72.7	20.0-120			2.25	25
4-Nitrophenol	0.666	0.526	0.543	79.0	81.5	27.0-120			3.18	24
Pentachlorophenol	0.666	0.574	0.583	86.2	87.5	29.0-120			1.56	25
Phenol	0.666	0.489	0.496	73.4	74.5	28.0-120			1.42	27
2,4,6-Trichlorophenol	0.666	0.564	0.616	84.7	92.5	37.0-120			8.81	24
(S) Nitrobenzene-d5				*59.8*	*62.5*	*10.0-122*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339117-1 09/04/18 21:31 • (LCSD) R3339117-2 09/04/18 21:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*76.6*	*78.7*	*15.0-120*				
(S) p-Terphenyl-d14				*83.5*	*89.8*	*10.0-120*				
(S) Phenol-d5				*73.3*	*73.0*	*10.0-120*				
(S) 2-Fluorophenol				*85.4*	*84.4*	*12.0-120*				
(S) 2,4,6-Tribromophenol				*96.4*	*93.1*	*10.0-127*				

L1021819-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021819-01 09/04/18 23:48 • (MS) R3339117-4 09/05/18 00:10 • (MSD) R3339117-5 09/05/18 00:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.666	0.0361	0.521	0.457	72.8	63.2	1	18.0-120			13.1	32
Acenaphthylene	0.666	ND	0.471	0.431	70.7	64.7	1	25.0-120			8.87	32
Anthracene	0.666	0.113	0.584	0.502	70.7	58.4	1	22.0-120			15.1	29
Benzidine	0.666	ND	ND	ND	0.000	0.000	1	1.00-120	J6	J6	0.000	40
Benzo(a)anthracene	0.666	0.567	0.992	0.874	63.8	46.1	1	25.0-120			12.6	29
Benzo(b)fluoranthene	0.666	0.652	1.10	1.06	67.3	61.3	1	19.0-122			3.70	31
Benzo(k)fluoranthene	0.666	0.234	0.647	0.669	62.0	65.3	1	23.0-120			3.34	30
Benzo(g,h,i)perylene	0.666	0.178	0.463	0.380	42.8	30.3	1	10.0-120			19.7	33
Benzo(a)pyrene	0.666	0.403	0.795	0.776	58.9	56.0	1	24.0-120			2.42	30
Bis(2-chlorethoxy)methane	0.666	ND	0.345	0.318	51.8	47.7	1	10.0-120			8.14	34
Bis(2-chloroethyl)ether	0.666	ND	0.428	0.383	64.3	57.5	1	10.0-120			11.1	40
Bis(2-chloroisopropyl)ether	0.666	ND	0.429	0.370	64.4	55.6	1	10.0-120			14.8	40
4-Bromophenyl-phenylether	0.666	ND	0.507	0.444	76.1	66.7	1	27.0-120			13.2	30
2-Chloronaphthalene	0.666	ND	0.444	0.398	66.7	59.8	1	20.0-120			10.9	32
4-Chlorophenyl-phenylether	0.666	ND	0.497	0.443	74.6	66.5	1	24.0-120			11.5	29
Chrysene	0.666	0.541	0.963	0.839	63.4	44.7	1	21.0-120			13.8	29
Dibenz(a,h)anthracene	0.666	1.85	0.403	0.328	0.000	0.000	1	10.0-120	J6	J6	20.5	32
3,3-Dichlorobenzidine	0.666	ND	0.336	0.239	50.5	35.9	1	10.0-120			33.7	34
2,4-Dinitrotoluene	0.666	ND	0.576	0.523	86.5	78.5	1	30.0-120			9.65	31
2,6-Dinitrotoluene	0.666	ND	0.525	0.459	78.8	68.9	1	25.0-120			13.4	31
Fluoranthene	0.666	1.21	1.60	1.45	58.6	36.0	1	18.0-126			9.84	32
Fluorene	0.666	ND	0.531	0.473	79.7	71.0	1	25.0-120			11.6	30
Hexachlorobenzene	0.666	ND	0.494	0.456	74.2	68.5	1	27.0-120			8.00	28
Hexachloro-1,3-butadiene	0.666	ND	0.407	0.364	61.1	54.7	1	10.0-120			11.2	38
Hexachlorocyclopentadiene	0.666	ND	ND	ND	0.000	0.000	1	10.0-120	J6	J6	0.000	40
Hexachloroethane	0.666	ND	0.334	0.276	50.2	41.4	1	10.0-120			19.0	40
Indeno(1,2,3-cd)pyrene	0.666	5.54	0.508	0.427	0.000	0.000	1	10.0-120	V	V	17.3	32
Isophorone	0.666	ND	0.355	0.340	53.3	51.1	1	13.0-120			4.32	34

L1021819-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021819-01 09/04/18 23:48 • (MS) R3339117-4 09/05/18 00:10 • (MSD) R3339117-5 09/05/18 00:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.666	ND	0.411	0.356	61.7	53.5	1	10.0-120			14.3	35
Nitrobenzene	0.666	ND	0.381	0.353	57.2	53.0	1	10.0-120			7.63	36
n-Nitrosodimethylamine	0.666	ND	0.326	0.287	48.9	43.1	1	10.0-127			12.7	40
n-Nitrosodiphenylamine	0.666	ND	0.473	0.415	71.0	62.3	1	17.0-120			13.1	29
n-Nitrosodi-n-propylamine	0.666	ND	0.434	0.370	65.2	55.6	1	10.0-120			15.9	37
Phenanthrene	0.666	0.527	1.13	0.944	90.5	62.6	1	17.0-120			17.9	31
Benzylbutyl phthalate	0.666	ND	0.532	0.514	79.9	77.2	1	23.0-120			3.44	30
Bis(2-ethylhexyl)phthalate	0.666	ND	0.639	0.519	95.9	77.9	1	17.0-126			20.7	30
Di-n-butyl phthalate	0.666	ND	0.529	0.466	79.4	70.0	1	30.0-120			12.7	29
Diethyl phthalate	0.666	ND	0.517	0.451	77.6	67.7	1	26.0-120			13.6	28
Dimethyl phthalate	0.666	ND	0.598	0.678	89.8	102	1	25.0-120			12.5	29
Di-n-octyl phthalate	0.666	ND	0.586	0.519	88.0	77.9	1	21.0-123			12.1	29
Pyrene	0.666	1.01	1.51	1.37	75.1	54.1	1	16.0-121			9.72	32
1,2,4-Trichlorobenzene	0.666	ND	0.383	0.354	57.5	53.2	1	12.0-120			7.87	37
4-Chloro-3-methylphenol	0.666	ND	0.430	0.409	64.6	61.4	1	15.0-120			5.01	30
2-Chlorophenol	0.666	ND	0.484	0.439	72.7	65.9	1	15.0-120			9.75	37
2,4-Dichlorophenol	0.666	ND	0.432	0.411	64.9	61.7	1	20.0-120			4.98	31
2,4-Dimethylphenol	0.666	ND	0.418	0.399	62.8	59.9	1	10.0-120			4.65	33
4,6-Dinitro-2-methylphenol	0.666	ND	0.411	0.354	61.7	53.2	1	10.0-120			14.9	39
2,4-Dinitrophenol	0.666	ND	0.304	0.278	45.6	41.7	1	10.0-121			8.93	40
2-Nitrophenol	0.666	ND	0.416	0.387	62.5	58.1	1	12.0-120			7.22	39
4-Nitrophenol	0.666	ND	0.509	0.496	76.4	74.5	1	10.0-137			2.59	32
Pentachlorophenol	0.666	ND	0.425	0.348	63.8	52.3	1	10.0-160			19.9	31
Phenol	0.666	ND	0.543	0.425	81.5	63.8	1	12.0-120			24.4	38
2,4,6-Trichlorophenol	0.666	ND	0.534	0.464	80.2	69.7	1	19.0-120			14.0	32
(S) Nitrobenzene-d5					*57.4*	*54.7*		*10.0-122*				
(S) 2-Fluorobiphenyl					*67.6*	*64.3*		*15.0-120*				
(S) p-Terphenyl-d14					*82.3*	*79.6*		*10.0-120*				
(S) Phenol-d5					*65.9*	*61.1*		*10.0-120*				
(S) 2-Fluorophenol					*75.5*	*70.0*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*83.8*	*77.6*		*10.0-127*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Terracon - Fort Collins, CO

1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Dr., Ste C
Fort Collins, CO 80525

Pres Chk

Report to: Aaron Varnell

Email To: Aaron.Varnell@terracon.com

Project Description: Firestone Complete Auto Care — Greeley Fossil Creek Road

City/State Collected:

Phone: 970-484-0359
Fax: 970-484-0454

Client Project # 21187023

Lab Project # TERRAFCO-21187023

Collected by (print): Aaron Varnell

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8081/8082 100ml Amb-NoPres	8270PP 100ml Amb NoPres	CN 250mlHDPEAmb-NaOH	CN, RHT 4ozClr-NoPres	PHT 250mlAmb-H2SO4	PP 13 Metals 250mlHDPE-HNO3	PP 13 Metals 2ozClr-NoPres	SV8081/8082,SV8270PP 4ozClr-NoPres	V8260PP 40mlAmb-HCl	V8260PP 40mlAmb/MeOH5ml/Syr	Remarks	Sample # (lab only)
SB-05		SS	0-4'	8/23	1345	5				X			X	X		X		-01
SB-06		SS	4-8'	8/23	1440	5				X			X	X		X		-02
		SS				5				X			X	X		X		-03
MW-05		GW		8/24	1350	10	X	X	X		X	X			X			

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L021223

H138

Acctnum: TERRAFCO
Template: T139693
Prelogin: P667746
TSR: 288 - Daphne Richards
PB: 8-20-18 CM
Shipped Via: FedEX 2nd Day

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier ____

Tracking # 4492 6224 4548

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8/27	1600	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: 0.7° °C Bottles Received: 20

Date: 8/28/18 Time: 5:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 10, 2018

Terracon - Fort Collins, CO

Sample Delivery Group:	L1021224
Samples Received:	08/28/2018
Project Number:	21187023
Description:	Greeley Fishing Pond

Report To: Aaron Varnell
1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SW-1R L1021224-01 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/23/18 13:00	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1159045	1	08/30/18 15:39	08/30/18 16:22	MMF
Gravimetric Analysis by Method 2540 D-2011	WG1159038	1	08/30/18 14:12	08/30/18 16:11	AJS
Wet Chemistry by Method 130.1	WG1158606	5	08/29/18 17:49	08/29/18 17:49	JER
Wet Chemistry by Method 2320 B-2011	WG1159903	1	08/31/18 14:53	08/31/18 14:53	MLW
Wet Chemistry by Method 353.2	WG1159749	1	08/31/18 12:30	08/31/18 12:30	JER
Wet Chemistry by Method 365.4	WG1159750	1	08/30/18 08:07	08/30/18 16:03	KK
Mercury by Method 7470A	WG1158618	1	08/30/18 09:40	08/31/18 08:33	ABL
Mercury by Method 7470A	WG1158619	1	08/29/18 09:06	08/29/18 15:21	TCT
Metals (ICP) by Method 6010B	WG1159013	1	08/29/18 14:11	08/29/18 20:46	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 19:07	08/28/18 19:07	TJJ
Chlorinated Acid Herbicides (GC) by Method 8151	WG1158823	1.03	08/29/18 10:02	08/29/18 18:07	TD
Pesticides (GC) by Method 8081	WG1158589	1	08/28/18 16:29	08/29/18 14:37	VKS
Polychlorinated Biphenyls (GC) by Method 8082	WG1158589	1	08/28/18 16:29	08/29/18 17:46	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1158700	1	08/30/18 11:02	08/31/18 14:20	SNR

SW-2P L1021224-02 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 08:45	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1159046	1	08/30/18 14:02	08/30/18 14:33	MMF
Gravimetric Analysis by Method 2540 D-2011	WG1159038	1	08/30/18 14:12	08/30/18 16:11	AJS
Wet Chemistry by Method 130.1	WG1158606	5	08/29/18 17:50	08/29/18 17:50	JER
Wet Chemistry by Method 2320 B-2011	WG1159903	1	08/31/18 15:00	08/31/18 15:00	MLW
Wet Chemistry by Method 353.2	WG1159749	1	08/31/18 12:31	08/31/18 12:31	JER
Wet Chemistry by Method 365.4	WG1159750	1	08/30/18 08:07	08/30/18 16:04	KK
Mercury by Method 7470A	WG1158618	1	08/30/18 09:40	08/31/18 08:36	ABL
Mercury by Method 7470A	WG1158619	1	08/29/18 09:06	08/29/18 15:23	TCT
Metals (ICP) by Method 6010B	WG1159013	1	08/29/18 14:11	08/29/18 20:49	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 19:26	08/28/18 19:26	TJJ
Chlorinated Acid Herbicides (GC) by Method 8151	WG1158823	1.03	08/29/18 10:02	08/29/18 19:02	TD
Pesticides (GC) by Method 8081	WG1158589	1	08/28/18 16:29	08/29/18 14:49	VKS
Polychlorinated Biphenyls (GC) by Method 8082	WG1158589	1	08/28/18 16:29	08/29/18 18:00	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1158700	1	08/30/18 11:02	08/31/18 15:31	SNR

SW-3P L1021224-03 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 08:30	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1159046	1	08/30/18 14:02	08/30/18 14:33	MMF
Gravimetric Analysis by Method 2540 D-2011	WG1159038	1	08/30/18 14:12	08/30/18 16:11	AJS
Wet Chemistry by Method 130.1	WG1158606	5	08/29/18 17:51	08/29/18 17:51	JER
Wet Chemistry by Method 2320 B-2011	WG1159903	1	08/31/18 15:08	08/31/18 15:08	MLW
Wet Chemistry by Method 353.2	WG1159749	1	08/31/18 12:33	08/31/18 12:33	JER
Wet Chemistry by Method 365.4	WG1159750	1	08/30/18 08:07	08/30/18 16:06	KK
Mercury by Method 7470A	WG1158618	1	08/30/18 09:40	08/31/18 08:42	ABL
Mercury by Method 7470A	WG1158619	1	08/29/18 09:06	08/29/18 15:25	TCT
Metals (ICP) by Method 6010B	WG1159013	1	08/29/18 14:11	08/29/18 20:51	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 19:45	08/28/18 19:45	TJJ
Chlorinated Acid Herbicides (GC) by Method 8151	WG1158823	1.03	08/29/18 10:02	08/29/18 19:15	TD
Pesticides (GC) by Method 8081	WG1158589	1	08/28/18 16:29	08/29/18 15:02	VKS
Polychlorinated Biphenyls (GC) by Method 8082	WG1158589	1	08/28/18 16:29	08/29/18 18:14	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1158700	1	08/30/18 11:02	08/31/18 14:44	SNR

SW-4P L1021224-04 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 09:00	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1159046	1	08/30/18 14:02	08/30/18 14:33	MMF
Gravimetric Analysis by Method 2540 D-2011	WG1159038	1	08/30/18 14:12	08/30/18 16:11	AJS
Wet Chemistry by Method 130.1	WG1158606	5	08/29/18 17:54	08/29/18 17:54	JER
Wet Chemistry by Method 2320 B-2011	WG1159903	1	08/31/18 15:26	08/31/18 15:26	MLW
Wet Chemistry by Method 353.2	WG1159749	1	08/31/18 12:34	08/31/18 12:34	JER
Wet Chemistry by Method 365.4	WG1159750	1	08/30/18 08:07	08/30/18 16:07	KK
Mercury by Method 7470A	WG1158618	1	08/30/18 09:40	08/31/18 08:45	ABL
Mercury by Method 7470A	WG1158619	1	08/29/18 09:06	08/29/18 15:33	TCT
Metals (ICP) by Method 6010B	WG1159013	1	08/29/18 14:11	08/29/18 20:54	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 20:04	08/28/18 20:04	TJJ
Chlorinated Acid Herbicides (GC) by Method 8151	WG1158823	1.03	08/29/18 10:02	08/29/18 19:29	TD
Pesticides (GC) by Method 8081	WG1158589	1	08/28/18 16:29	08/29/18 15:15	VKS
Polychlorinated Biphenyls (GC) by Method 8082	WG1158589	1	08/28/18 16:29	08/29/18 18:28	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1158700	1	08/30/18 11:02	08/31/18 15:08	SNR

MW-01 L1021224-05 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 13:10	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1159376	1	08/31/18 09:43	09/04/18 05:22	EL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 20:24	08/28/18 20:24	TJJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159178	1	08/31/18 16:24	09/01/18 14:27	SNR

MW-02 L1021224-06 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 12:30	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1159376	1	08/31/18 09:43	09/04/18 05:30	EL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 20:43	08/28/18 20:43	TJJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159178	1	08/31/18 16:24	09/01/18 16:04	SNR

MW-03 L1021224-07 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 12:45	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1159376	1	08/31/18 09:43	09/04/18 05:33	EL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 21:02	08/28/18 21:02	TJJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159178	1	08/31/18 16:24	09/01/18 14:51	SNR

MW-04 L1021224-08 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 13:45	08/28/18 08:45

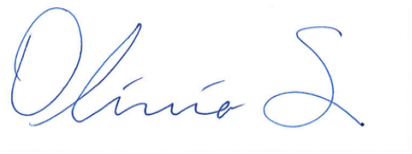
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1159376	1	08/31/18 09:43	09/04/18 05:35	EL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 21:21	08/28/18 21:21	TJJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159178	1	08/31/18 16:24	09/01/18 15:16	SNR

MW-07 L1021224-09 GW

Collected by	Collected date/time	Received date/time
Aaron Varnell	08/24/18 14:30	08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1159376	1	08/31/18 09:43	09/04/18 05:38	EL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1158665	1	08/28/18 21:40	08/28/18 21:40	TJJ
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1159178	1	08/31/18 16:24	09/01/18 15:40	SNR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	755		10.0	1	08/30/2018 16:22	WG1159045

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	31.0		2.50	1	08/30/2018 16:11	WG1159038

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	427		150	5	08/29/2018 17:49	WG1158606

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	204		20.0	1	08/31/2018 14:53	WG1159903

Sample Narrative:

L1021224-01 WG1159903: Endpoint pH 4.5 headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	3.42		0.100	1	08/31/2018 12:30	WG1159749

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	0.352		0.100	1	08/30/2018 16:03	WG1159750

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/31/2018 08:33	WG1158618
Mercury,Dissolved	ND		0.000200	1	08/29/2018 15:21	WG1158619

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic,Dissolved	ND		0.0100	1	08/29/2018 20:46	WG1159013
Barium,Dissolved	0.0654		0.00500	1	08/29/2018 20:46	WG1159013
Cadmium,Dissolved	ND		0.00200	1	08/29/2018 20:46	WG1159013
Chromium,Dissolved	ND		0.0100	1	08/29/2018 20:46	WG1159013
Lead,Dissolved	ND		0.00500	1	08/29/2018 20:46	WG1159013
Selenium,Dissolved	ND		0.0100	1	08/29/2018 20:46	WG1159013
Silver,Dissolved	ND		0.00500	1	08/29/2018 20:46	WG1159013

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 19:07	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 19:07	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 19:07	WG1158665
Benzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 19:07	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 19:07	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 19:07	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 19:07	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 19:07	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 19:07	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 19:07	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 19:07	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 19:07	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 19:07	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 19:07	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 19:07	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 19:07	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 19:07	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 19:07	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 19:07	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 19:07	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 19:07	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 19:07	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 19:07	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 19:07	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 19:07	WG1158665
Naphthalene	0.00999		0.00500	1	08/28/2018 19:07	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Styrene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Toluene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 19:07	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 19:07	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 19:07	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:07	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 19:07	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 19:07	WG1158665
(S) Toluene-d8	*98.4*		*80.0-120*		*08/28/2018 19:07*	WG1158665
(S) Dibromofluoromethane	*98.1*		*75.0-120*		*08/28/2018 19:07*	WG1158665
(S) 4-Bromofluorobenzene	*99.2*		*77.0-126*		*08/28/2018 19:07*	WG1158665

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,4-D	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
Dalapon	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
2,4-DB	ND		0.00412	1.03	08/29/2018 18:07	WG1158823
Dicamba	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
Dichloroprop	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
Dinoseb	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
MCPA	ND		0.206	1.03	08/29/2018 18:07	WG1158823
MCPP	ND		0.206	1.03	08/29/2018 18:07	WG1158823
2,4,5-T	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
2,4,5-TP (Silvex)	ND		0.00206	1.03	08/29/2018 18:07	WG1158823
(S) 2,4-Dichlorophenyl Acetic Acid	*73.6*		*14.0-158*		*08/29/2018 18:07*	WG1158823

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aldrin	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Alpha BHC	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Beta BHC	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Delta BHC	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Gamma BHC	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Chlordane	ND		0.000500	1	08/29/2018 14:37	WG1158589
4,4-DDD	ND		0.0000500	1	08/29/2018 14:37	WG1158589
4,4-DDE	ND		0.0000500	1	08/29/2018 14:37	WG1158589
4,4-DDT	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Dieldrin	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Endosulfan I	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Endosulfan II	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Endosulfan sulfate	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Endrin	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Endrin aldehyde	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Endrin ketone	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Heptachlor	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Heptachlor epoxide	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Hexachlorobenzene	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Methoxychlor	ND		0.0000500	1	08/29/2018 14:37	WG1158589
Toxaphene	ND		0.000500	1	08/29/2018 14:37	WG1158589
(S) Decachlorobiphenyl	*84.8*		*10.0-128*		*08/29/2018 14:37*	WG1158589

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Tetrachloro-m-xylene	*67.2*		*10.0-127*		*08/29/2018 14:37*	WG1158589

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000500	1	08/29/2018 17:46	WG1158589
PCB 1221	ND		0.000500	1	08/29/2018 17:46	WG1158589
PCB 1232	ND		0.000500	1	08/29/2018 17:46	WG1158589
PCB 1242	ND		0.000500	1	08/29/2018 17:46	WG1158589
PCB 1248	ND		0.000500	1	08/29/2018 17:46	WG1158589
PCB 1254	ND		0.000500	1	08/29/2018 17:46	WG1158589
PCB 1260	ND		0.000500	1	08/29/2018 17:46	WG1158589
(S) Decachlorobiphenyl	*112*		*10.0-128*		*08/29/2018 17:46*	WG1158589
(S) Tetrachloro-m-xylene	*79.2*		*10.0-127*		*08/29/2018 17:46*	WG1158589

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Acenaphthylene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Anthracene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Benzidine	ND		0.0100	1	08/31/2018 14:20	WG1158700
Benzo(a)anthracene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Benzo(b)fluoranthene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Benzo(k)fluoranthene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Benzo(g,h,i)perylene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Benzo(a)pyrene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Bis(2-chlorethoxy)methane	ND		0.0100	1	08/31/2018 14:20	WG1158700
Bis(2-chloroethyl)ether	ND		0.0100	1	08/31/2018 14:20	WG1158700
Bis(2-chloroisopropyl)ether	ND		0.0100	1	08/31/2018 14:20	WG1158700
4-Bromophenyl-phenylether	ND		0.0100	1	08/31/2018 14:20	WG1158700
2-Chloronaphthalene	ND		0.00100	1	08/31/2018 14:20	WG1158700
4-Chlorophenyl-phenylether	ND		0.0100	1	08/31/2018 14:20	WG1158700
Chrysene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Dibenz(a,h)anthracene	ND		0.00100	1	08/31/2018 14:20	WG1158700
3,3-Dichlorobenzidine	ND		0.0100	1	08/31/2018 14:20	WG1158700
2,4-Dinitrotoluene	ND		0.0100	1	08/31/2018 14:20	WG1158700
2,6-Dinitrotoluene	ND		0.0100	1	08/31/2018 14:20	WG1158700
Fluoranthene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Fluorene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Hexachlorobenzene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Hexachloro-1,3-butadiene	ND		0.0100	1	08/31/2018 14:20	WG1158700
Hexachlorocyclopentadiene	ND		0.0100	1	08/31/2018 14:20	WG1158700
Hexachloroethane	ND		0.0100	1	08/31/2018 14:20	WG1158700
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Isophorone	ND		0.0100	1	08/31/2018 14:20	WG1158700
Naphthalene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Nitrobenzene	ND		0.0100	1	08/31/2018 14:20	WG1158700
n-Nitrosodimethylamine	ND		0.0100	1	08/31/2018 14:20	WG1158700
n-Nitrosodiphenylamine	ND		0.0100	1	08/31/2018 14:20	WG1158700
n-Nitrosodi-n-propylamine	ND		0.0100	1	08/31/2018 14:20	WG1158700
Phenanthrene	ND		0.00100	1	08/31/2018 14:20	WG1158700
Benzylbutyl phthalate	ND		0.00300	1	08/31/2018 14:20	WG1158700
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	08/31/2018 14:20	WG1158700
Di-n-butyl phthalate	ND		0.00300	1	08/31/2018 14:20	WG1158700

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Diethyl phthalate	ND		0.00300	1	08/31/2018 14:20	WG1158700
Dimethyl phthalate	ND	J4	0.00300	1	08/31/2018 14:20	WG1158700
Di-n-octyl phthalate	ND		0.00300	1	08/31/2018 14:20	WG1158700
Pyrene	ND		0.00100	1	08/31/2018 14:20	WG1158700
1,2,4-Trichlorobenzene	ND		0.0100	1	08/31/2018 14:20	WG1158700
4-Chloro-3-methylphenol	ND	J3	0.0100	1	08/31/2018 14:20	WG1158700
2-Chlorophenol	ND	J3	0.0100	1	08/31/2018 14:20	WG1158700
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 14:20	WG1158700
2,4-Dimethylphenol	ND		0.0100	1	08/31/2018 14:20	WG1158700
4,6-Dinitro-2-methylphenol	ND	J3 J4	0.0100	1	08/31/2018 14:20	WG1158700
2,4-Dinitrophenol	ND	J3	0.0100	1	08/31/2018 14:20	WG1158700
2-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 14:20	WG1158700
4-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 14:20	WG1158700
Pentachlorophenol	ND	J3	0.0100	1	08/31/2018 14:20	WG1158700
Phenol	ND		0.0100	1	08/31/2018 14:20	WG1158700
2,4,6-Trichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 14:20	WG1158700
(S) 2-Fluorophenol	*20.4*		*10.0-120*		*08/31/2018 14:20*	WG1158700
(S) Phenol-d5	*10.7*		*10.0-120*		*08/31/2018 14:20*	WG1158700
(S) Nitrobenzene-d5	*51.2*		*10.0-127*		*08/31/2018 14:20*	WG1158700
(S) 2-Fluorobiphenyl	*64.3*		*10.0-130*		*08/31/2018 14:20*	WG1158700
(S) 2,4,6-Tribromophenol	*11.4*		*10.0-155*		*08/31/2018 14:20*	WG1158700
(S) p-Terphenyl-d14	*68.4*		*10.0-128*		*08/31/2018 14:20*	WG1158700

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	379		10.0	1	08/30/2018 14:33	WG1159046

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	15.6		2.50	1	08/30/2018 16:11	WG1159038

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	238	B	150	5	08/29/2018 17:50	WG1158606

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	125		20.0	1	08/31/2018 15:00	WG1159903

Sample Narrative:

L1021224-02 WG1159903: Endpoint pH 4.5 headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	0.265		0.100	1	08/31/2018 12:31	WG1159749

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	ND		0.100	1	08/30/2018 16:04	WG1159750

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/31/2018 08:36	WG1158618
Mercury,Dissolved	ND		0.000200	1	08/29/2018 15:23	WG1158619

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic,Dissolved	ND		0.0100	1	08/29/2018 20:49	WG1159013
Barium,Dissolved	0.0523		0.00500	1	08/29/2018 20:49	WG1159013
Cadmium,Dissolved	ND		0.00200	1	08/29/2018 20:49	WG1159013
Chromium,Dissolved	ND		0.0100	1	08/29/2018 20:49	WG1159013
Lead,Dissolved	ND		0.00500	1	08/29/2018 20:49	WG1159013
Selenium,Dissolved	ND		0.0100	1	08/29/2018 20:49	WG1159013
Silver,Dissolved	ND		0.00500	1	08/29/2018 20:49	WG1159013

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 19:26	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 19:26	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 19:26	WG1158665
Benzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 19:26	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 19:26	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 19:26	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 19:26	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 19:26	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 19:26	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 19:26	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 19:26	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 19:26	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 19:26	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 19:26	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 19:26	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 19:26	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 19:26	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 19:26	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 19:26	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 19:26	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 19:26	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 19:26	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 19:26	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 19:26	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 19:26	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 19:26	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Styrene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Toluene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 19:26	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 19:26	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 19:26	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:26	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 19:26	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 19:26	WG1158665
(S) Toluene-d8	*101*		*80.0-120*		*08/28/2018 19:26*	WG1158665
(S) Dibromofluoromethane	*98.3*		*75.0-120*		*08/28/2018 19:26*	WG1158665
(S) 4-Bromofluorobenzene	*96.8*		*77.0-126*		*08/28/2018 19:26*	WG1158665

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,4-D	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
Dalapon	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
2,4-DB	ND		0.00412	1.03	08/29/2018 19:02	WG1158823
Dicamba	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
Dichloroprop	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
Dinoseb	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
MCPA	ND		0.206	1.03	08/29/2018 19:02	WG1158823
MCPP	ND		0.206	1.03	08/29/2018 19:02	WG1158823
2,4,5-T	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
2,4,5-TP (Silvex)	ND		0.00206	1.03	08/29/2018 19:02	WG1158823
(S) 2,4-Dichlorophenyl Acetic Acid	*86.8*		*14.0-158*		*08/29/2018 19:02*	WG1158823

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aldrin	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Alpha BHC	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Beta BHC	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Delta BHC	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Gamma BHC	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Chlordane	ND		0.000500	1	08/29/2018 14:49	WG1158589
4,4-DDD	ND		0.0000500	1	08/29/2018 14:49	WG1158589
4,4-DDE	ND		0.0000500	1	08/29/2018 14:49	WG1158589
4,4-DDT	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Dieldrin	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Endosulfan I	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Endosulfan II	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Endosulfan sulfate	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Endrin	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Endrin aldehyde	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Endrin ketone	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Heptachlor	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Heptachlor epoxide	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Hexachlorobenzene	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Methoxychlor	ND		0.0000500	1	08/29/2018 14:49	WG1158589
Toxaphene	ND		0.000500	1	08/29/2018 14:49	WG1158589
(S) Decachlorobiphenyl	*76.6*		*10.0-128*		*08/29/2018 14:49*	WG1158589

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Tetrachloro-m-xylene	*70.6*		*10.0-127*		*08/29/2018 14:49*	WG1158589

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000500	1	08/29/2018 18:00	WG1158589
PCB 1221	ND		0.000500	1	08/29/2018 18:00	WG1158589
PCB 1232	ND		0.000500	1	08/29/2018 18:00	WG1158589
PCB 1242	ND		0.000500	1	08/29/2018 18:00	WG1158589
PCB 1248	ND		0.000500	1	08/29/2018 18:00	WG1158589
PCB 1254	ND		0.000500	1	08/29/2018 18:00	WG1158589
PCB 1260	ND		0.000500	1	08/29/2018 18:00	WG1158589
(S) Decachlorobiphenyl	*109*		*10.0-128*		*08/29/2018 18:00*	WG1158589
(S) Tetrachloro-m-xylene	*85.8*		*10.0-127*		*08/29/2018 18:00*	WG1158589

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Acenaphthylene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Anthracene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Benzidine	ND		0.0100	1	08/31/2018 15:31	WG1158700
Benzo(a)anthracene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Benzo(b)fluoranthene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Benzo(k)fluoranthene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Benzo(g,h,i)perylene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Benzo(a)pyrene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Bis(2-chlorethoxy)methane	ND		0.0100	1	08/31/2018 15:31	WG1158700
Bis(2-chloroethyl)ether	ND		0.0100	1	08/31/2018 15:31	WG1158700
Bis(2-chloroisopropyl)ether	ND		0.0100	1	08/31/2018 15:31	WG1158700
4-Bromophenyl-phenylether	ND		0.0100	1	08/31/2018 15:31	WG1158700
2-Chloronaphthalene	ND		0.00100	1	08/31/2018 15:31	WG1158700
4-Chlorophenyl-phenylether	ND		0.0100	1	08/31/2018 15:31	WG1158700
Chrysene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Dibenz(a,h)anthracene	ND		0.00100	1	08/31/2018 15:31	WG1158700
3,3-Dichlorobenzidine	ND		0.0100	1	08/31/2018 15:31	WG1158700
2,4-Dinitrotoluene	ND		0.0100	1	08/31/2018 15:31	WG1158700
2,6-Dinitrotoluene	ND		0.0100	1	08/31/2018 15:31	WG1158700
Fluoranthene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Fluorene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Hexachlorobenzene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Hexachloro-1,3-butadiene	ND		0.0100	1	08/31/2018 15:31	WG1158700
Hexachlorocyclopentadiene	ND		0.0100	1	08/31/2018 15:31	WG1158700
Hexachloroethane	ND		0.0100	1	08/31/2018 15:31	WG1158700
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Isophorone	ND		0.0100	1	08/31/2018 15:31	WG1158700
Naphthalene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Nitrobenzene	ND		0.0100	1	08/31/2018 15:31	WG1158700
n-Nitrosodimethylamine	ND		0.0100	1	08/31/2018 15:31	WG1158700
n-Nitrosodiphenylamine	ND		0.0100	1	08/31/2018 15:31	WG1158700
n-Nitrosodi-n-propylamine	ND		0.0100	1	08/31/2018 15:31	WG1158700
Phenanthrene	ND		0.00100	1	08/31/2018 15:31	WG1158700
Benzylbutyl phthalate	ND		0.00300	1	08/31/2018 15:31	WG1158700
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	08/31/2018 15:31	WG1158700
Di-n-butyl phthalate	ND		0.00300	1	08/31/2018 15:31	WG1158700

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Diethyl phthalate	ND		0.00300	1	08/31/2018 15:31	WG1158700
Dimethyl phthalate	ND	J4	0.00300	1	08/31/2018 15:31	WG1158700
Di-n-octyl phthalate	ND		0.00300	1	08/31/2018 15:31	WG1158700
Pyrene	ND		0.00100	1	08/31/2018 15:31	WG1158700
1,2,4-Trichlorobenzene	ND		0.0100	1	08/31/2018 15:31	WG1158700
4-Chloro-3-methylphenol	ND	J3	0.0100	1	08/31/2018 15:31	WG1158700
2-Chlorophenol	ND	J3	0.0100	1	08/31/2018 15:31	WG1158700
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 15:31	WG1158700
2,4-Dimethylphenol	ND		0.0100	1	08/31/2018 15:31	WG1158700
4,6-Dinitro-2-methylphenol	ND	J3 J4	0.0100	1	08/31/2018 15:31	WG1158700
2,4-Dinitrophenol	ND	J3	0.0100	1	08/31/2018 15:31	WG1158700
2-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 15:31	WG1158700
4-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 15:31	WG1158700
Pentachlorophenol	ND	J3	0.0100	1	08/31/2018 15:31	WG1158700
Phenol	ND		0.0100	1	08/31/2018 15:31	WG1158700
2,4,6-Trichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 15:31	WG1158700
(S) 2-Fluorophenol	*45.8*		*10.0-120*		*08/31/2018 15:31*	WG1158700
(S) Phenol-d5	*31.0*		*10.0-120*		*08/31/2018 15:31*	WG1158700
(S) Nitrobenzene-d5	*58.4*		*10.0-127*		*08/31/2018 15:31*	WG1158700
(S) 2-Fluorobiphenyl	*68.6*		*10.0-130*		*08/31/2018 15:31*	WG1158700
(S) 2,4,6-Tribromophenol	*63.0*		*10.0-155*		*08/31/2018 15:31*	WG1158700
(S) p-Terphenyl-d14	*73.2*		*10.0-128*		*08/31/2018 15:31*	WG1158700

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	405		10.0	1	08/30/2018 14:33	WG1159046

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	51.2		2.50	1	08/30/2018 16:11	WG1159038

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	200	B P1	150	5	08/29/2018 17:51	WG1158606

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	130		20.0	1	08/31/2018 15:08	WG1159903

Sample Narrative:

L1021224-03 WG1159903: Endpoint pH 4.5 headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	0.647		0.100	1	08/31/2018 12:33	WG1159749

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	0.160		0.100	1	08/30/2018 16:06	WG1159750

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/31/2018 08:42	WG1158618
Mercury,Dissolved	ND		0.000200	1	08/29/2018 15:25	WG1158619

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic,Dissolved	ND		0.0100	1	08/29/2018 20:51	WG1159013
Barium,Dissolved	0.0574		0.00500	1	08/29/2018 20:51	WG1159013
Cadmium,Dissolved	ND		0.00200	1	08/29/2018 20:51	WG1159013
Chromium,Dissolved	ND		0.0100	1	08/29/2018 20:51	WG1159013
Lead,Dissolved	ND		0.00500	1	08/29/2018 20:51	WG1159013
Selenium,Dissolved	ND		0.0100	1	08/29/2018 20:51	WG1159013
Silver,Dissolved	ND		0.00500	1	08/29/2018 20:51	WG1159013

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 19:45	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 19:45	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 19:45	WG1158665
Benzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 19:45	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 19:45	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 19:45	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 19:45	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 19:45	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 19:45	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 19:45	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 19:45	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 19:45	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 19:45	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 19:45	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 19:45	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 19:45	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 19:45	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 19:45	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 19:45	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 19:45	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 19:45	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 19:45	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 19:45	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 19:45	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 19:45	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 19:45	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Styrene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Toluene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 19:45	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 19:45	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 19:45	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 19:45	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 19:45	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 19:45	WG1158665
(S) Toluene-d8	*99.6*		*80.0-120*		*08/28/2018 19:45*	WG1158665
(S) Dibromofluoromethane	*97.3*		*75.0-120*		*08/28/2018 19:45*	WG1158665
(S) 4-Bromofluorobenzene	*95.1*		*77.0-126*		*08/28/2018 19:45*	WG1158665

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,4-D	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
Dalapon	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
2,4-DB	ND		0.00412	1.03	08/29/2018 19:15	WG1158823
Dicamba	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
Dichloroprop	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
Dinoseb	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
MCPA	ND		0.206	1.03	08/29/2018 19:15	WG1158823
MCPP	ND		0.206	1.03	08/29/2018 19:15	WG1158823
2,4,5-T	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
2,4,5-TP (Silvex)	ND		0.00206	1.03	08/29/2018 19:15	WG1158823
(S) 2,4-Dichlorophenyl Acetic Acid	*79.4*		*14.0-158*		*08/29/2018 19:15*	WG1158823

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aldrin	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Alpha BHC	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Beta BHC	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Delta BHC	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Gamma BHC	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Chlordane	ND		0.000500	1	08/29/2018 15:02	WG1158589
4,4-DDD	ND		0.0000500	1	08/29/2018 15:02	WG1158589
4,4-DDE	ND		0.0000500	1	08/29/2018 15:02	WG1158589
4,4-DDT	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Dieldrin	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Endosulfan I	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Endosulfan II	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Endosulfan sulfate	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Endrin	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Endrin aldehyde	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Endrin ketone	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Heptachlor	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Heptachlor epoxide	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Hexachlorobenzene	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Methoxychlor	ND		0.0000500	1	08/29/2018 15:02	WG1158589
Toxaphene	ND		0.000500	1	08/29/2018 15:02	WG1158589
(S) Decachlorobiphenyl	*70.2*		*10.0-128*		*08/29/2018 15:02*	WG1158589

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Tetrachloro-m-xylene	*68.6*		*10.0-127*		*08/29/2018 15:02*	WG1158589

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000500	1	08/29/2018 18:14	WG1158589
PCB 1221	ND		0.000500	1	08/29/2018 18:14	WG1158589
PCB 1232	ND		0.000500	1	08/29/2018 18:14	WG1158589
PCB 1242	ND		0.000500	1	08/29/2018 18:14	WG1158589
PCB 1248	ND		0.000500	1	08/29/2018 18:14	WG1158589
PCB 1254	ND		0.000500	1	08/29/2018 18:14	WG1158589
PCB 1260	ND		0.000500	1	08/29/2018 18:14	WG1158589
(S) Decachlorobiphenyl	*99.6*		*10.0-128*		*08/29/2018 18:14*	WG1158589
(S) Tetrachloro-m-xylene	*82.0*		*10.0-127*		*08/29/2018 18:14*	WG1158589

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Acenaphthylene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Anthracene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Benzidine	ND		0.0100	1	08/31/2018 14:44	WG1158700
Benzo(a)anthracene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Benzo(b)fluoranthene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Benzo(k)fluoranthene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Benzo(g,h,i)perylene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Benzo(a)pyrene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Bis(2-chlorethoxy)methane	ND		0.0100	1	08/31/2018 14:44	WG1158700
Bis(2-chloroethyl)ether	ND		0.0100	1	08/31/2018 14:44	WG1158700
Bis(2-chloroisopropyl)ether	ND		0.0100	1	08/31/2018 14:44	WG1158700
4-Bromophenyl-phenylether	ND		0.0100	1	08/31/2018 14:44	WG1158700
2-Chloronaphthalene	ND		0.00100	1	08/31/2018 14:44	WG1158700
4-Chlorophenyl-phenylether	ND		0.0100	1	08/31/2018 14:44	WG1158700
Chrysene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Dibenz(a,h)anthracene	ND		0.00100	1	08/31/2018 14:44	WG1158700
3,3-Dichlorobenzidine	ND		0.0100	1	08/31/2018 14:44	WG1158700
2,4-Dinitrotoluene	ND		0.0100	1	08/31/2018 14:44	WG1158700
2,6-Dinitrotoluene	ND		0.0100	1	08/31/2018 14:44	WG1158700
Fluoranthene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Fluorene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Hexachlorobenzene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Hexachloro-1,3-butadiene	ND		0.0100	1	08/31/2018 14:44	WG1158700
Hexachlorocyclopentadiene	ND		0.0100	1	08/31/2018 14:44	WG1158700
Hexachloroethane	ND		0.0100	1	08/31/2018 14:44	WG1158700
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Isophorone	ND		0.0100	1	08/31/2018 14:44	WG1158700
Naphthalene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Nitrobenzene	ND		0.0100	1	08/31/2018 14:44	WG1158700
n-Nitrosodimethylamine	ND		0.0100	1	08/31/2018 14:44	WG1158700
n-Nitrosodiphenylamine	ND		0.0100	1	08/31/2018 14:44	WG1158700
n-Nitrosodi-n-propylamine	ND		0.0100	1	08/31/2018 14:44	WG1158700
Phenanthrene	ND		0.00100	1	08/31/2018 14:44	WG1158700
Benzylbutyl phthalate	ND		0.00300	1	08/31/2018 14:44	WG1158700
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	08/31/2018 14:44	WG1158700
Di-n-butyl phthalate	ND		0.00300	1	08/31/2018 14:44	WG1158700

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Diethyl phthalate	ND		0.00300	1	08/31/2018 14:44	WG1158700
Dimethyl phthalate	ND	J4	0.00300	1	08/31/2018 14:44	WG1158700
Di-n-octyl phthalate	ND		0.00300	1	08/31/2018 14:44	WG1158700
Pyrene	ND		0.00100	1	08/31/2018 14:44	WG1158700
1,2,4-Trichlorobenzene	ND		0.0100	1	08/31/2018 14:44	WG1158700
4-Chloro-3-methylphenol	ND	J3	0.0100	1	08/31/2018 14:44	WG1158700
2-Chlorophenol	ND	J3	0.0100	1	08/31/2018 14:44	WG1158700
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 14:44	WG1158700
2,4-Dimethylphenol	ND		0.0100	1	08/31/2018 14:44	WG1158700
4,6-Dinitro-2-methylphenol	ND	J3 J4	0.0100	1	08/31/2018 14:44	WG1158700
2,4-Dinitrophenol	ND	J3	0.0100	1	08/31/2018 14:44	WG1158700
2-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 14:44	WG1158700
4-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 14:44	WG1158700
Pentachlorophenol	ND	J3	0.0100	1	08/31/2018 14:44	WG1158700
Phenol	ND		0.0100	1	08/31/2018 14:44	WG1158700
2,4,6-Trichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 14:44	WG1158700
(S) 2-Fluorophenol	*22.2*		*10.0-120*		*08/31/2018 14:44*	WG1158700
(S) Phenol-d5	*16.4*		*10.0-120*		*08/31/2018 14:44*	WG1158700
(S) Nitrobenzene-d5	*59.2*		*10.0-127*		*08/31/2018 14:44*	WG1158700
(S) 2-Fluorobiphenyl	*73.3*		*10.0-130*		*08/31/2018 14:44*	WG1158700
(S) 2,4,6-Tribromophenol	*10.5*		*10.0-155*		*08/31/2018 14:44*	WG1158700
(S) p-Terphenyl-d14	*81.2*		*10.0-128*		*08/31/2018 14:44*	WG1158700

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Dissolved Solids	384		10.0	1	08/30/2018 14:33	WG1159046

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Suspended Solids	6.83		2.50	1	08/30/2018 16:11	WG1159038

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	279	B	150	5	08/29/2018 17:54	WG1158606

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	127		20.0	1	08/31/2018 15:26	WG1159903

Sample Narrative:

L1021224-04 WG1159903: Endpoint pH 4.5 headspace

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Nitrate-Nitrite	0.280		0.100	1	08/31/2018 12:34	WG1159749

Wet Chemistry by Method 365.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Phosphorus,Total	ND		0.100	1	08/30/2018 16:07	WG1159750

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	08/31/2018 08:45	WG1158618
Mercury,Dissolved	ND		0.000200	1	08/29/2018 15:33	WG1158619

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic,Dissolved	ND		0.0100	1	08/29/2018 20:54	WG1159013
Barium,Dissolved	0.0535		0.00500	1	08/29/2018 20:54	WG1159013
Cadmium,Dissolved	ND		0.00200	1	08/29/2018 20:54	WG1159013
Chromium,Dissolved	ND		0.0100	1	08/29/2018 20:54	WG1159013
Lead,Dissolved	ND		0.00500	1	08/29/2018 20:54	WG1159013
Selenium,Dissolved	ND		0.0100	1	08/29/2018 20:54	WG1159013
Silver,Dissolved	ND		0.00500	1	08/29/2018 20:54	WG1159013

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 20:04	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 20:04	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 20:04	WG1158665
Benzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 20:04	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 20:04	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 20:04	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 20:04	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 20:04	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 20:04	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 20:04	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 20:04	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 20:04	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 20:04	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 20:04	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 20:04	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 20:04	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 20:04	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 20:04	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 20:04	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 20:04	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 20:04	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 20:04	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 20:04	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 20:04	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 20:04	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 20:04	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Styrene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Toluene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 20:04	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 20:04	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 20:04	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:04	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 20:04	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 20:04	WG1158665
(S) Toluene-d8	*101*		*80.0-120*		*08/28/2018 20:04*	WG1158665
(S) Dibromofluoromethane	*98.0*		*75.0-120*		*08/28/2018 20:04*	WG1158665
(S) 4-Bromofluorobenzene	*96.9*		*77.0-126*		*08/28/2018 20:04*	WG1158665

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,4-D	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
Dalapon	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
2,4-DB	ND		0.00412	1.03	08/29/2018 19:29	WG1158823
Dicamba	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
Dichloroprop	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
Dinoseb	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
MCPA	ND		0.206	1.03	08/29/2018 19:29	WG1158823
MCPP	ND		0.206	1.03	08/29/2018 19:29	WG1158823
2,4,5-T	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
2,4,5-TP (Silvex)	ND		0.00206	1.03	08/29/2018 19:29	WG1158823
(S) 2,4-Dichlorophenyl Acetic Acid	*78.4*		*14.0-158*		*08/29/2018 19:29*	WG1158823

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aldrin	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Alpha BHC	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Beta BHC	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Delta BHC	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Gamma BHC	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Chlordane	ND		0.000500	1	08/29/2018 15:15	WG1158589
4,4-DDD	ND		0.0000500	1	08/29/2018 15:15	WG1158589
4,4-DDE	ND		0.0000500	1	08/29/2018 15:15	WG1158589
4,4-DDT	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Dieldrin	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Endosulfan I	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Endosulfan II	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Endosulfan sulfate	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Endrin	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Endrin aldehyde	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Endrin ketone	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Heptachlor	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Heptachlor epoxide	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Hexachlorobenzene	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Methoxychlor	ND		0.0000500	1	08/29/2018 15:15	WG1158589
Toxaphene	ND		0.000500	1	08/29/2018 15:15	WG1158589
(S) Decachlorobiphenyl	*71.7*		*10.0-128*		*08/29/2018 15:15*	WG1158589

Pesticides (GC) by Method 8081

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Tetrachloro-m-xylene	*69.7*		*10.0-127*		*08/29/2018 15:15*	WG1158589

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
PCB 1016	ND		0.000500	1	08/29/2018 18:28	WG1158589
PCB 1221	ND		0.000500	1	08/29/2018 18:28	WG1158589
PCB 1232	ND		0.000500	1	08/29/2018 18:28	WG1158589
PCB 1242	ND		0.000500	1	08/29/2018 18:28	WG1158589
PCB 1248	ND		0.000500	1	08/29/2018 18:28	WG1158589
PCB 1254	ND		0.000500	1	08/29/2018 18:28	WG1158589
PCB 1260	ND		0.000500	1	08/29/2018 18:28	WG1158589
(S) Decachlorobiphenyl	*106*		*10.0-128*		*08/29/2018 18:28*	WG1158589
(S) Tetrachloro-m-xylene	*81.4*		*10.0-127*		*08/29/2018 18:28*	WG1158589

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Acenaphthylene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Anthracene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Benzidine	ND		0.0100	1	08/31/2018 15:08	WG1158700
Benzo(a)anthracene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Benzo(b)fluoranthene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Benzo(k)fluoranthene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Benzo(g,h,i)perylene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Benzo(a)pyrene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Bis(2-chlorethoxy)methane	ND		0.0100	1	08/31/2018 15:08	WG1158700
Bis(2-chloroethyl)ether	ND		0.0100	1	08/31/2018 15:08	WG1158700
Bis(2-chloroisopropyl)ether	ND		0.0100	1	08/31/2018 15:08	WG1158700
4-Bromophenyl-phenylether	ND		0.0100	1	08/31/2018 15:08	WG1158700
2-Chloronaphthalene	ND		0.00100	1	08/31/2018 15:08	WG1158700
4-Chlorophenyl-phenylether	ND		0.0100	1	08/31/2018 15:08	WG1158700
Chrysene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Dibenz(a,h)anthracene	ND		0.00100	1	08/31/2018 15:08	WG1158700
3,3-Dichlorobenzidine	ND		0.0100	1	08/31/2018 15:08	WG1158700
2,4-Dinitrotoluene	ND		0.0100	1	08/31/2018 15:08	WG1158700
2,6-Dinitrotoluene	ND		0.0100	1	08/31/2018 15:08	WG1158700
Fluoranthene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Fluorene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Hexachlorobenzene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Hexachloro-1,3-butadiene	ND		0.0100	1	08/31/2018 15:08	WG1158700
Hexachlorocyclopentadiene	ND		0.0100	1	08/31/2018 15:08	WG1158700
Hexachloroethane	ND		0.0100	1	08/31/2018 15:08	WG1158700
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Isophorone	ND		0.0100	1	08/31/2018 15:08	WG1158700
Naphthalene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Nitrobenzene	ND		0.0100	1	08/31/2018 15:08	WG1158700
n-Nitrosodimethylamine	ND		0.0100	1	08/31/2018 15:08	WG1158700
n-Nitrosodiphenylamine	ND		0.0100	1	08/31/2018 15:08	WG1158700
n-Nitrosodi-n-propylamine	ND		0.0100	1	08/31/2018 15:08	WG1158700
Phenanthrene	ND		0.00100	1	08/31/2018 15:08	WG1158700
Benzylbutyl phthalate	ND		0.00300	1	08/31/2018 15:08	WG1158700
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	08/31/2018 15:08	WG1158700
Di-n-butyl phthalate	ND		0.00300	1	08/31/2018 15:08	WG1158700

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Diethyl phthalate	ND		0.00300	1	08/31/2018 15:08	WG1158700
Dimethyl phthalate	ND	J4	0.00300	1	08/31/2018 15:08	WG1158700
Di-n-octyl phthalate	ND		0.00300	1	08/31/2018 15:08	WG1158700
Pyrene	ND		0.00100	1	08/31/2018 15:08	WG1158700
1,2,4-Trichlorobenzene	ND		0.0100	1	08/31/2018 15:08	WG1158700
4-Chloro-3-methylphenol	ND	J3	0.0100	1	08/31/2018 15:08	WG1158700
2-Chlorophenol	ND	J3	0.0100	1	08/31/2018 15:08	WG1158700
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 15:08	WG1158700
2,4-Dimethylphenol	ND		0.0100	1	08/31/2018 15:08	WG1158700
4,6-Dinitro-2-methylphenol	ND	J3 J4	0.0100	1	08/31/2018 15:08	WG1158700
2,4-Dinitrophenol	ND	J3	0.0100	1	08/31/2018 15:08	WG1158700
2-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 15:08	WG1158700
4-Nitrophenol	ND	J3 J4	0.0100	1	08/31/2018 15:08	WG1158700
Pentachlorophenol	ND	J3	0.0100	1	08/31/2018 15:08	WG1158700
Phenol	ND		0.0100	1	08/31/2018 15:08	WG1158700
2,4,6-Trichlorophenol	ND	J3 J4	0.0100	1	08/31/2018 15:08	WG1158700
(S) 2-Fluorophenol	*18.7*		*10.0-120*		*08/31/2018 15:08*	WG1158700
(S) Phenol-d5	*13.9*		*10.0-120*		*08/31/2018 15:08*	WG1158700
(S) Nitrobenzene-d5	*43.5*		*10.0-127*		*08/31/2018 15:08*	WG1158700
(S) 2-Fluorobiphenyl	*56.3*		*10.0-130*		*08/31/2018 15:08*	WG1158700
(S) 2,4,6-Tribromophenol	*9.75*	J2	*10.0-155*		*08/31/2018 15:08*	WG1158700
(S) p-Terphenyl-d14	*65.7*		*10.0-128*		*08/31/2018 15:08*	WG1158700

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	0.000351		0.000200	1	09/04/2018 05:22	WG1159376

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND		0.0500	1	08/28/2018 20:24	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 20:24	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 20:24	WG1158665
Benzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 20:24	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 20:24	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 20:24	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 20:24	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 20:24	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 20:24	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 20:24	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 20:24	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 20:24	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 20:24	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 20:24	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 20:24	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 20:24	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 20:24	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 20:24	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 20:24	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 20:24	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 20:24	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 20:24	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 20:24	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 20:24	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 20:24	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 20:24	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Styrene	ND		0.00100	1	08/28/2018 20:24	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Toluene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 20:24	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 20:24	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 20:24	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:24	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 20:24	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 20:24	WG1158665
(S) Toluene-d8	*99.9*		*80.0-120*		*08/28/2018 20:24*	WG1158665
(S) Dibromofluoromethane	*99.0*		*75.0-120*		*08/28/2018 20:24*	WG1158665
(S) 4-Bromofluorobenzene	*96.1*		*77.0-126*		*08/28/2018 20:24*	WG1158665

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Acenaphthylene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Anthracene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Benzidine	ND		0.0100	1	09/01/2018 14:27	WG1159178
Benzo(a)anthracene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Benzo(b)fluoranthene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Benzo(k)fluoranthene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Benzo(g,h,i)perylene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Benzo(a)pyrene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Bis(2-chlorethoxy)methane	ND		0.0100	1	09/01/2018 14:27	WG1159178
Bis(2-chloroethyl)ether	ND		0.0100	1	09/01/2018 14:27	WG1159178
Bis(2-chloroisopropyl)ether	ND		0.0100	1	09/01/2018 14:27	WG1159178
4-Bromophenyl-phenylether	ND		0.0100	1	09/01/2018 14:27	WG1159178
2-Chloronaphthalene	ND		0.00100	1	09/01/2018 14:27	WG1159178
4-Chlorophenyl-phenylether	ND		0.0100	1	09/01/2018 14:27	WG1159178
Chrysene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Dibenz(a,h)anthracene	ND		0.00100	1	09/01/2018 14:27	WG1159178
3,3-Dichlorobenzidine	ND		0.0100	1	09/01/2018 14:27	WG1159178
2,4-Dinitrotoluene	ND		0.0100	1	09/01/2018 14:27	WG1159178
2,6-Dinitrotoluene	ND		0.0100	1	09/01/2018 14:27	WG1159178
Fluoranthene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Fluorene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Hexachlorobenzene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Hexachloro-1,3-butadiene	ND		0.0100	1	09/01/2018 14:27	WG1159178
Hexachlorocyclopentadiene	ND		0.0100	1	09/01/2018 14:27	WG1159178
Hexachloroethane	ND		0.0100	1	09/01/2018 14:27	WG1159178
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Isophorone	ND		0.0100	1	09/01/2018 14:27	WG1159178
Naphthalene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Nitrobenzene	ND		0.0100	1	09/01/2018 14:27	WG1159178
n-Nitrosodimethylamine	ND		0.0100	1	09/01/2018 14:27	WG1159178
n-Nitrosodiphenylamine	ND		0.0100	1	09/01/2018 14:27	WG1159178

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
n-Nitrosodi-n-propylamine	ND		0.0100	1	09/01/2018 14:27	WG1159178
Phenanthrene	ND		0.00100	1	09/01/2018 14:27	WG1159178
Benzylbutyl phthalate	ND		0.00300	1	09/01/2018 14:27	WG1159178
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	09/01/2018 14:27	WG1159178
Di-n-butyl phthalate	ND		0.00300	1	09/01/2018 14:27	WG1159178
Diethyl phthalate	ND		0.00300	1	09/01/2018 14:27	WG1159178
Dimethyl phthalate	ND	J4	0.00300	1	09/01/2018 14:27	WG1159178
Di-n-octyl phthalate	ND		0.00300	1	09/01/2018 14:27	WG1159178
Pyrene	ND		0.00100	1	09/01/2018 14:27	WG1159178
1,2,4-Trichlorobenzene	ND		0.0100	1	09/01/2018 14:27	WG1159178
4-Chloro-3-methylphenol	ND		0.0100	1	09/01/2018 14:27	WG1159178
2-Chlorophenol	ND	J3 J4	0.0100	1	09/01/2018 14:27	WG1159178
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	09/01/2018 14:27	WG1159178
2,4-Dimethylphenol	ND		0.0100	1	09/01/2018 14:27	WG1159178
4,6-Dinitro-2-methylphenol	ND	J3	0.0100	1	09/01/2018 14:27	WG1159178
2,4-Dinitrophenol	ND		0.0100	1	09/01/2018 14:27	WG1159178
2-Nitrophenol	ND	J3	0.0100	1	09/01/2018 14:27	WG1159178
4-Nitrophenol	ND		0.0100	1	09/01/2018 14:27	WG1159178
Pentachlorophenol	ND	J3	0.0100	1	09/01/2018 14:27	WG1159178
Phenol	ND		0.0100	1	09/01/2018 14:27	WG1159178
2,4,6-Trichlorophenol	ND		0.0100	1	09/01/2018 14:27	WG1159178
(S) 2-Fluorophenol	*34.3*		*10.0-120*		*09/01/2018 14:27*	WG1159178
(S) Phenol-d5	*21.3*		*10.0-120*		*09/01/2018 14:27*	WG1159178
(S) Nitrobenzene-d5	*54.6*		*10.0-127*		*09/01/2018 14:27*	WG1159178
(S) 2-Fluorobiphenyl	*65.1*		*10.0-130*		*09/01/2018 14:27*	WG1159178
(S) 2,4,6-Tribromophenol	*40.4*		*10.0-155*		*09/01/2018 14:27*	WG1159178
(S) p-Terphenyl-d14	*70.0*		*10.0-128*		*09/01/2018 14:27*	WG1159178

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/04/2018 05:30	WG1159376

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 20:43	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 20:43	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 20:43	WG1158665
Benzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 20:43	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 20:43	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 20:43	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 20:43	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 20:43	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 20:43	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 20:43	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 20:43	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 20:43	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 20:43	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 20:43	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 20:43	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 20:43	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 20:43	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 20:43	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 20:43	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 20:43	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 20:43	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 20:43	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 20:43	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 20:43	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 20:43	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 20:43	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Styrene	ND		0.00100	1	08/28/2018 20:43	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Toluene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 20:43	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 20:43	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 20:43	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 20:43	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 20:43	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 20:43	WG1158665
(S) Toluene-d8	*101*		*80.0-120*		*08/28/2018 20:43*	WG1158665
(S) Dibromofluoromethane	*99.5*		*75.0-120*		*08/28/2018 20:43*	WG1158665
(S) 4-Bromofluorobenzene	*95.2*		*77.0-126*		*08/28/2018 20:43*	WG1158665

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Acenaphthylene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Anthracene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Benzidine	ND		0.0100	1	09/01/2018 16:04	WG1159178
Benzo(a)anthracene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Benzo(b)fluoranthene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Benzo(k)fluoranthene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Benzo(g,h,i)perylene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Benzo(a)pyrene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Bis(2-chlorethoxy)methane	ND		0.0100	1	09/01/2018 16:04	WG1159178
Bis(2-chloroethyl)ether	ND		0.0100	1	09/01/2018 16:04	WG1159178
Bis(2-chloroisopropyl)ether	ND		0.0100	1	09/01/2018 16:04	WG1159178
4-Bromophenyl-phenylether	ND		0.0100	1	09/01/2018 16:04	WG1159178
2-Chloronaphthalene	ND		0.00100	1	09/01/2018 16:04	WG1159178
4-Chlorophenyl-phenylether	ND		0.0100	1	09/01/2018 16:04	WG1159178
Chrysene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Dibenz(a,h)anthracene	0.00529		0.00100	1	09/01/2018 16:04	WG1159178
3,3-Dichlorobenzidine	ND		0.0100	1	09/01/2018 16:04	WG1159178
2,4-Dinitrotoluene	ND		0.0100	1	09/01/2018 16:04	WG1159178
2,6-Dinitrotoluene	ND		0.0100	1	09/01/2018 16:04	WG1159178
Fluoranthene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Fluorene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Hexachlorobenzene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Hexachloro-1,3-butadiene	ND		0.0100	1	09/01/2018 16:04	WG1159178
Hexachlorocyclopentadiene	ND		0.0100	1	09/01/2018 16:04	WG1159178
Hexachloroethane	ND		0.0100	1	09/01/2018 16:04	WG1159178
Indeno(1,2,3-cd)pyrene	0.0283		0.00100	1	09/01/2018 16:04	WG1159178
Isophorone	ND		0.0100	1	09/01/2018 16:04	WG1159178
Naphthalene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Nitrobenzene	ND		0.0100	1	09/01/2018 16:04	WG1159178
n-Nitrosodimethylamine	ND		0.0100	1	09/01/2018 16:04	WG1159178
n-Nitrosodiphenylamine	ND		0.0100	1	09/01/2018 16:04	WG1159178

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
n-Nitrosodi-n-propylamine	ND		0.0100	1	09/01/2018 16:04	WG1159178
Phenanthrene	ND		0.00100	1	09/01/2018 16:04	WG1159178
Benzylbutyl phthalate	ND		0.00300	1	09/01/2018 16:04	WG1159178
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	09/01/2018 16:04	WG1159178
Di-n-butyl phthalate	ND		0.00300	1	09/01/2018 16:04	WG1159178
Diethyl phthalate	ND		0.00300	1	09/01/2018 16:04	WG1159178
Dimethyl phthalate	ND	J4	0.00300	1	09/01/2018 16:04	WG1159178
Di-n-octyl phthalate	ND		0.00300	1	09/01/2018 16:04	WG1159178
Pyrene	ND		0.00100	1	09/01/2018 16:04	WG1159178
1,2,4-Trichlorobenzene	ND		0.0100	1	09/01/2018 16:04	WG1159178
4-Chloro-3-methylphenol	ND		0.0100	1	09/01/2018 16:04	WG1159178
2-Chlorophenol	ND	J3 J4	0.0100	1	09/01/2018 16:04	WG1159178
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	09/01/2018 16:04	WG1159178
2,4-Dimethylphenol	ND		0.0100	1	09/01/2018 16:04	WG1159178
4,6-Dinitro-2-methylphenol	ND	J3	0.0100	1	09/01/2018 16:04	WG1159178
2,4-Dinitrophenol	ND		0.0100	1	09/01/2018 16:04	WG1159178
2-Nitrophenol	ND	J3	0.0100	1	09/01/2018 16:04	WG1159178
4-Nitrophenol	ND		0.0100	1	09/01/2018 16:04	WG1159178
Pentachlorophenol	ND	J3	0.0100	1	09/01/2018 16:04	WG1159178
Phenol	ND		0.0100	1	09/01/2018 16:04	WG1159178
2,4,6-Trichlorophenol	ND		0.0100	1	09/01/2018 16:04	WG1159178
(S) 2-Fluorophenol	*15.7*		*10.0-120*		*09/01/2018 16:04*	WG1159178
(S) Phenol-d5	*10.8*		*10.0-120*		*09/01/2018 16:04*	WG1159178
(S) Nitrobenzene-d5	*44.5*		*10.0-127*		*09/01/2018 16:04*	WG1159178
(S) 2-Fluorobiphenyl	*54.1*		*10.0-130*		*09/01/2018 16:04*	WG1159178
(S) 2,4,6-Tribromophenol	*26.2*		*10.0-155*		*09/01/2018 16:04*	WG1159178
(S) p-Terphenyl-d14	*65.8*		*10.0-128*		*09/01/2018 16:04*	WG1159178

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/04/2018 05:33	WG1159376

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 21:02	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 21:02	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 21:02	WG1158665
Benzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 21:02	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 21:02	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 21:02	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 21:02	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 21:02	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 21:02	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 21:02	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 21:02	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 21:02	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 21:02	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 21:02	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 21:02	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 21:02	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 21:02	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 21:02	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 21:02	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 21:02	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 21:02	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 21:02	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 21:02	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 21:02	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 21:02	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 21:02	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Styrene	ND		0.00100	1	08/28/2018 21:02	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Toluene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 21:02	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 21:02	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 21:02	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:02	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 21:02	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 21:02	WG1158665
(S) Toluene-d8	*101*		*80.0-120*		*08/28/2018 21:02*	WG1158665
(S) Dibromofluoromethane	*97.8*		*75.0-120*		*08/28/2018 21:02*	WG1158665
(S) 4-Bromofluorobenzene	*98.9*		*77.0-126*		*08/28/2018 21:02*	WG1158665

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Acenaphthylene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Anthracene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Benzidine	ND		0.0100	1	09/01/2018 14:51	WG1159178
Benzo(a)anthracene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Benzo(b)fluoranthene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Benzo(k)fluoranthene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Benzo(g,h,i)perylene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Benzo(a)pyrene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Bis(2-chlorethoxy)methane	ND		0.0100	1	09/01/2018 14:51	WG1159178
Bis(2-chloroethyl)ether	ND		0.0100	1	09/01/2018 14:51	WG1159178
Bis(2-chloroisopropyl)ether	ND		0.0100	1	09/01/2018 14:51	WG1159178
4-Bromophenyl-phenylether	ND		0.0100	1	09/01/2018 14:51	WG1159178
2-Chloronaphthalene	ND		0.00100	1	09/01/2018 14:51	WG1159178
4-Chlorophenyl-phenylether	ND		0.0100	1	09/01/2018 14:51	WG1159178
Chrysene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Dibenz(a,h)anthracene	ND		0.00100	1	09/01/2018 14:51	WG1159178
3,3-Dichlorobenzidine	ND		0.0100	1	09/01/2018 14:51	WG1159178
2,4-Dinitrotoluene	ND		0.0100	1	09/01/2018 14:51	WG1159178
2,6-Dinitrotoluene	ND		0.0100	1	09/01/2018 14:51	WG1159178
Fluoranthene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Fluorene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Hexachlorobenzene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Hexachloro-1,3-butadiene	ND		0.0100	1	09/01/2018 14:51	WG1159178
Hexachlorocyclopentadiene	ND		0.0100	1	09/01/2018 14:51	WG1159178
Hexachloroethane	ND		0.0100	1	09/01/2018 14:51	WG1159178
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Isophorone	ND		0.0100	1	09/01/2018 14:51	WG1159178
Naphthalene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Nitrobenzene	ND		0.0100	1	09/01/2018 14:51	WG1159178
n-Nitrosodimethylamine	ND		0.0100	1	09/01/2018 14:51	WG1159178
n-Nitrosodiphenylamine	ND		0.0100	1	09/01/2018 14:51	WG1159178

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
n-Nitrosodi-n-propylamine	ND		0.0100	1	09/01/2018 14:51	WG1159178
Phenanthrene	ND		0.00100	1	09/01/2018 14:51	WG1159178
Benzylbutyl phthalate	ND		0.00300	1	09/01/2018 14:51	WG1159178
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	09/01/2018 14:51	WG1159178
Di-n-butyl phthalate	ND		0.00300	1	09/01/2018 14:51	WG1159178
Diethyl phthalate	ND		0.00300	1	09/01/2018 14:51	WG1159178
Dimethyl phthalate	ND	J4	0.00300	1	09/01/2018 14:51	WG1159178
Di-n-octyl phthalate	ND		0.00300	1	09/01/2018 14:51	WG1159178
Pyrene	ND		0.00100	1	09/01/2018 14:51	WG1159178
1,2,4-Trichlorobenzene	ND		0.0100	1	09/01/2018 14:51	WG1159178
4-Chloro-3-methylphenol	ND		0.0100	1	09/01/2018 14:51	WG1159178
2-Chlorophenol	ND	J3 J4	0.0100	1	09/01/2018 14:51	WG1159178
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	09/01/2018 14:51	WG1159178
2,4-Dimethylphenol	ND		0.0100	1	09/01/2018 14:51	WG1159178
4,6-Dinitro-2-methylphenol	ND	J3	0.0100	1	09/01/2018 14:51	WG1159178
2,4-Dinitrophenol	ND		0.0100	1	09/01/2018 14:51	WG1159178
2-Nitrophenol	ND	J3	0.0100	1	09/01/2018 14:51	WG1159178
4-Nitrophenol	ND		0.0100	1	09/01/2018 14:51	WG1159178
Pentachlorophenol	ND	J3	0.0100	1	09/01/2018 14:51	WG1159178
Phenol	ND		0.0100	1	09/01/2018 14:51	WG1159178
2,4,6-Trichlorophenol	ND		0.0100	1	09/01/2018 14:51	WG1159178
(S) 2-Fluorophenol	*20.3*		*10.0-120*		*09/01/2018 14:51*	WG1159178
(S) Phenol-d5	*14.7*		*10.0-120*		*09/01/2018 14:51*	WG1159178
(S) Nitrobenzene-d5	*40.5*		*10.0-127*		*09/01/2018 14:51*	WG1159178
(S) 2-Fluorobiphenyl	*50.1*		*10.0-130*		*09/01/2018 14:51*	WG1159178
(S) 2,4,6-Tribromophenol	*24.3*		*10.0-155*		*09/01/2018 14:51*	WG1159178
(S) p-Terphenyl-d14	*67.6*		*10.0-128*		*09/01/2018 14:51*	WG1159178

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	09/04/2018 05:35	WG1159376

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND		0.0500	1	08/28/2018 21:21	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 21:21	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 21:21	WG1158665
Benzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 21:21	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 21:21	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 21:21	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 21:21	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 21:21	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 21:21	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 21:21	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 21:21	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 21:21	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 21:21	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 21:21	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 21:21	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 21:21	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 21:21	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 21:21	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 21:21	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 21:21	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 21:21	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 21:21	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 21:21	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 21:21	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 21:21	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 21:21	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Styrene	ND		0.00100	1	08/28/2018 21:21	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Toluene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 21:21	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 21:21	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 21:21	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:21	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 21:21	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 21:21	WG1158665
(S) Toluene-d8	*99.9*		*80.0-120*		*08/28/2018 21:21*	WG1158665
(S) Dibromofluoromethane	*96.8*		*75.0-120*		*08/28/2018 21:21*	WG1158665
(S) 4-Bromofluorobenzene	*99.1*		*77.0-126*		*08/28/2018 21:21*	WG1158665

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Acenaphthylene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Anthracene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Benzidine	ND		0.0100	1	09/01/2018 15:16	WG1159178
Benzo(a)anthracene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Benzo(b)fluoranthene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Benzo(k)fluoranthene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Benzo(g,h,i)perylene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Benzo(a)pyrene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Bis(2-chlorethoxy)methane	ND		0.0100	1	09/01/2018 15:16	WG1159178
Bis(2-chloroethyl)ether	ND		0.0100	1	09/01/2018 15:16	WG1159178
Bis(2-chloroisopropyl)ether	ND		0.0100	1	09/01/2018 15:16	WG1159178
4-Bromophenyl-phenylether	ND		0.0100	1	09/01/2018 15:16	WG1159178
2-Chloronaphthalene	ND		0.00100	1	09/01/2018 15:16	WG1159178
4-Chlorophenyl-phenylether	ND		0.0100	1	09/01/2018 15:16	WG1159178
Chrysene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Dibenz(a,h)anthracene	ND		0.00100	1	09/01/2018 15:16	WG1159178
3,3-Dichlorobenzidine	ND		0.0100	1	09/01/2018 15:16	WG1159178
2,4-Dinitrotoluene	ND		0.0100	1	09/01/2018 15:16	WG1159178
2,6-Dinitrotoluene	ND		0.0100	1	09/01/2018 15:16	WG1159178
Fluoranthene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Fluorene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Hexachlorobenzene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Hexachloro-1,3-butadiene	ND		0.0100	1	09/01/2018 15:16	WG1159178
Hexachlorocyclopentadiene	ND		0.0100	1	09/01/2018 15:16	WG1159178
Hexachloroethane	ND		0.0100	1	09/01/2018 15:16	WG1159178
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Isophorone	ND		0.0100	1	09/01/2018 15:16	WG1159178
Naphthalene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Nitrobenzene	ND		0.0100	1	09/01/2018 15:16	WG1159178
n-Nitrosodimethylamine	ND		0.0100	1	09/01/2018 15:16	WG1159178
n-Nitrosodiphenylamine	ND		0.0100	1	09/01/2018 15:16	WG1159178

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
n-Nitrosodi-n-propylamine	ND		0.0100	1	09/01/2018 15:16	WG1159178
Phenanthrene	ND		0.00100	1	09/01/2018 15:16	WG1159178
Benzylbutyl phthalate	ND		0.00300	1	09/01/2018 15:16	WG1159178
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	09/01/2018 15:16	WG1159178
Di-n-butyl phthalate	ND		0.00300	1	09/01/2018 15:16	WG1159178
Diethyl phthalate	ND		0.00300	1	09/01/2018 15:16	WG1159178
Dimethyl phthalate	ND	J4	0.00300	1	09/01/2018 15:16	WG1159178
Di-n-octyl phthalate	ND		0.00300	1	09/01/2018 15:16	WG1159178
Pyrene	ND		0.00100	1	09/01/2018 15:16	WG1159178
1,2,4-Trichlorobenzene	ND		0.0100	1	09/01/2018 15:16	WG1159178
4-Chloro-3-methylphenol	ND		0.0100	1	09/01/2018 15:16	WG1159178
2-Chlorophenol	ND	J3 J4	0.0100	1	09/01/2018 15:16	WG1159178
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	09/01/2018 15:16	WG1159178
2,4-Dimethylphenol	ND		0.0100	1	09/01/2018 15:16	WG1159178
4,6-Dinitro-2-methylphenol	ND	J3	0.0100	1	09/01/2018 15:16	WG1159178
2,4-Dinitrophenol	ND		0.0100	1	09/01/2018 15:16	WG1159178
2-Nitrophenol	ND	J3	0.0100	1	09/01/2018 15:16	WG1159178
4-Nitrophenol	ND		0.0100	1	09/01/2018 15:16	WG1159178
Pentachlorophenol	ND	J3	0.0100	1	09/01/2018 15:16	WG1159178
Phenol	ND		0.0100	1	09/01/2018 15:16	WG1159178
2,4,6-Trichlorophenol	ND		0.0100	1	09/01/2018 15:16	WG1159178
(S) 2-Fluorophenol	*16.2*		*10.0-120*		*09/01/2018 15:16*	WG1159178
(S) Phenol-d5	*13.0*		*10.0-120*		*09/01/2018 15:16*	WG1159178
(S) Nitrobenzene-d5	*38.7*		*10.0-127*		*09/01/2018 15:16*	WG1159178
(S) 2-Fluorobiphenyl	*46.6*		*10.0-130*		*09/01/2018 15:16*	WG1159178
(S) 2,4,6-Tribromophenol	*21.0*		*10.0-155*		*09/01/2018 15:16*	WG1159178
(S) p-Terphenyl-d14	*65.7*		*10.0-128*		*09/01/2018 15:16*	WG1159178

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	09/04/2018 05:38	WG1159376

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	08/28/2018 21:40	WG1158665
Acrolein	ND		0.0500	1	08/28/2018 21:40	WG1158665
Acrylonitrile	ND		0.0100	1	08/28/2018 21:40	WG1158665
Benzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Bromobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Bromodichloromethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
Bromoform	ND		0.00100	1	08/28/2018 21:40	WG1158665
Bromomethane	ND		0.00500	1	08/28/2018 21:40	WG1158665
n-Butylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
sec-Butylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
tert-Butylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Carbon tetrachloride	ND		0.00100	1	08/28/2018 21:40	WG1158665
Chlorobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Chlorodibromomethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
Chloroethane	ND		0.00500	1	08/28/2018 21:40	WG1158665
2-Chloroethyl vinyl ether	ND		0.0500	1	08/28/2018 21:40	WG1158665
Chloroform	ND		0.00500	1	08/28/2018 21:40	WG1158665
Chloromethane	ND		0.00250	1	08/28/2018 21:40	WG1158665
2-Chlorotoluene	ND		0.00100	1	08/28/2018 21:40	WG1158665
4-Chlorotoluene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	08/28/2018 21:40	WG1158665
1,2-Dibromoethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
Dibromomethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,3-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,4-Dichlorobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Dichlorodifluoromethane	ND		0.00500	1	08/28/2018 21:40	WG1158665
1,1-Dichloroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2-Dichloroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,1-Dichloroethene	ND		0.00100	1	08/28/2018 21:40	WG1158665
cis-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 21:40	WG1158665
trans-1,2-Dichloroethene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2-Dichloropropane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,1-Dichloropropene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,3-Dichloropropane	ND		0.00100	1	08/28/2018 21:40	WG1158665
cis-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 21:40	WG1158665
trans-1,3-Dichloropropene	ND		0.00100	1	08/28/2018 21:40	WG1158665
2,2-Dichloropropane	ND		0.00100	1	08/28/2018 21:40	WG1158665
Di-isopropyl ether	ND		0.00100	1	08/28/2018 21:40	WG1158665
Ethylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Hexachloro-1,3-butadiene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Isopropylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
p-Isopropyltoluene	ND		0.00100	1	08/28/2018 21:40	WG1158665
2-Butanone (MEK)	ND		0.0100	1	08/28/2018 21:40	WG1158665
Methylene Chloride	ND		0.00500	1	08/28/2018 21:40	WG1158665
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	08/28/2018 21:40	WG1158665
Methyl tert-butyl ether	ND		0.00100	1	08/28/2018 21:40	WG1158665
Naphthalene	ND		0.00500	1	08/28/2018 21:40	WG1158665
n-Propylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Styrene	ND		0.00100	1	08/28/2018 21:40	WG1158665

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,1,2,2-Tetrachloroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
Tetrachloroethene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Toluene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2,3-Trichlorobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2,4-Trichlorobenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,1,1-Trichloroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,1,2-Trichloroethane	ND		0.00100	1	08/28/2018 21:40	WG1158665
Trichloroethene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Trichlorofluoromethane	ND		0.00500	1	08/28/2018 21:40	WG1158665
1,2,3-Trichloropropane	ND		0.00250	1	08/28/2018 21:40	WG1158665
1,2,4-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,2,3-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
1,3,5-Trimethylbenzene	ND		0.00100	1	08/28/2018 21:40	WG1158665
Vinyl chloride	ND		0.00100	1	08/28/2018 21:40	WG1158665
Xylenes, Total	ND		0.00300	1	08/28/2018 21:40	WG1158665
(S) Toluene-d8	*98.9*		*80.0-120*		*08/28/2018 21:40*	WG1158665
(S) Dibromofluoromethane	*100*		*75.0-120*		*08/28/2018 21:40*	WG1158665
(S) 4-Bromofluorobenzene	*97.8*		*77.0-126*		*08/28/2018 21:40*	WG1158665

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Acenaphthylene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Anthracene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Benzidine	ND		0.0100	1	09/01/2018 15:40	WG1159178
Benzo(a)anthracene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Benzo(b)fluoranthene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Benzo(k)fluoranthene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Benzo(g,h,i)perylene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Benzo(a)pyrene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Bis(2-chlorethoxy)methane	ND		0.0100	1	09/01/2018 15:40	WG1159178
Bis(2-chloroethyl)ether	ND		0.0100	1	09/01/2018 15:40	WG1159178
Bis(2-chloroisopropyl)ether	ND		0.0100	1	09/01/2018 15:40	WG1159178
4-Bromophenyl-phenylether	ND		0.0100	1	09/01/2018 15:40	WG1159178
2-Chloronaphthalene	ND		0.00100	1	09/01/2018 15:40	WG1159178
4-Chlorophenyl-phenylether	ND		0.0100	1	09/01/2018 15:40	WG1159178
Chrysene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Dibenz(a,h)anthracene	ND		0.00100	1	09/01/2018 15:40	WG1159178
3,3-Dichlorobenzidine	ND		0.0100	1	09/01/2018 15:40	WG1159178
2,4-Dinitrotoluene	ND		0.0100	1	09/01/2018 15:40	WG1159178
2,6-Dinitrotoluene	ND		0.0100	1	09/01/2018 15:40	WG1159178
Fluoranthene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Fluorene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Hexachlorobenzene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Hexachloro-1,3-butadiene	ND		0.0100	1	09/01/2018 15:40	WG1159178
Hexachlorocyclopentadiene	ND		0.0100	1	09/01/2018 15:40	WG1159178
Hexachloroethane	ND		0.0100	1	09/01/2018 15:40	WG1159178
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Isophorone	ND		0.0100	1	09/01/2018 15:40	WG1159178
Naphthalene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Nitrobenzene	ND		0.0100	1	09/01/2018 15:40	WG1159178
n-Nitrosodimethylamine	ND		0.0100	1	09/01/2018 15:40	WG1159178
n-Nitrosodiphenylamine	ND		0.0100	1	09/01/2018 15:40	WG1159178

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
n-Nitrosodi-n-propylamine	ND		0.0100	1	09/01/2018 15:40	WG1159178
Phenanthrene	ND		0.00100	1	09/01/2018 15:40	WG1159178
Benzylbutyl phthalate	ND		0.00300	1	09/01/2018 15:40	WG1159178
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	09/01/2018 15:40	WG1159178
Di-n-butyl phthalate	ND		0.00300	1	09/01/2018 15:40	WG1159178
Diethyl phthalate	ND		0.00300	1	09/01/2018 15:40	WG1159178
Dimethyl phthalate	ND	J4	0.00300	1	09/01/2018 15:40	WG1159178
Di-n-octyl phthalate	ND		0.00300	1	09/01/2018 15:40	WG1159178
Pyrene	ND		0.00100	1	09/01/2018 15:40	WG1159178
1,2,4-Trichlorobenzene	ND		0.0100	1	09/01/2018 15:40	WG1159178
4-Chloro-3-methylphenol	ND		0.0100	1	09/01/2018 15:40	WG1159178
2-Chlorophenol	ND	J3 J4	0.0100	1	09/01/2018 15:40	WG1159178
2,4-Dichlorophenol	ND	J3 J4	0.0100	1	09/01/2018 15:40	WG1159178
2,4-Dimethylphenol	ND		0.0100	1	09/01/2018 15:40	WG1159178
4,6-Dinitro-2-methylphenol	ND	J3	0.0100	1	09/01/2018 15:40	WG1159178
2,4-Dinitrophenol	ND		0.0100	1	09/01/2018 15:40	WG1159178
2-Nitrophenol	ND	J3	0.0100	1	09/01/2018 15:40	WG1159178
4-Nitrophenol	ND		0.0100	1	09/01/2018 15:40	WG1159178
Pentachlorophenol	ND	J3	0.0100	1	09/01/2018 15:40	WG1159178
Phenol	ND		0.0100	1	09/01/2018 15:40	WG1159178
2,4,6-Trichlorophenol	ND		0.0100	1	09/01/2018 15:40	WG1159178
(S) 2-Fluorophenol	*16.1*		*10.0-120*		*09/01/2018 15:40*	WG1159178
(S) Phenol-d5	*13.3*		*10.0-120*		*09/01/2018 15:40*	WG1159178
(S) Nitrobenzene-d5	*41.3*		*10.0-127*		*09/01/2018 15:40*	WG1159178
(S) 2-Fluorobiphenyl	*52.2*		*10.0-130*		*09/01/2018 15:40*	WG1159178
(S) 2,4,6-Tribromophenol	*22.0*		*10.0-155*		*09/01/2018 15:40*	WG1159178
(S) p-Terphenyl-d14	*69.8*		*10.0-128*		*09/01/2018 15:40*	WG1159178

Method Blank (MB)

(MB) R3338582-1 08/30/18 16:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

L1020725-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1020725-01 08/30/18 16:22 • (DUP) R3338582-4 08/30/18 16:22

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	251	257	1	2.36		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338582-2 08/30/18 16:22 • (LCSD) R3338582-3 08/30/18 16:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800	8570	8630	97.4	98.1	85.0-115			0.698	10

Method Blank (MB)

(MB) R3338584-1 08/30/18 14:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Dissolved Solids	U		2.82	10.0

L1021020-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1021020-01 08/30/18 14:33 • (DUP) R3338584-4 08/30/18 14:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Dissolved Solids	1740	1740	1	0.000		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338584-2 08/30/18 14:33 • (LCSD) R3338584-3 08/30/18 14:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Dissolved Solids	8800	8580	8410	97.5	95.6	85.0-115			2.00	10

Method Blank (MB)

(MB) R3338532-1 08/30/18 16:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Suspended Solids	U		0.350	2.50

L1020719-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1020719-01 08/30/18 16:11 • (DUP) R3338532-4 08/30/18 16:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Suspended Solids	270	312	1	14.4	J3	10

L1020721-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1020721-01 08/30/18 16:11 • (DUP) R3338532-5 08/30/18 16:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Suspended Solids	110	104	1	5.45		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338532-2 08/30/18 16:11 • (LCSD) R3338532-3 08/30/18 16:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Suspended Solids	773	740	788	95.7	102	85.0-115			6.28	10

Method Blank (MB)

(MB) R3337769-1 08/29/18 17:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hardness (colorimetric) as CaCO3	6.36	J	1.43	30.0

L1019214-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1019214-03 08/29/18 17:19 • (DUP) R3337769-4 08/29/18 17:20

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	182	178	1	2.22		20

L1021224-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1021224-03 08/29/18 17:51 • (DUP) R3337769-7 08/29/18 17:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	200	249	5	21.8	P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337769-2 08/29/18 17:17 • (LCSD) R3337769-3 08/29/18 17:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	150	154	152	103	101	85.0-115			1.31	20

L1021224-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021224-04 08/29/18 17:40 • (MS) R3337769-5 08/29/18 17:41 • (MSD) R3337769-6 08/29/18 17:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	150	218	255	250	24.7	21.3	1	80.0-120	E J6	E J6	1.98	20

Method Blank (MB)

(MB) R3338466-1 08/31/18 12:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		2.71	20.0

Sample Narrative:

BLANK: Endpoint pH 4.5

L1021073-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1021073-01 08/31/18 12:21 • (DUP) R3338466-3 08/31/18 12:27

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	119	119	1	0.435		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

L1020728-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1020728-04 08/31/18 15:34 • (DUP) R3338466-6 08/31/18 15:41

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	471	471	1	0.0549		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338466-4 08/31/18 13:49 • (LCSD) R3338466-5 08/31/18 15:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Alkalinity	100	109	102	109	102	85.0-115			6.57	20

Sample Narrative:

LCS: Endpoint pH 4.5

LCSD: Endpoint pH 4.5

Method Blank (MB)

(MB) R3338438-1 08/31/18 12:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Nitrate-Nitrite	U		0.0197	0.100

Method Blank (MB)

(MB) R3338438-8 08/31/18 15:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Nitrate-Nitrite	U		0.0197	0.100

L1021265-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1021265-02 08/31/18 12:45 • (DUP) R3338438-5 08/31/18 12:46

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	U	0.000	1	0.000		20

L1017520-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1017520-01 08/31/18 15:32 • (DUP) R3338438-9 08/31/18 15:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	7.77	7.68	2	1.15		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338438-2 08/31/18 12:01 • (LCSD) R3338438-3 08/31/18 12:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Nitrate-Nitrite	4.00	3.78	3.84	94.5	96.0	90.0-110			1.50	20

L1021174-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1021174-03 08/31/18 12:22 • (MS) R3338438-4 08/31/18 12:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate-Nitrite	2.50	ND	2.46	98.3	1	90.0-110	

L1021265-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021265-03 08/31/18 12:48 • (MS) R3338438-6 08/31/18 12:49 • (MSD) R3338438-7 08/31/18 12:51

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate-Nitrite	2.50	U	2.05	2.06	81.8	82.6	1	90.0-110	J6	J6	0.876	20

Method Blank (MB)

(MB) R3338109-1 08/30/18 15:41

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Phosphorus,Total	U		0.0350	0.100

L1021094-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1021094-01 08/30/18 15:46 • (DUP) R3338109-4 08/30/18 15:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	0.338	0.318	1	6.10		20

L1021211-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1021211-01 08/30/18 16:15 • (DUP) R3338109-8 08/30/18 16:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	7.15	6.25	5	13.4		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338109-2 08/30/18 15:43 • (LCSD) R3338109-3 08/30/18 15:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	2.00	1.92	1.94	96.0	97.0	90.0-110			1.04	20

L1021174-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021174-04 08/30/18 15:53 • (MS) R3338109-5 08/30/18 15:57 • (MSD) R3338109-6 08/30/18 15:58

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	2.50	0.245	2.35	0.0553	84.2	0.000	1	90.0-110	J6	J3 J6	191	20

Method Blank (MB)

(MB) R3338285-1 08/31/18 08:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	0.0000869	J	0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338285-2 08/31/18 08:15 • (LCSD) R3338285-3 08/31/18 08:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00311	0.00307	104	102	80.0-120			1.20	20

L1020805-25 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020805-25 08/31/18 08:20 • (MS) R3338285-4 08/31/18 08:22 • (MSD) R3338285-5 08/31/18 08:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.0000633	0.00314	0.00303	103	98.9	1	75.0-125			3.51	20

Method Blank (MB)

(MB) R3337712-1 08/29/18 14:49

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337712-2 08/29/18 14:51 • (LCSD) R3337712-3 08/29/18 14:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	0.00293	0.00297	97.6	99.1	80.0-120			1.56	20

L1021111-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021111-01 08/29/18 14:55 • (MS) R3337712-4 08/29/18 14:57 • (MSD) R3337712-5 08/29/18 14:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	ND	0.00270	0.00278	90.0	92.6	1	75.0-125			2.88	20

Method Blank (MB)

(MB) R3338741-1 09/04/18 05:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338741-2 09/04/18 05:17 • (LCSD) R3338741-3 09/04/18 05:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00256	0.00261	85.4	86.9	80.0-120			1.74	20

L1021224-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021224-05 09/04/18 05:22 • (MS) R3338741-4 09/04/18 05:25 • (MSD) R3338741-5 09/04/18 05:27

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.000351	0.00333	0.00335	99.4	99.8	1	75.0-125			0.356	20

Method Blank (MB)

(MB) R3337820-1 08/29/18 19:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic,Dissolved	U		0.00650	0.0100
Barium,Dissolved	U		0.00170	0.00500
Cadmium,Dissolved	U		0.000700	0.00200
Chromium,Dissolved	U		0.00140	0.0100
Lead,Dissolved	0.00238	J	0.00190	0.00500
Selenium,Dissolved	U		0.00740	0.0100
Silver,Dissolved	U		0.00280	0.00500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337820-2 08/29/18 19:41 • (LCSD) R3337820-3 08/29/18 19:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic,Dissolved	1.00	1.02	1.04	102	104	80.0-120			1.90	20
Barium,Dissolved	1.00	1.07	1.08	107	108	80.0-120			1.61	20
Cadmium,Dissolved	1.00	1.05	1.06	105	106	80.0-120			1.62	20
Chromium,Dissolved	1.00	0.985	1.00	98.5	100	80.0-120			1.98	20
Lead,Dissolved	1.00	0.981	1.00	98.1	100	80.0-120			2.24	20
Selenium,Dissolved	1.00	1.04	1.05	104	105	80.0-120			0.990	20
Silver,Dissolved	0.200	0.202	0.205	101	103	80.0-120			1.59	20

L1020760-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020760-04 08/29/18 19:46 • (MS) R3337820-5 08/29/18 19:52 • (MSD) R3337820-6 08/29/18 19:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic,Dissolved	1.00	0.0374	1.06	1.05	102	101	1	75.0-125			0.636	20
Barium,Dissolved	1.00	ND	1.08	1.07	108	107	1	75.0-125			0.934	20
Cadmium,Dissolved	1.00	0.00421	1.14	1.13	113	112	1	75.0-125			0.799	20
Chromium,Dissolved	1.00	0.0415	1.00	0.996	96.1	95.4	1	75.0-125			0.704	20
Lead,Dissolved	1.00	0.569	1.59	1.59	103	102	1	75.0-125			0.258	20
Selenium,Dissolved	1.00	0.0206	1.07	1.07	105	105	1	75.0-125			0.289	20
Silver,Dissolved	0.200	ND	0.235	0.233	118	117	1	75.0-125			0.761	20

Method Blank (MB)

(MB) R3338545-4 08/28/18 15:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrolein	U		0.00887	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
2-Chloroethyl vinyl ether	U		0.00301	0.0500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
Di-isopropyl ether	U		0.000320	0.00100
Ethylbenzene	U		0.000384	0.00100

Method Blank (MB)

(MB) R3338545-4 08/28/18 15:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexachloro-1,3-butadiene	U		0.000256	0.00100
Isopropylbenzene	U		0.000326	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100
1,2,3-Trichlorobenzene	U		0.000230	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
1,2,3-Trimethylbenzene	U		0.000321	0.00100
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*98.1*			*80.0-120*
(S) Dibromofluoromethane	*96.3*			*75.0-120*
(S) 4-Bromofluorobenzene	*99.7*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338545-1 08/28/18 13:17 • (LCSD) R3338545-2 08/28/18 14:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.128	0.113	103	90.3	19.0-160			12.7	27
Acrolein	0.125	0.0953	0.101	76.2	81.0	10.0-160			6.05	26
Acrylonitrile	0.125	0.133	0.132	107	106	55.0-149			0.764	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338545-1 08/28/18 13:17 • (LCSD) R3338545-2 08/28/18 14:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0247	0.0253	98.8	101	70.0-123			2.36	20
Bromobenzene	0.0250	0.0256	0.0258	102	103	73.0-121			0.790	20
Bromodichloromethane	0.0250	0.0254	0.0259	101	104	75.0-120			2.26	20
Bromoform	0.0250	0.0300	0.0298	120	119	68.0-132			0.576	20
Bromomethane	0.0250	0.0214	0.0246	85.5	98.6	10.0-160			14.2	25
n-Butylbenzene	0.0250	0.0243	0.0250	97.0	100	73.0-125			3.18	20
sec-Butylbenzene	0.0250	0.0259	0.0266	103	107	75.0-125			2.92	20
tert-Butylbenzene	0.0250	0.0267	0.0278	107	111	76.0-124			4.29	20
Carbon tetrachloride	0.0250	0.0231	0.0243	92.4	97.1	68.0-126			4.92	20
Chlorobenzene	0.0250	0.0269	0.0272	108	109	80.0-121			0.960	20
Chlorodibromomethane	0.0250	0.0279	0.0277	112	111	77.0-125			0.771	20
Chloroethane	0.0250	0.0210	0.0241	84.1	96.4	47.0-150			13.6	20
2-Chloroethyl vinyl ether	0.125	0.136	0.132	109	106	51.0-160			2.88	20
Chloroform	0.0250	0.0253	0.0257	101	103	73.0-120			1.72	20
Chloromethane	0.0250	0.0195	0.0206	77.9	82.6	41.0-142			5.83	20
2-Chlorotoluene	0.0250	0.0265	0.0274	106	110	76.0-123			3.48	20
4-Chlorotoluene	0.0250	0.0264	0.0270	106	108	75.0-122			2.25	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0249	0.0264	99.8	106	58.0-134			5.62	20
1,2-Dibromoethane	0.0250	0.0267	0.0263	107	105	80.0-122			1.54	20
Dibromomethane	0.0250	0.0251	0.0256	101	102	80.0-120			1.84	20
1,2-Dichlorobenzene	0.0250	0.0250	0.0255	100	102	79.0-121			2.00	20
1,3-Dichlorobenzene	0.0250	0.0256	0.0263	102	105	79.0-120			2.82	20
1,4-Dichlorobenzene	0.0250	0.0252	0.0259	101	103	79.0-120			2.72	20
Dichlorodifluoromethane	0.0250	0.0186	0.0202	74.6	80.9	51.0-149			8.11	20
1,1-Dichloroethane	0.0250	0.0258	0.0261	103	104	70.0-126			1.13	20
1,2-Dichloroethane	0.0250	0.0245	0.0249	98.0	99.6	70.0-128			1.60	20
1,1-Dichloroethene	0.0250	0.0228	0.0231	91.4	92.4	71.0-124			1.08	20
cis-1,2-Dichloroethene	0.0250	0.0260	0.0267	104	107	73.0-120			2.95	20
trans-1,2-Dichloroethene	0.0250	0.0257	0.0267	103	107	73.0-120			3.67	20
1,2-Dichloropropane	0.0250	0.0256	0.0267	103	107	77.0-125			3.95	20
1,1-Dichloropropene	0.0250	0.0249	0.0257	99.6	103	74.0-126			3.05	20
1,3-Dichloropropane	0.0250	0.0264	0.0260	106	104	80.0-120			1.86	20
cis-1,3-Dichloropropene	0.0250	0.0275	0.0274	110	110	80.0-123			0.485	20
trans-1,3-Dichloropropene	0.0250	0.0277	0.0274	111	110	78.0-124			0.908	20
2,2-Dichloropropane	0.0250	0.0228	0.0245	91.1	97.9	58.0-130			7.27	20
Di-isopropyl ether	0.0250	0.0250	0.0252	100	101	58.0-138			0.715	20
Ethylbenzene	0.0250	0.0261	0.0264	104	106	79.0-123			1.22	20
Hexachloro-1,3-butadiene	0.0250	0.0268	0.0267	107	107	54.0-138			0.318	20
Isopropylbenzene	0.0250	0.0260	0.0271	104	108	76.0-127			4.09	20
p-Isopropyltoluene	0.0250	0.0259	0.0270	104	108	76.0-125			3.86	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338545-1 08/28/18 13:17 • (LCSD) R3338545-2 08/28/18 14:06

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2-Butanone (MEK)	0.125	0.127	0.126	102	101	44.0-160			0.537	20
Methylene Chloride	0.0250	0.0223	0.0230	89.4	91.8	67.0-120			2.71	20
4-Methyl-2-pentanone (MIBK)	0.125	0.138	0.133	110	106	68.0-142			3.39	20
Methyl tert-butyl ether	0.0250	0.0218	0.0235	87.0	93.8	68.0-125			7.51	20
Naphthalene	0.0250	0.0239	0.0250	95.7	99.9	54.0-135			4.33	20
n-Propylbenzene	0.0250	0.0259	0.0267	104	107	77.0-124			2.97	20
Styrene	0.0250	0.0275	0.0279	110	112	73.0-130			1.43	20
1,1,1,2-Tetrachloroethane	0.0250	0.0280	0.0278	112	111	75.0-125			0.572	20
1,1,2,2-Tetrachloroethane	0.0250	0.0276	0.0273	110	109	65.0-130			1.06	20
Tetrachloroethene	0.0250	0.0271	0.0274	108	110	72.0-132			1.27	20
Toluene	0.0250	0.0256	0.0257	102	103	79.0-120			0.229	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0236	0.0258	94.4	103	69.0-132			8.95	20
1,2,3-Trichlorobenzene	0.0250	0.0240	0.0250	96.1	100	50.0-138			4.12	20
1,2,4-Trichlorobenzene	0.0250	0.0250	0.0266	100	106	57.0-137			6.01	20
1,1,1-Trichloroethane	0.0250	0.0236	0.0249	94.2	99.7	73.0-124			5.64	20
1,1,2-Trichloroethane	0.0250	0.0268	0.0263	107	105	80.0-120			2.00	20
Trichloroethene	0.0250	0.0267	0.0269	107	108	78.0-124			0.687	20
Trichlorofluoromethane	0.0250	0.0210	0.0225	83.9	90.0	59.0-147			7.03	20
1,2,3-Trichloropropane	0.0250	0.0281	0.0276	113	110	73.0-130			1.93	20
1,2,3-Trimethylbenzene	0.0250	0.0242	0.0250	97.0	100	77.0-120			3.16	20
1,2,4-Trimethylbenzene	0.0250	0.0258	0.0270	103	108	76.0-121			4.34	20
1,3,5-Trimethylbenzene	0.0250	0.0264	0.0277	106	111	76.0-122			4.52	20
Vinyl chloride	0.0250	0.0220	0.0247	87.8	99.0	67.0-131			12.0	20
Xylenes, Total	0.0750	0.0776	0.0785	103	105	79.0-123			1.15	20
(S) Toluene-d8				*100*	*98.5*	*80.0-120*				
(S) Dibromofluoromethane				*96.2*	*95.9*	*75.0-120*				
(S) 4-Bromofluorobenzene				*98.8*	*97.5*	*77.0-126*				

L1021202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021202-01 08/28/18 18:09 • (MS) R3338545-5 08/28/18 21:59 • (MSD) R3338545-6 08/28/18 22:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0234	0.119	0.137	76.6	90.7	1	10.0-160			13.8	35
Acrolein	0.125	U	0.197	0.231	157	185	1	10.0-160		J5	16.3	39
Acrylonitrile	0.125	U	0.134	0.150	107	120	1	21.0-160			11.3	32
Benzene	0.0250	0.209	0.203	0.244	0.000	138	1	17.0-158	E V	E	18.3	27
Bromobenzene	0.0250	U	0.0276	0.0328	110	131	1	30.0-149			17.4	28
Bromodichloromethane	0.0250	U	0.0265	0.0303	106	121	1	31.0-150			13.7	27

L1021202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021202-01 08/28/18 18:09 • (MS) R3338545-5 08/28/18 21:59 • (MSD) R3338545-6 08/28/18 22:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	U	0.0291	0.0342	117	137	1	29.0-150			15.9	29
Bromomethane	0.0250	U	0.0191	0.0284	76.5	114	1	10.0-160		J3	39.0	38
n-Butylbenzene	0.0250	U	0.0232	0.0302	92.9	121	1	31.0-150			26.1	30
sec-Butylbenzene	0.0250	U	0.0255	0.0320	102	128	1	33.0-155			22.8	29
tert-Butylbenzene	0.0250	U	0.0272	0.0335	109	134	1	34.0-153			20.7	28
Carbon tetrachloride	0.0250	U	0.0277	0.0327	111	131	1	23.0-159			16.5	28
Chlorobenzene	0.0250	U	0.0270	0.0305	108	122	1	33.0-152			12.1	27
Chlorodibromomethane	0.0250	U	0.0277	0.0312	111	125	1	37.0-149			12.0	27
Chloroethane	0.0250	0.00617	0.0220	0.0334	63.3	109	1	10.0-160		J3	41.3	30
2-Chloroethyl vinyl ether	0.125	U	ND	ND	0.000	0.000	1	10.0-160	J6	J6	0.000	31
Chloroform	0.0250	U	0.0280	0.0318	112	127	1	29.0-154			12.8	28
Chloromethane	0.0250	U	0.0188	0.0227	75.4	90.8	1	10.0-160			18.5	29
2-Chlorotoluene	0.0250	U	0.0342	0.0412	137	165	1	32.0-153		J5	18.4	28
4-Chlorotoluene	0.0250	U	0.0264	0.0322	106	129	1	32.0-150			19.6	28
1,2-Dibromo-3-Chloropropane	0.0250	U	0.0253	0.0307	101	123	1	22.0-151			19.3	34
1,2-Dibromoethane	0.0250	U	0.0269	0.0298	108	119	1	34.0-147			10.4	27
Dibromomethane	0.0250	U	0.0262	0.0296	105	118	1	30.0-151			12.0	27
1,2-Dichlorobenzene	0.0250	U	0.0246	0.0293	98.4	117	1	34.0-149			17.5	28
1,3-Dichlorobenzene	0.0250	U	0.0252	0.0311	101	124	1	36.0-146			20.7	27
1,4-Dichlorobenzene	0.0250	U	0.0246	0.0295	98.5	118	1	35.0-142			17.9	27
Dichlorodifluoromethane	0.0250	U	0.0173	0.0227	69.1	90.9	1	10.0-160			27.3	29
1,1-Dichloroethane	0.0250	U	0.0282	0.0320	113	128	1	25.0-158			12.8	27
1,2-Dichloroethane	0.0250	U	0.0263	0.0294	105	118	1	29.0-151			11.3	27
1,1-Dichloroethene	0.0250	U	0.0279	0.0341	112	136	1	11.0-160			19.8	29
cis-1,2-Dichloroethene	0.0250	U	0.0288	0.0330	115	132	1	10.0-160			13.8	27
trans-1,2-Dichloroethene	0.0250	U	0.0279	0.0315	111	126	1	17.0-153			12.3	27
1,2-Dichloropropane	0.0250	U	0.0266	0.0308	106	123	1	30.0-156			14.5	27
1,1-Dichloropropene	0.0250	U	0.0276	0.0322	110	129	1	25.0-158			15.4	27
1,3-Dichloropropane	0.0250	U	0.0265	0.0295	106	118	1	38.0-147			10.9	27
cis-1,3-Dichloropropene	0.0250	U	0.0274	0.0310	110	124	1	34.0-149			12.1	28
trans-1,3-Dichloropropene	0.0250	U	0.0272	0.0305	109	122	1	32.0-149			11.4	28
2,2-Dichloropropane	0.0250	U	0.0259	0.0316	104	126	1	24.0-152			19.6	29
Di-isopropyl ether	0.0250	U	0.0277	0.0315	111	126	1	21.0-160			12.8	28
Ethylbenzene	0.0250	0.506	0.445	0.535	0.000	114	1	30.0-155	E V	E	18.3	27
Hexachloro-1,3-butadiene	0.0250	U	0.0183	0.0287	73.0	115	1	20.0-154		J3	44.5	34
Isopropylbenzene	0.0250	0.0589	0.0766	0.0938	70.7	140	1	28.0-157			20.2	27
p-Isopropyltoluene	0.0250	U	0.0565	0.0679	226	272	1	30.0-154	J5	J5	18.3	29
2-Butanone (MEK)	0.125	U	0.127	0.144	101	116	1	10.0-160			13.0	32
Methylene Chloride	0.0250	U	0.0253	0.0304	101	121	1	23.0-144			18.2	28
4-Methyl-2-pentanone (MIBK)	0.125	U	0.148	0.157	118	126	1	29.0-160			6.43	29

L1021202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021202-01 08/28/18 18:09 • (MS) R3338545-5 08/28/18 21:59 • (MSD) R3338545-6 08/28/18 22:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Methyl tert-butyl ether	0.0250	U	0.0247	0.0297	98.7	119	1	28.0-150			18.3	29
Naphthalene	0.0250	1.37	1.28	1.32	0.000	0.000	1	12.0-156	E V	E V	2.52	35
n-Propylbenzene	0.0250	0.0185	0.0412	0.0502	90.9	127	1	31.0-154			19.8	28
Styrene	0.0250	0.0261	0.0476	0.0585	86.1	130	1	33.0-155			20.5	28
1,1,1,2-Tetrachloroethane	0.0250	U	0.0273	0.0315	109	126	1	36.0-151			14.1	29
1,1,2,2-Tetrachloroethane	0.0250	U	0.0284	0.0336	114	134	1	33.0-150			16.7	28
Tetrachloroethene	0.0250	U	0.0274	0.0313	110	125	1	10.0-160			13.2	27
Toluene	0.0250	0.220	0.197	0.239	0.000	75.5	1	26.0-154	V	E	19.4	28
1,1,2-Trichlorotrifluoroethane	0.0250	U	0.0240	0.0378	96.0	151	1	23.0-160		J3	44.6	30
1,2,3-Trichlorobenzene	0.0250	U	0.0149	0.0189	59.5	75.8	1	17.0-150			24.1	36
1,2,4-Trichlorobenzene	0.0250	U	0.0178	0.0228	71.4	91.4	1	24.0-150			24.6	33
1,1,1-Trichloroethane	0.0250	U	0.0276	0.0328	110	131	1	23.0-160			17.1	28
1,1,2-Trichloroethane	0.0250	U	0.0268	0.0303	107	121	1	35.0-147			12.4	27
Trichloroethene	0.0250	U	0.0270	0.0318	108	127	1	10.0-160			16.3	25
Trichlorofluoromethane	0.0250	U	0.0221	0.0297	88.4	119	1	17.0-160			29.4	31
1,2,3-Trichloropropane	0.0250	U	0.0280	0.0326	112	130	1	34.0-151			15.1	29
1,2,3-Trimethylbenzene	0.0250	0.0774	0.0894	0.107	47.9	119	1	32.0-149			18.0	28
1,2,4-Trimethylbenzene	0.0250	0.231	0.216	0.260	0.000	116	1	26.0-154	E V	E	18.7	27
1,3,5-Trimethylbenzene	0.0250	0.0889	0.101	0.122	48.9	131	1	28.0-153			18.5	27
Vinyl chloride	0.0250	U	0.0225	0.0297	90.0	119	1	10.0-160		J3	27.5	27
Xylenes, Total	0.0750	0.501	0.487	0.585	0.000	112	1	29.0-154	E V	E	18.3	28
(S) Toluene-d8					*99.9*	*96.8*		*80.0-120*				
(S) Dibromofluoromethane					*101*	*102*		*75.0-120*				
(S) 4-Bromofluorobenzene					*99.9*	*100*		*77.0-126*				

Method Blank (MB)

(MB) R3337743-1 08/29/18 15:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4-D	U		0.000744	0.00200
Dalapon	U		0.00104	0.00200
2,4-DB	U		0.000775	0.00400
Dicamba	U		0.000813	0.00200
Dichloroprop	U		0.000778	0.00200
Dinoseb	U		0.000795	0.00200
MCPA	U		0.0131	0.200
MCPP	U		0.00715	0.200
2,4,5-T	U		0.000843	0.00200
2,4,5-TP (Silvex)	U		0.000845	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	*80.0*			*14.0-158*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337743-2 08/29/18 15:16 • (LCSD) R3337743-3 08/29/18 15:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2,4-D	0.00500	0.00501	0.00532	100	106	50.0-120			6.00	20
Dalapon	0.00500	0.00420	0.00459	84.0	91.8	32.0-120			8.87	20
2,4-DB	0.00500	0.00433	0.00465	86.6	93.0	53.0-140			7.13	20
Dicamba	0.00500	0.00379	0.00411	75.8	82.2	51.0-120			8.10	20
Dichloroprop	0.00500	0.00445	0.00482	89.0	96.4	55.0-127			7.98	20
Dinoseb	0.00500	0.00407	0.00447	81.4	89.4	36.0-134			9.37	20
MCPA	0.0500	0.0341	0.0291	68.2	58.2	10.0-160			15.8	40
MCPP	0.0500	0.0657	0.0531	131	106	10.0-160			21.2	23
2,4,5-T	0.00500	0.00408	0.00446	81.6	89.2	54.0-120			8.90	20
2,4,5-TP (Silvex)	0.00500	0.00404	0.00439	80.8	87.8	50.0-125			8.30	20
(S) 2,4-Dichlorophenyl Acetic Acid				*80.2*	*85.8*	*14.0-158*				

Method Blank (MB)

(MB) R3337691-3 08/29/18 11:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aldrin	U		0.00000813	0.0000500
Alpha BHC	U		0.0000166	0.0000500
Beta BHC	U		0.0000184	0.0000500
Delta BHC	U		0.0000197	0.0000500
Gamma BHC	U		0.0000176	0.0000500
4,4-DDD	U		0.0000170	0.0000500
4,4-DDE	U		0.0000164	0.0000500
4,4-DDT	U		0.0000177	0.0000500
Dieldrin	U		0.00000751	0.0000500
Endosulfan I	U		0.0000179	0.0000500
Endosulfan II	U		0.0000176	0.0000500
Endosulfan sulfate	U		0.0000196	0.0000500
Endrin	U		0.0000189	0.0000500
Endrin aldehyde	U		0.0000142	0.0000500
Endrin ketone	U		0.0000170	0.0000500
Heptachlor	U		0.0000108	0.0000500
Heptachlor epoxide	U		0.0000175	0.0000500
Hexachlorobenzene	U		0.0000134	0.0000500
Methoxychlor	U		0.0000193	0.0000500
Chlordane	U		0.0000977	0.000500
Toxaphene	U		0.000168	0.000500
(S) Decachlorobiphenyl	*77.9*			*10.0-128*
(S) Tetrachloro-m-xylene	*57.1*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337691-1 08/29/18 10:50 • (LCSD) R3337691-2 08/29/18 11:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aldrin	0.00100	0.000742	0.000763	74.2	76.3	22.0-124			2.79	34
Alpha BHC	0.00100	0.000919	0.000960	91.9	96.0	54.0-130			4.36	23
Beta BHC	0.00100	0.000885	0.000896	88.5	89.6	53.0-136			1.24	20
Delta BHC	0.00100	0.000904	0.000931	90.4	93.1	54.0-133			2.94	20
Gamma BHC	0.00100	0.000911	0.000950	91.1	95.0	55.0-129			4.19	20
4,4-DDD	0.00100	0.000953	0.000978	95.3	97.8	56.0-140			2.59	22
4,4-DDE	0.00100	0.000911	0.000920	91.1	92.0	52.0-128			0.983	22
4,4-DDT	0.00100	0.000964	0.000991	96.4	99.1	50.0-141			2.76	23
Dieldrin	0.00100	0.000925	0.000976	92.5	97.6	59.0-133			5.37	20
Endosulfan I	0.00100	0.000899	0.000920	89.9	92.0	57.0-131			2.31	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337691-1 08/29/18 10:50 • (LCSD) R3337691-2 08/29/18 11:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Endosulfan II	0.00100	0.000949	0.000976	94.9	97.6	58.0-133			2.81	20
Endosulfan sulfate	0.00100	0.000849	0.000955	84.9	95.5	58.0-133			11.8	21
Endrin	0.00100	0.000968	0.000992	96.8	99.2	57.0-134			2.45	21
Endrin aldehyde	0.00100	0.000851	0.000935	85.1	93.5	53.0-129			9.41	20
Endrin ketone	0.00100	0.00100	0.00103	100	103	60.0-145			2.96	20
Heptachlor	0.00100	0.000818	0.000838	81.8	83.8	27.0-132			2.42	31
Heptachlor epoxide	0.00100	0.000884	0.000897	88.4	89.7	57.0-130			1.46	20
Hexachlorobenzene	0.00100	0.000756	0.000781	75.6	78.1	30.0-114			3.25	30
Methoxychlor	0.00100	0.00108	0.00106	108	106	54.0-155			1.87	24
(S) Decachlorobiphenyl				*76.1*	*85.6*	*10.0-128*				
(S) Tetrachloro-m-xylene				*64.0*	*56.1*	*10.0-127*				

Method Blank (MB)

(MB) R3337589-1 08/29/18 08:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
PCB 1260	U		0.000120	0.000500
PCB 1016	U		0.000100	0.000500
PCB 1221	U		0.0000730	0.000500
PCB 1232	U		0.0000420	0.000500
PCB 1242	U		0.0000470	0.000500
PCB 1248	U		0.0000860	0.000500
PCB 1254	U		0.0000470	0.000500
(S) Decachlorobiphenyl	*86.5*			*10.0-128*
(S) Tetrachloro-m-xylene	*80.8*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337589-2 08/29/18 09:06 • (LCSD) R3337589-3 08/29/18 09:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.00250	0.00217	0.00227	86.8	90.8	42.0-131			4.50	25
PCB 1016	0.00250	0.00256	0.00264	102	106	36.0-135			3.08	29
(S) Decachlorobiphenyl				*82.3*	*84.1*	*10.0-128*				
(S) Tetrachloro-m-xylene				*75.1*	*72.7*	*10.0-127*				

Method Blank (MB)

(MB) R3338361-3 08/31/18 10:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.000316	0.00100
Acenaphthylene	U		0.000309	0.00100
Anthracene	U		0.000291	0.00100
Benzidine	U		0.00432	0.0100
Benzo(a)anthracene	U		0.0000975	0.00100
Benzo(b)fluoranthene	U		0.0000896	0.00100
Benzo(k)fluoranthene	U		0.000355	0.00100
Benzo(g,h,i)perylene	U		0.000161	0.00100
Benzo(a)pyrene	U		0.000340	0.00100
Bis(2-chlorethoxy)methane	U		0.000329	0.0100
Bis(2-chloroethyl)ether	U		0.00162	0.0100
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100
4-Bromophenyl-phenylether	U		0.000335	0.0100
2-Chloronaphthalene	U		0.000330	0.00100
4-Chlorophenyl-phenylether	U		0.000303	0.0100
Chrysene	U		0.000332	0.00100
Dibenz(a,h)anthracene	U		0.000279	0.00100
3,3-Dichlorobenzidine	U		0.00202	0.0100
2,4-Dinitrotoluene	U		0.00165	0.0100
2,6-Dinitrotoluene	U		0.000279	0.0100
Fluoranthene	U		0.000310	0.00100
Fluorene	U		0.000323	0.00100
Hexachlorobenzene	U		0.000341	0.00100
Hexachloro-1,3-butadiene	U		0.000329	0.0100
Hexachlorocyclopentadiene	U		0.00233	0.0100
Hexachloroethane	U		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000272	0.0100
Naphthalene	U		0.000372	0.00100
Nitrobenzene	U		0.000367	0.0100
n-Nitrosodimethylamine	U		0.00126	0.0100
n-Nitrosodiphenylamine	U		0.00119	0.0100
n-Nitrosodi-n-propylamine	U		0.000403	0.0100
Phenanthrene	U		0.000366	0.00100
Benzylbutyl phthalate	U		0.000275	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300
Di-n-butyl phthalate	U		0.000266	0.00300
Diethyl phthalate	U		0.000282	0.00300
Dimethyl phthalate	U		0.000283	0.00300
Di-n-octyl phthalate	U		0.000278	0.00300

Method Blank (MB)

(MB) R3338361-3 08/31/18 10:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Pyrene	U		0.000330	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.0100
4-Chloro-3-methylphenol	U		0.000263	0.0100
2-Chlorophenol	U		0.000283	0.0100
2-Nitrophenol	U		0.000320	0.0100
4-Nitrophenol	U		0.00201	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.000334	0.0100
2,4,6-Trichlorophenol	U		0.000297	0.0100
2,4-Dichlorophenol	U		0.000284	0.0100
2,4-Dimethylphenol	U		0.000624	0.0100
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100
2,4-Dinitrophenol	U		0.00325	0.0100
(S) Nitrobenzene-d5	*46.9*			*10.0-127*
(S) 2-Fluorobiphenyl	*55.7*			*10.0-130*
(S) p-Terphenyl-d14	*60.0*			*10.0-128*
(S) Phenol-d5	*17.1*			*10.0-120*
(S) 2-Fluorophenol	*28.7*			*10.0-120*
(S) 2,4,6-Tribromophenol	*31.3*			*10.0-155*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338361-1 08/31/18 09:36 • (LCSD) R3338361-2 08/31/18 10:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	0.0310	0.0341	62.0	68.2	41.0-120			9.52	22
Acenaphthylene	0.0500	0.0317	0.0349	63.4	69.8	43.0-120			9.61	22
Anthracene	0.0500	0.0315	0.0346	63.0	69.2	45.0-120			9.38	20
Benzidine	0.0500	0.0191	0.0214	38.2	42.8	1.00-120			11.4	36
Benzo(a)anthracene	0.0500	0.0319	0.0349	63.8	69.8	47.0-120			8.98	20
Benzo(b)fluoranthene	0.0500	0.0327	0.0357	65.4	71.4	46.0-120			8.77	20
Benzo(k)fluoranthene	0.0500	0.0334	0.0366	66.8	73.2	46.0-120			9.14	21
Benzo(g,h,i)perylene	0.0500	0.0352	0.0385	70.4	77.0	48.0-121			8.96	20
Benzo(a)pyrene	0.0500	0.0294	0.0319	58.8	63.8	47.0-120			8.16	20
Bis(2-chlorethoxy)methane	0.0500	0.0243	0.0262	48.6	52.4	33.0-120			7.52	24
Bis(2-chloroethyl)ether	0.0500	0.0253	0.0284	50.6	56.8	23.0-120			11.5	33
Bis(2-chloroisopropyl)ether	0.0500	0.0251	0.0283	50.2	56.6	28.0-120			12.0	31
4-Bromophenyl-phenylether	0.0500	0.0339	0.0366	67.8	73.2	45.0-120			7.66	20
2-Chloronaphthalene	0.0500	0.0281	0.0309	56.2	61.8	37.0-120			9.49	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338361-1 08/31/18 09:36 • (LCSD) R3338361-2 08/31/18 10:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.0500	0.0333	0.0364	66.6	72.8	44.0-120			8.90	20
Chrysene	0.0500	0.0323	0.0349	64.6	69.8	48.0-120			7.74	20
Dibenz(a,h)anthracene	0.0500	0.0292	0.0319	58.4	63.8	47.0-120			8.84	20
3,3-Dichlorobenzidine	0.0500	0.0349	0.0372	69.8	74.4	44.0-120			6.38	20
2,4-Dinitrotoluene	0.0500	0.0332	0.0344	66.4	68.8	49.0-124			3.55	20
2,6-Dinitrotoluene	0.0500	0.0328	0.0353	65.6	70.6	46.0-120			7.34	21
Fluoranthene	0.0500	0.0383	0.0422	76.6	84.4	51.0-120			9.69	20
Fluorene	0.0500	0.0330	0.0364	66.0	72.8	47.0-120			9.80	20
Hexachlorobenzene	0.0500	0.0367	0.0394	73.4	78.8	44.0-120			7.10	20
Hexachloro-1,3-butadiene	0.0500	0.0171	0.0198	34.2	39.6	19.0-120			14.6	32
Hexachlorocyclopentadiene	0.0500	0.0208	0.0235	41.6	47.0	15.0-120			12.2	31
Hexachloroethane	0.0500	0.0136	0.0165	27.2	33.0	15.0-120			19.3	37
Indeno(1,2,3-cd)pyrene	0.0500	0.0310	0.0339	62.0	67.8	49.0-122			8.94	20
Isophorone	0.0500	0.0265	0.0278	53.0	55.6	36.0-120			4.79	23
Naphthalene	0.0500	0.0232	0.0252	46.4	50.4	27.0-120			8.26	27
Nitrobenzene	0.0500	0.0254	0.0269	50.8	53.8	27.0-120			5.74	29
n-Nitrosodimethylamine	0.0500	0.0113	0.0121	22.6	24.2	10.0-120			6.84	40
n-Nitrosodiphenylamine	0.0500	0.0332	0.0362	66.4	72.4	47.0-120			8.65	20
n-Nitrosodi-n-propylamine	0.0500	0.0271	0.0298	54.2	59.6	31.0-120			9.49	28
Phenanthrene	0.0500	0.0315	0.0346	63.0	69.2	46.0-120			9.38	20
Benzylbutyl phthalate	0.0500	0.0260	0.0274	52.0	54.8	43.0-121			5.24	20
Bis(2-ethylhexyl)phthalate	0.0500	0.0310	0.0335	62.0	67.0	43.0-122			7.75	20
Di-n-butyl phthalate	0.0500	0.0311	0.0341	62.2	68.2	49.0-121			9.20	20
Diethyl phthalate	0.0500	0.0285	0.0292	57.0	58.4	48.0-122			2.43	20
Dimethyl phthalate	0.0500	0.0194	0.0183	38.8	36.6	48.0-120	J4	J4	5.84	20
Di-n-octyl phthalate	0.0500	0.0337	0.0360	67.4	72.0	42.0-125			6.60	20
Pyrene	0.0500	0.0328	0.0356	65.6	71.2	47.0-120			8.19	20
1,2,4-Trichlorobenzene	0.0500	0.0204	0.0230	40.8	46.0	24.0-120			12.0	29
4-Chloro-3-methylphenol	0.0500	0.0302	0.0241	60.4	48.2	40.0-120		J3	22.5	21
2-Chlorophenol	0.0500	0.0271	0.0171	54.2	34.2	25.0-120		J3	45.2	35
2,4-Dichlorophenol	0.0500	0.0314	0.0139	62.8	27.8	36.0-120		J3 J4	77.3	26
2,4-Dimethylphenol	0.0500	0.0269	0.0260	53.8	52.0	33.0-120			3.40	26
4,6-Dinitro-2-methylphenol	0.0500	0.0205	0.00498	41.0	9.96	38.0-138		J3 J4	122	25
2,4-Dinitrophenol	0.0500	0.0145	0.00964	29.0	19.3	10.0-120		J3	40.3	39
2-Nitrophenol	0.0500	0.0279	0.0108	55.8	21.6	31.0-120		J3 J4	88.4	29
4-Nitrophenol	0.0500	0.00966	0.00305	19.3	6.10	10.0-120		J3 J4	104	33
Pentachlorophenol	0.0500	0.0230	0.0117	46.0	23.4	23.0-120		J3	65.1	25
Phenol	0.0500	0.00899	0.00853	18.0	17.1	10.0-120			5.25	36
2,4,6-Trichlorophenol	0.0500	0.0302	0.00723	60.4	14.5	42.0-120		J3 J4	123	23
(S) Nitrobenzene-d5				*50.2*	*52.6*	*10.0-127*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338361-1 08/31/18 09:36 • (LCSD) R3338361-2 08/31/18 10:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*62.0*	*66.3*	*10.0-130*				
(S) p-Terphenyl-d14				*64.6*	*69.3*	*10.0-128*				
(S) Phenol-d5				*18.1*	*16.5*	*10.0-120*				
(S) 2-Fluorophenol				*32.0*	*16.7*	*10.0-120*				
(S) 2,4,6-Tribromophenol				*63.5*	*18.5*	*10.0-155*				

L1020869-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020869-02 08/31/18 10:47 • (MS) R3338361-4 08/31/18 11:11 • (MSD) R3338361-5 08/31/18 11:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	ND	0.0286	0.0378	57.2	75.6	1	28.0-120		J3	27.7	25
Acenaphthylene	0.0500	ND	0.0292	0.0389	58.4	77.8	1	31.0-121		J3	28.5	25
Anthracene	0.0500	ND	0.0287	0.0382	57.4	76.4	1	36.0-120		J3	28.4	23
Benzidine	0.0500	ND	0.0154	0.0201	30.8	40.2	1	1.00-120			26.5	37
Benzo(a)anthracene	0.0500	ND	0.0288	0.0387	57.6	77.4	1	39.0-120		J3	29.3	23
Benzo(b)fluoranthene	0.0500	ND	0.0295	0.0401	59.0	80.2	1	37.0-120		J3	30.5	23
Benzo(k)fluoranthene	0.0500	ND	0.0297	0.0407	59.4	81.4	1	37.0-120		J3	31.3	26
Benzo(g,h,i)perylene	0.0500	ND	0.0308	0.0417	61.6	83.4	1	37.0-123		J3	30.1	25
Benzo(a)pyrene	0.0500	ND	0.0263	0.0353	52.6	70.6	1	37.0-120		J3	29.2	24
Bis(2-chlorethoxy)methane	0.0500	ND	0.0224	0.0292	44.8	58.4	1	17.0-120			26.4	31
Bis(2-chloroethyl)ether	0.0500	ND	0.0238	0.0303	47.6	60.6	1	14.0-120			24.0	33
Bis(2-chloroisopropyl)ether	0.0500	ND	0.0237	0.0315	47.4	63.0	1	18.0-120			28.3	34
4-Bromophenyl-phenylether	0.0500	ND	0.0295	0.0401	59.0	80.2	1	37.0-120		J3	30.5	24
2-Chloronaphthalene	0.0500	ND	0.0268	0.0350	53.6	70.0	1	29.0-120			26.5	28
4-Chlorophenyl-phenylether	0.0500	ND	0.0297	0.0394	59.4	78.8	1	36.0-120		J3	28.1	23
Chrysene	0.0500	ND	0.0293	0.0394	58.6	78.8	1	38.0-120		J3	29.4	23
Dibenz(a,h)anthracene	0.0500	ND	0.0255	0.0346	51.0	69.2	1	36.0-121		J3	30.3	24
3,3-Dichlorobenzidine	0.0500	ND	0.0294	0.0403	58.8	80.6	1	10.0-134		J3	31.3	30
2,4-Dinitrotoluene	0.0500	ND	0.0283	0.0381	56.6	76.2	1	39.0-125		J3	29.5	25
2,6-Dinitrotoluene	0.0500	ND	0.0286	0.0396	57.2	79.2	1	36.0-120		J3	32.3	27
Fluoranthene	0.0500	ND	0.0341	0.0467	68.2	93.4	1	41.0-121		J3	31.2	22
Fluorene	0.0500	ND	0.0311	0.0404	62.2	80.8	1	37.0-120		J3	26.0	24
Hexachlorobenzene	0.0500	ND	0.0307	0.0419	61.4	83.8	1	35.0-122		J3	30.9	24
Hexachloro-1,3-butadiene	0.0500	ND	0.0179	0.0236	35.8	47.2	1	12.0-120			27.5	34
Hexachlorocyclopentadiene	0.0500	ND	0.0204	0.0268	40.8	53.6	1	10.0-120			27.1	33
Hexachloroethane	0.0500	ND	0.0150	0.0195	30.0	39.0	1	10.0-120			26.1	40
Indeno(1,2,3-cd)pyrene	0.0500	ND	0.0274	0.0366	54.8	73.2	1	38.0-125		J3	28.8	24
Isophorone	0.0500	ND	0.0232	0.0308	46.4	61.6	1	21.0-120		J3	28.1	27

L1020869-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1020869-02 08/31/18 10:47 • (MS) R3338361-4 08/31/18 11:11 • (MSD) R3338361-5 08/31/18 11:35

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0500	ND	0.0216	0.0284	43.2	56.8	1	10.0-120			27.2	31
Nitrobenzene	0.0500	ND	0.0224	0.0293	44.8	58.6	1	12.0-120			26.7	30
n-Nitrosodimethylamine	0.0500	ND	0.0111	0.0140	22.2	28.0	1	10.0-120			23.1	40
n-Nitrosodiphenylamine	0.0500	ND	0.0302	0.0412	60.4	82.4	1	37.0-120		J3	30.8	24
n-Nitrosodi-n-propylamine	0.0500	ND	0.0255	0.0328	51.0	65.6	1	16.0-120			25.0	30
Phenanthrene	0.0500	ND	0.0287	0.0388	57.4	77.6	1	33.0-120		J3	29.9	22
Benzylbutyl phthalate	0.0500	ND	0.0229	0.0317	45.8	63.4	1	34.0-126		J3	32.2	24
Bis(2-ethylhexyl)phthalate	0.0500	ND	0.0272	0.0375	54.4	75.0	1	33.0-126		J3	31.8	25
Di-n-butyl phthalate	0.0500	ND	0.0278	0.0383	52.4	73.4	1	35.0-128		J3	31.8	23
Diethyl phthalate	0.0500	ND	0.0236	0.0335	47.2	67.0	1	39.0-125		J3	34.7	24
Dimethyl phthalate	0.0500	ND	0.0145	0.0214	29.0	42.8	1	37.0-120	J6	J3	38.4	24
Di-n-octyl phthalate	0.0500	ND	0.0291	0.0398	58.2	79.6	1	25.0-135		J3	31.1	26
Pyrene	0.0500	ND	0.0298	0.0411	59.6	82.2	1	39.0-120		J3	31.9	22
1,2,4-Trichlorobenzene	0.0500	ND	0.0206	0.0261	41.2	52.2	1	15.0-120			23.6	31
4-Chloro-3-methylphenol	0.0500	ND	0.0254	0.0307	50.8	61.4	1	26.0-120			18.9	27
2-Chlorophenol	0.0500	ND	0.0241	0.0287	48.2	57.4	1	18.0-120			17.4	34
2,4-Dichlorophenol	0.0500	ND	0.0261	0.0314	52.2	62.8	1	19.0-120			18.4	27
2,4-Dimethylphenol	0.0500	ND	0.0172	0.0210	34.4	42.0	1	15.0-120			19.9	28
4,6-Dinitro-2-methylphenol	0.0500	ND	0.0185	0.0101	37.0	20.2	1	10.0-144		J3	58.7	39
2,4-Dinitrophenol	0.0500	ND	0.0150	0.0103	30.0	20.6	1	10.0-120			37.2	40
2-Nitrophenol	0.0500	ND	0.0231	0.0284	46.2	56.8	1	20.0-120			20.6	30
4-Nitrophenol	0.0500	ND	0.00908	0.00749	18.2	15.0	1	10.0-120			19.2	40
Pentachlorophenol	0.0500	ND	0.0202	0.0129	40.4	25.8	1	10.0-128		J3	44.1	37
Phenol	0.0500	ND	0.00852	0.0101	17.0	20.2	1	10.0-120			17.0	40
2,4,6-Trichlorophenol	0.0500	ND	0.0256	0.0223	51.2	44.6	1	26.0-120			13.8	31
(S) Nitrobenzene-d5					*44.5*	*58.1*		*10.0-127*				
(S) 2-Fluorobiphenyl					*55.7*	*75.2*		*10.0-130*				
(S) p-Terphenyl-d14					*58.7*	*80.1*		*10.0-128*				
(S) Phenol-d5					*17.3*	*19.0*		*10.0-120*				
(S) 2-Fluorophenol					*28.9*	*33.6*		*10.0-120*				
(S) 2,4,6-Tribromophenol					*48.9*	*43.9*		*10.0-155*				

Method Blank (MB)

(MB) R3338534-3 09/01/18 09:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.000316	0.00100
Acenaphthylene	U		0.000309	0.00100
Anthracene	U		0.000291	0.00100
Benzidine	U		0.00432	0.0100
Benzo(a)anthracene	U		0.0000975	0.00100
Benzo(b)fluoranthene	U		0.0000896	0.00100
Benzo(k)fluoranthene	U		0.000355	0.00100
Benzo(a)pyrene	U		0.000340	0.00100
Bis(2-chlorethoxy)methane	U		0.000329	0.0100
Bis(2-chloroethyl)ether	U		0.00162	0.0100
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100
4-Bromophenyl-phenylether	U		0.000335	0.0100
Benzo(g,h,i)perylene	U		0.000161	0.00100
2-Chloronaphthalene	U		0.000330	0.00100
4-Chlorophenyl-phenylether	U		0.000303	0.0100
Chrysene	U		0.000332	0.00100
Dibenz(a,h)anthracene	U		0.000279	0.00100
3,3-Dichlorobenzidine	U		0.00202	0.0100
2,4-Dinitrotoluene	U		0.00165	0.0100
2,6-Dinitrotoluene	U		0.000279	0.0100
Fluoranthene	U		0.000310	0.00100
Fluorene	U		0.000323	0.00100
Hexachlorobenzene	U		0.000341	0.00100
Hexachloro-1,3-butadiene	U		0.000329	0.0100
Hexachlorocyclopentadiene	U		0.00233	0.0100
Hexachloroethane	U		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000272	0.0100
Naphthalene	U		0.000372	0.00100
Nitrobenzene	U		0.000367	0.0100
n-Nitrosodimethylamine	U		0.00126	0.0100
n-Nitrosodiphenylamine	U		0.00119	0.0100
n-Nitrosodi-n-propylamine	U		0.000403	0.0100
Phenanthrene	U		0.000366	0.00100
Benzylbutyl phthalate	U		0.000275	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300
Di-n-butyl phthalate	U		0.000266	0.00300
Diethyl phthalate	U		0.000282	0.00300
Dimethyl phthalate	U		0.000283	0.00300
Di-n-octyl phthalate	U		0.000278	0.00300

Method Blank (MB)

(MB) R3338534-3 09/01/18 09:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Pyrene	U		0.000330	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.0100
4-Chloro-3-methylphenol	U		0.000263	0.0100
2-Chlorophenol	U		0.000283	0.0100
2,4-Dichlorophenol	U		0.000284	0.0100
2,4-Dimethylphenol	U		0.000624	0.0100
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100
2,4-Dinitrophenol	U		0.00325	0.0100
2-Nitrophenol	U		0.000320	0.0100
4-Nitrophenol	U		0.00201	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.000334	0.0100
2,4,6-Trichlorophenol	U		0.000297	0.0100
(S) 2-Fluorophenol	*33.0*			*10.0-120*
(S) Phenol-d5	*20.3*			*10.0-120*
(S) Nitrobenzene-d5	*55.9*			*10.0-127*
(S) 2-Fluorobiphenyl	*63.5*			*10.0-130*
(S) 2,4,6-Tribromophenol	*49.6*			*10.0-155*
(S) p-Terphenyl-d14	*69.1*			*10.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338534-1 09/01/18 08:45 • (LCSD) R3338534-2 09/01/18 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0500	0.0304	0.0320	60.8	64.0	45.0-120			5.13	20
Benzidine	0.0500	0.0101	0.00989	20.2	19.8	1.00-120			2.10	36
Benzo(a)anthracene	0.0500	0.0347	0.0354	69.4	70.8	47.0-120			2.00	20
Benzo(b)fluoranthene	0.0500	0.0330	0.0331	66.0	66.2	46.0-120			0.303	20
Benzo(k)fluoranthene	0.0500	0.0341	0.0350	68.2	70.0	46.0-120			2.60	21
Benzo(a)pyrene	0.0500	0.0328	0.0329	65.6	65.8	47.0-120			0.304	20
Bis(2-chlorethoxy)methane	0.0500	0.0268	0.0257	53.6	51.4	33.0-120			4.19	24
Bis(2-chloroethyl)ether	0.0500	0.0269	0.0242	53.8	48.4	23.0-120			10.6	33
Bis(2-chloroisopropyl)ether	0.0500	0.0290	0.0272	58.0	54.4	28.0-120			6.41	31
4-Bromophenyl-phenylether	0.0500	0.0347	0.0369	69.4	73.8	45.0-120			6.15	20
2-Chloronaphthalene	0.0500	0.0321	0.0315	64.2	63.0	37.0-120			1.89	25
4-Chlorophenyl-phenylether	0.0500	0.0339	0.0351	67.8	70.2	44.0-120			3.48	20
Chrysene	0.0500	0.0337	0.0347	67.4	69.4	48.0-120			2.92	20
Dibenz(a,h)anthracene	0.0500	0.0327	0.0335	65.4	67.0	47.0-120			2.42	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338534-1 09/01/18 08:45 • (LCSD) R3338534-2 09/01/18 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	0.0329	0.0336	65.8	67.2	41.0-120			2.11	22
3,3-Dichlorobenzidine	0.0500	0.0349	0.0363	69.8	72.6	44.0-120			3.93	20
Acenaphthylene	0.0500	0.0323	0.0320	64.6	64.0	43.0-120			0.933	22
2,4-Dinitrotoluene	0.0500	0.0363	0.0365	72.6	73.0	49.0-124			0.549	20
2,6-Dinitrotoluene	0.0500	0.0323	0.0333	64.6	66.6	46.0-120			3.05	21
Fluoranthene	0.0500	0.0353	0.0365	70.6	73.0	51.0-120			3.34	20
Fluorene	0.0500	0.0333	0.0347	66.6	69.4	47.0-120			4.12	20
Hexachlorobenzene	0.0500	0.0375	0.0393	75.0	78.6	44.0-120			4.69	20
Hexachloro-1,3-butadiene	0.0500	0.0312	0.0294	62.4	58.8	19.0-120			5.94	32
Hexachlorocyclopentadiene	0.0500	0.0297	0.0279	59.4	55.8	15.0-120			6.25	31
Hexachloroethane	0.0500	0.0271	0.0248	54.2	49.6	15.0-120			8.86	37
Indeno(1,2,3-cd)pyrene	0.0500	0.0347	0.0353	69.4	70.6	49.0-122			1.71	20
Isophorone	0.0500	0.0285	0.0282	57.0	56.4	36.0-120			1.06	23
Benzo(g,h,i)perylene	0.0500	0.0347	0.0349	69.4	69.8	48.0-121			0.575	20
Naphthalene	0.0500	0.0293	0.0273	58.6	54.6	27.0-120			7.07	27
Nitrobenzene	0.0500	0.0280	0.0260	56.0	52.0	27.0-120			7.41	29
n-Nitrosodimethylamine	0.0500	0.0162	0.0125	32.4	25.0	10.0-120			25.8	40
n-Nitrosodiphenylamine	0.0500	0.0332	0.0346	66.4	69.2	47.0-120			4.13	20
n-Nitrosodi-n-propylamine	0.0500	0.0277	0.0264	55.4	52.8	31.0-120			4.81	28
Phenanthrene	0.0500	0.0316	0.0334	63.2	66.8	46.0-120			5.54	20
Benzylbutyl phthalate	0.0500	0.0275	0.0257	55.0	51.4	43.0-121			6.77	20
Bis(2-ethylhexyl)phthalate	0.0500	0.0310	0.0322	62.0	64.4	43.0-122			3.80	20
Di-n-butyl phthalate	0.0500	0.0322	0.0326	64.4	65.2	49.0-121			1.23	20
Diethyl phthalate	0.0500	0.0288	0.0296	57.6	59.2	48.0-122			2.74	20
Dimethyl phthalate	0.0500	0.0224	0.0213	44.8	42.6	48.0-120	J4	J4	5.03	20
Di-n-octyl phthalate	0.0500	0.0330	0.0335	66.0	67.0	42.0-125			1.50	20
Pyrene	0.0500	0.0344	0.0359	68.8	71.8	47.0-120			4.27	20
1,2,4-Trichlorobenzene	0.0500	0.0298	0.0276	59.6	55.2	24.0-120			7.67	29
4-Chloro-3-methylphenol	0.0500	0.0274	0.0241	54.8	48.2	40.0-120			12.8	21
2-Chlorophenol	0.0500	0.0210	0.0120	42.0	24.0	25.0-120		J3 J4	54.5	35
2,4-Dichlorophenol	0.0500	0.0256	0.0179	51.2	35.8	36.0-120		J3 J4	35.4	26
2,4-Dimethylphenol	0.0500	0.0241	0.0193	48.2	38.6	33.0-120			22.1	26
4,6-Dinitro-2-methylphenol	0.0500	0.0320	0.0242	64.0	48.4	38.0-138		J3	27.8	25
2,4-Dinitrophenol	0.0500	0.0219	0.0166	43.8	33.2	10.0-120			27.5	39
2-Nitrophenol	0.0500	0.0260	0.0185	52.0	37.0	31.0-120		J3	33.7	29
4-Nitrophenol	0.0500	0.0150	0.0144	30.0	28.8	10.0-120			4.08	33
Pentachlorophenol	0.0500	0.0350	0.0253	70.0	50.6	23.0-120		J3	32.2	25
Phenol	0.0500	0.0113	0.00904	22.6	18.1	10.0-120			22.2	36
2,4,6-Trichlorophenol	0.0500	0.0304	0.0252	60.8	50.4	42.0-120			18.7	23
(S) 2-Fluorophenol				*31.4*	*21.8*	*10.0-120*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338534-1 09/01/18 08:45 • (LCSD) R3338534-2 09/01/18 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) Phenol-d5				*20.8*	*16.3*	*10.0-120*				
(S) Nitrobenzene-d5				*53.4*	*47.4*	*10.0-127*				
(S) 2-Fluorobiphenyl				*61.0*	*60.9*	*10.0-130*				
(S) 2,4,6-Tribromophenol				*66.0*	*58.0*	*10.0-155*				
(S) p-Terphenyl-d14				*66.1*	*68.0*	*10.0-128*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Terracon - Fort Collins, CO

1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Dr., Ste C
Fort Collins, CO 80525

Report to: Aaron Varnell

Email To: Aaron.Varnell@terracon.com

Project Description: ~~Firestone Complete Auto Care~~ Greeley Eshay Road

City/State Collected:

Phone: 970-484-0359
Fax: 970-484-0454

Client Project # 21187023

Lab Project # TERRAFCO-21187023

Collected by (print): Aaron Varnell

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8081/8082 100ml Amb-NoPres	ALK 125mlHDPE-NoPres	Diss. MRCRA8 250mlHDPE-NoPres	MRCRA8 2ozClr-NoPres	NO2NO3, PT 250mlHDPE-H2SO4	SV8081/8082, SV8151 4ozClr-NoPres	SV8151 1L-Amb-No Pres	SV8270 4ozClr-NoPres	SVOCs 100ml Amb NoPres	TSS 1L-HDPE NoPres	Remarks	Sample # (lab only)
SS-01		SS	1'	8/23	1045	~~4~~ 0				X		X		X				
SS-02		SS		8/23	1100	~~4~~ 0				X		X		X				
SS-03		SS		8/23	1115	~~4~~ 0				X		X		X				
SS-05		SS		8/24	0800	~~4~~ 0				X		X		X				
SS-04		SS		8/24	0845	~~4~~ 0				X		X		X				
SS-06		SS		8/24	0915	~~4~~ 0				X		X		X				
SS-07		SS	↓	8/24	0930	~~4~~ 0				X		X		X				
		SS				4				X		X		X				
		SS				4				X		X		X				
SW-~~8~~1R		GW	surface	8/23	1300	14	X	X	X		X		X		X	X		-01

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # L1021124

H139

Acctnum: TERRAFCO
Template: T139685
Prelogin: P667733
TSR: 288 - Daphne Richards
PB: TB 8.20.18

Shipped Via: FedEX 2nd Day

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: run all SS for VOCs 8260 as well

pH _____ Temp _____

RAD SCREEN: <0.5 mR/hr Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 4492 6224 4548

Sample Receipt Checklist:
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8/27	1600	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes No HCL / MeoH TBR

Temp: 0.7 °C Bottles Received: 85

Date: 8/28/18 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Terracon - Fort Collins, CO

1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Dr., Ste C
Fort Collins, CO 80525

Report to: Aaron Varnell

Email To: Aaron.Varnell@terracon.com

Project Description: ~~Firestone Complete Auto Care~~ Greeley Gateway Pond

City/State Collected:

Phone: 970-484-0359
Fax: 970-484-0454

Client Project # 21187023

Lab Project # TERRAFCO-21187023

Collected by (print): Aaron Varnell

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8081/8082 100ml Amb-NoPres	ALK 125mlHDPE-NoPres	Diss MRCRA8 250mlHDPE-NoPres	MRCRA8 2ozClr-NoPres	NO2NO3, PT 250mlHDPE-H2SO4	SV8081/8082, SV8151 4ozClr-NoPres	SV8151 1L-Amb-No Pres	SV8270 4ozClr-NoPres	SVOCs 100ml Amb NoPres	TSS 1L-HDPE NoPres	Remarks	Sample # (lab only)
SW-[redacted]2P		GW	Surface	8/24	0845	14	X	X	X		X		X		X	X		-02
SW-[redacted]3P		GW	Surface	8/24	0830	14	X	X	X		X		X		X	X		-03
SW-4P		GW	surface	8/24	0900	14	X	X	X		X		X		X	X		-04
		GW				14	X	X	X		X		X		X	X		
		GW				14	X	X	X		X		X		X	X		
		GW				14	X	X	X		X		X		X	X		
		GW				14	X	X	X		X		X		X	X		
		GW				14	X	X	X		X		X		X	X		

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1024224

Table #

Acctnum: TERRAFCO

Template: T139685

Prelogin: P667733

TSR: 288 - Daphne Richards

PB: TB 8.20.18

Shipped Via: FedEX 2nd Day

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: SW-2P [redacted] & SW-3P [redacted] are incorrectly labeled as SW-2 on containers +SW-3

pH _____ Temp _____

RAD SCREEN: <0.5 mR/hr

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	8/27	1600		6	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.7 °C Bottles Received: 85	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 8/28/18 Time: 8:45	Hold: Condition: NCF / OK

Terracon - Fort Collins, CO

1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Dr., Ste C
Fort Collins, CO 80525

Pres Chk: ✓

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: Aaron Varnell

Email To: Aaron.Varnell@terracon.com

Project Description: ~~Firestone Complete Auto Care~~ Greeley Fishing Pond

City/State Collected:

Phone: 970-484-0359
Fax: 970-484-0454

Client Project # 21187023

Lab Project # TERRAFCO-21187023

L# L1021224

Table #

Collected by (print): Aaron Varnell

Site/Facility ID #

P.O. #

Acctnum: TERRAFCO
Template: T139685
Prelogin: P667733
TSR: 288 - Daphne Richards
PB: TG 8-8-0-18
Shipped Via: FedEX 2nd Day

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Total MRCRA8 250mlHDPE-HNO3	V8260 40mlAmb-HCl	V8260 40mlAmb/MeOH5ml/Syr	SVOCs							Remarks	Sample # (lab only)
		SS				4			X									
		SS				4			X									
		SS				4			X									
		SS				4			X									
		SS				4			X									
		SS				4			X									
		SS				4			X									
		SS				4			X									
		SS				4			X									
MW-01		GW		8/24	1310	~~14~~ 6	X	X		~~X~~								-05

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ________

Remarks:

pH ______ Temp ______

RAD SCREEN: <0.5 mR/hr Flow ______ Other ______

Samples returned via:
__ UPS __ FedEx __ Courier ______

Tracking # ~~4492 6224 4618~~ 4492 6224 4537 4492 6224 4526

Sample Receipt Checklist:
COC Seal Present/Intact: NP _Y _N
COC Signed/Accurate: ✓Y _N
Bottles arrive intact: ✓Y _N
Correct bottles used: ✓Y _N
Sufficient volume sent: ✓Y _N
If Applicable
VOA Zero Headspace: ✓Y _N
Preservation Correct/Checked: _Y _N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: (Yes) / No HCL / MeoH TBR 6	
[signature]					8/4/
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.7 °C Bottles Received: 65	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 8/28/18 Time: 8:45	Hold: Condition: (NCF) / OK

Terracon - Fort Collins, CO

1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Dr., Ste C
Fort Collins, CO 80525

Report to: Aaron Varnell

Email To: Aaron.Varnell@terracon.com

Project Description: ~~Firestone Complete Auto Care~~ Greeley Fishing Pond

City/State Collected:

Phone: 970-484-0359
Fax: 970-484-0454

Client Project # 21187023

Lab Project # TERRAFCO-21187023

Collected by (print): Aaron Varnell

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Immediately

Packed on Ice N ___ Y ___

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Total MRCRA8 250mlHDPE-HNO3	V8260 40mlAmb-HCl	V8260 40mlAmb/MeOH5ml/Syr	SVOCs	Remarks	Sample # (lab only)
MW-02		GW		8/24	~~1320~~ 1330	~~10~~ 5	X	X		X		-06
MW-03		GW		8/24	1245	~~14~~ 6	X	X		X		-07
MW-04		GW		8/24	1345	~~14~~ 6	X	X		X		-08
MW-07		GW		8/24	1430	14	X	X		X		-09
		GW				14	X	X				
		GW				14	X	X				
		GW				14	X	X				
		GW				14	X	X				

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Relinquished by : (Signature) Date: 8/27 Time: 1600 Received by: (Signature)

Relinquished by : (Signature) Date: Time: Received by: (Signature)

Relinquished by : (Signature) Date: Time: Received for lab by: (Signature)

Trip Blank Received: Yes (No) HCl / MeOH TBR

Temp: 0.7 °C Bottles Received: 85

Date: 8/28/18 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
8/28/18

Chain of Custody Page ___ of ___

Pace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L021274

Table #

Acctnum: TERRAFCO
Template: T139685
Prelogin: P667733
TSR: 288 - Daphne Richards
PB: TB 8-20-18
Shipped Via: FedEX 2nd Day

Troy Dunlap

Pace Analytical®
National Center for Testing & Innovation

Login #: L1021224	Client: TERRAFCO	Date: 8/28/18	Evaluated by: Troy Dunlap

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	1	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.	2	Improper handling by carrier (FedEx / UPS / Cou
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
2	Broken container:		Chain of Custody is missing		Date/Time:
2	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: 1.) Did not receive SS-01 thru SS-07
2.) One of three 40ml-HCL vials received broken for MW-02. Sufficient sample remains.
3.) Metals for MW-01 thru MW-07 received unpreserved. Total or Dissolved?

Client informed by:		Call		Email		Voice Mail		Date:	Time:
TSR Initials:	Client Contact:								

Login Instructions:

Client notified of broken container.

Please preserve MW-01 to MW-07 for total MRCRA8

Troy Dunlap

Pace Analytical®
National Center for Testing & Innovation

Login #: L1021224	Client: TERRAFCO	Date: 8/28/18	Evaluated by: Troy Dunlap

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	1	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.	2	Improper handling by carrier (FedEx / UPS / Cou
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
2	Broken container:		Chain of Custody is missing		Date/Time:
2	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: 1.) Did not receive SS-01 thru SS-07. ** Received out of temperature at 22.9°c.
2.) One of three 40ml-HCL vials received broken for MW-02. Sufficient sample remains.
3.) Metals for MW-01 thru MW-07 received unpreserved. Total or Dissolved?

Client informed by:		Call		Email		Voice Mail		Date:	Time:
TSR Initials:	Client Contact:								

Login Instructions:

Client notified of broken container.

Please preserve MW-01 to MW-07 for total MRCRA8

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 06, 2018

Terracon - Fort Collins, CO

Sample Delivery Group:	L1021287
Samples Received:	08/28/2018
Project Number:	21187023
Description:	Greenley Fishing Pond

Report To: Aaron Varnell
1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SVP-01 L1021287-01 Air

Collected by: Aaron Varnell
Collected date/time: 08/24/18 13:50
Received date/time: 08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1158862	2	08/29/18 22:20	08/29/18 22:20	AMC
Organic Compounds (GC) by Method D1946	WG1159996	1	08/31/18 11:19	08/31/18 11:19	AMC

SVP-02 L1021287-02 Air

Collected by: Aaron Varnell
Collected date/time: 08/24/18 14:20
Received date/time: 08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1158862	2	08/29/18 23:06	08/29/18 23:06	AMC
Organic Compounds (GC) by Method D1946	WG1159996	1	08/31/18 11:32	08/31/18 11:32	AMC

SVP-03 L1021287-03 Air

Collected by: Aaron Varnell
Collected date/time: 08/24/18 14:45
Received date/time: 08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1158862	2	08/29/18 23:51	08/29/18 23:51	AMC
Organic Compounds (GC) by Method D1946	WG1159996	1	08/31/18 11:38	08/31/18 11:38	AMC

SVP-04 L1021287-04 Air

Collected by: Aaron Varnell
Collected date/time: 08/24/18 13:20
Received date/time: 08/28/18 08:45

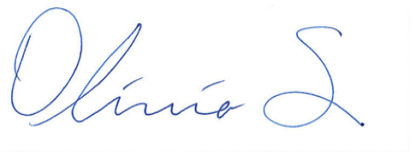
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1158862	2	08/30/18 00:44	08/30/18 00:44	AMC
Organic Compounds (GC) by Method D1946	WG1159996	1	08/31/18 11:44	08/31/18 11:44	AMC

SVP-07 L1021287-05 Air

Collected by: Aaron Varnell
Collected date/time: 08/24/18 12:30
Received date/time: 08/28/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1158862	2	08/30/18 01:38	08/30/18 01:38	AMC
Organic Compounds (GC) by Method D1946	WG1159996	1	08/31/18 12:54	08/31/18 12:54	AMC

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	191	789		2	WG1158862
Acetone	67-64-1	58.10	2.50	5.94	18.3	43.4		2	WG1158862
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1158862
Benzene	71-43-2	78.10	0.400	1.28	0.583	1.86		2	WG1158862
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1158862
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1158862
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1158862
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1158862
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1158862
Carbon disulfide	75-15-0	76.10	0.400	1.24	0.900	2.80		2	WG1158862
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1158862
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1158862
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1158862
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1158862
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1158862
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1158862
Cyclohexane	110-82-7	84.20	0.400	1.38	0.938	3.23		2	WG1158862
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1158862
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1158862
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1158862
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1158862
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1158862
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1158862
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1158862
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1158862
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1158862
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1158862
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1158862
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1158862
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1158862
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1158862
Ethanol	64-17-5	46.10	1.26	2.38	38.9	73.4		2	WG1158862
Ethylbenzene	100-41-4	106	0.400	1.73	0.720	3.12		2	WG1158862
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1158862
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	1.16	6.49		2	WG1158862
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.56	7.73		2	WG1158862
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1158862
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	15.2	106		2	WG1158862
Heptane	142-82-5	100	0.400	1.64	1.14	4.65		2	WG1158862
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1158862
n-Hexane	110-54-3	86.20	0.400	1.41	1.66	5.86		2	WG1158862
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1158862
Methylene Chloride	75-09-2	84.90	0.400	1.39	8.10	28.1		2	WG1158862
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1158862
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	2.59	7.65		2	WG1158862
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1158862
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1158862
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1158862
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1158862
2-Propanol	67-63-0	60.10	2.50	6.15	10.8	26.4		2	WG1158862
Propene	115-07-1	42.10	0.800	1.38	2.15	3.70		2	WG1158862
Styrene	100-42-5	104	0.400	1.70	0.935	3.98		2	WG1158862
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1158862
Tetrachloroethylene	127-18-4	166	0.400	2.72	10.3	70.2		2	WG1158862
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	1.73	5.10		2	WG1158862
Toluene	108-88-3	92.10	0.400	1.51	5.49	20.7		2	WG1158862

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1158862
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1158862
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1158862
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1158862
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	0.453	2.22		2	WG1158862
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1158862
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1158862
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1158862
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1158862
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1158862
m&p-Xylene	1330-20-7	106	0.800	3.47	1.75	7.57		2	WG1158862
o-Xylene	95-47-6	106	0.400	1.73	0.766	3.32		2	WG1158862
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.8*				WG1158862

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	16.7		1	WG1159996
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1159996
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1159996
Methane	74-82-8	16	0.400	ND		1	WG1159996

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	145	599		2	WG1158862
Acetone	67-64-1	58.10	2.50	5.94	5.95	14.1		2	WG1158862
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1158862
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1158862
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1158862
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1158862
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1158862
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1158862
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1158862
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1158862
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1158862
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1158862
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1158862
Chloroform	67-66-3	119	0.400	1.95	0.776	3.78		2	WG1158862
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1158862
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1158862
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1158862
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1158862
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1158862
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1158862
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1158862
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1158862
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1158862
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1158862
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1158862
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	0.503	1.99		2	WG1158862
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	0.823	3.26		2	WG1158862
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1158862
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1158862
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1158862
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1158862
Ethanol	64-17-5	46.10	1.26	2.38	11.2	21.1		2	WG1158862
Ethylbenzene	100-41-4	106	0.400	1.73	0.431	1.87		2	WG1158862
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1158862
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	1.23	6.92		2	WG1158862
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	6.66	32.9		2	WG1158862
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1158862
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	81.1	567		2	WG1158862
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1158862
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1158862
n-Hexane	110-54-3	86.20	0.400	1.41	0.742	2.62		2	WG1158862
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1158862
Methylene Chloride	75-09-2	84.90	0.400	1.39	7.29	25.3		2	WG1158862
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1158862
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1158862
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1158862
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1158862
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1158862
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1158862
2-Propanol	67-63-0	60.10	2.50	6.15	3.64	8.94		2	WG1158862
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1158862
Styrene	100-42-5	104	0.400	1.70	0.429	1.82		2	WG1158862
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1158862
Tetrachloroethylene	127-18-4	166	0.400	2.72	51.3	348		2	WG1158862
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1158862
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG1158862

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1158862
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1158862
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1158862
Trichloroethylene	79-01-6	131	0.400	2.14	6.05	32.4		2	WG1158862
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1158862
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1158862
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1158862
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1158862
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1158862
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1158862
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1158862
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1158862
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.0*				WG1158862

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	16.8		1	WG1159996
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1159996
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1159996
Methane	74-82-8	16	0.400	ND		1	WG1159996

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	101	418		2	WG1158862
Acetone	67-64-1	58.10	2.50	5.94	7.53	17.9		2	WG1158862
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1158862
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1158862
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1158862
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1158862
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1158862
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1158862
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1158862
Carbon disulfide	75-15-0	76.10	0.400	1.24	2.32	7.23		2	WG1158862
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1158862
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1158862
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1158862
Chloroform	67-66-3	119	0.400	1.95	6.79	33.0		2	WG1158862
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1158862
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1158862
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1158862
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1158862
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1158862
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1158862
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1158862
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1158862
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1158862
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1158862
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1158862
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1158862
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1158862
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1158862
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1158862
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1158862
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1158862
Ethanol	64-17-5	46.10	1.26	2.38	8.64	16.3		2	WG1158862
Ethylbenzene	100-41-4	106	0.400	1.73	2.98	12.9		2	WG1158862
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1158862
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	1.72	9.68		2	WG1158862
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.21	6.01		2	WG1158862
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1158862
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	18.1	127		2	WG1158862
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1158862
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1158862
n-Hexane	110-54-3	86.20	0.400	1.41	1.66	5.87		2	WG1158862
Isopropylbenzene	98-82-8	120.20	0.400	1.97	0.509	2.50		2	WG1158862
Methylene Chloride	75-09-2	84.90	0.400	1.39	4.96	17.2		2	WG1158862
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1158862
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1158862
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1158862
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1158862
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1158862
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1158862
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1158862
Propene	115-07-1	42.10	0.800	1.38	6.72	11.6		2	WG1158862
Styrene	100-42-5	104	0.400	1.70	2.58	11.0		2	WG1158862
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1158862
Tetrachloroethylene	127-18-4	166	0.400	2.72	6.82	46.3		2	WG1158862
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1158862
Toluene	108-88-3	92.10	0.400	1.51	0.741	2.79		2	WG1158862

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1158862
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1158862
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1158862
Trichloroethylene	79-01-6	131	0.400	2.14	0.575	3.08	B	2	WG1158862
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1158862
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1158862
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1158862
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1158862
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1158862
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1158862
m&p-Xylene	1330-20-7	106	0.800	3.47	1.12	4.88		2	WG1158862
o-Xylene	95-47-6	106	0.400	1.73	0.425	1.84		2	WG1158862
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.8*				WG1158862

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	16.4		1	WG1159996
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1159996
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1159996
Methane	74-82-8	16	0.400	ND		1	WG1159996

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	382	1580		2	WG1158862
Acetone	67-64-1	58.10	2.50	5.94	23.6	56.0		2	WG1158862
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1158862
Benzene	71-43-2	78.10	0.400	1.28	2.24	7.16		2	WG1158862
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1158862
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1158862
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1158862
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1158862
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1158862
Carbon disulfide	75-15-0	76.10	0.400	1.24	3.28	10.2		2	WG1158862
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1158862
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1158862
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1158862
Chloroform	67-66-3	119	0.400	1.95	0.699	3.40		2	WG1158862
Chloromethane	74-87-3	50.50	0.400	0.826	1.29	2.66		2	WG1158862
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1158862
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1158862
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1158862
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1158862
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1158862
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	0.437	2.63		2	WG1158862
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1158862
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1158862
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1158862
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1158862
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1158862
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1158862
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1158862
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1158862
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1158862
1,4-Dioxane	123-91-1	88.10	0.400	1.44	0.961	3.46		2	WG1158862
Ethanol	64-17-5	46.10	1.26	2.38	12.2	23.1		2	WG1158862
Ethylbenzene	100-41-4	106	0.400	1.73	6.70	29.1		2	WG1158862
4-Ethyltoluene	622-96-8	120	0.400	1.96	0.863	4.23		2	WG1158862
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	0.818	4.60		2	WG1158862
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.91	9.43		2	WG1158862
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1158862
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	1.49	10.4		2	WG1158862
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1158862
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1158862
n-Hexane	110-54-3	86.20	0.400	1.41	1.22	4.30		2	WG1158862
Isopropylbenzene	98-82-8	120.20	0.400	1.97	1.08	5.32		2	WG1158862
Methylene Chloride	75-09-2	84.90	0.400	1.39	4.79	16.6		2	WG1158862
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1158862
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	4.04	11.9		2	WG1158862
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1158862
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1158862
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1158862
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1158862
2-Propanol	67-63-0	60.10	2.50	6.15	9.54	23.4		2	WG1158862
Propene	115-07-1	42.10	0.800	1.38	1.72	2.96		2	WG1158862
Styrene	100-42-5	104	0.400	1.70	15.7	66.9		2	WG1158862
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1158862
Tetrachloroethylene	127-18-4	166	0.400	2.72	17.3	117		2	WG1158862
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	1.23	3.63		2	WG1158862
Toluene	108-88-3	92.10	0.400	1.51	6.62	24.9		2	WG1158862

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1158862
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	1.15	6.23		2	WG1158862
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1158862
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1158862
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	1.01	4.93		2	WG1158862
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1158862
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1158862
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1158862
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1158862
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1158862
m&p-Xylene	1330-20-7	106	0.800	3.47	4.47	19.4		2	WG1158862
o-Xylene	95-47-6	106	0.400	1.73	1.89	8.20		2	WG1158862
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*100*				WG1158862

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	16.8		1	WG1159996
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1159996
Carbon Dioxide	124-38-9	44.01	0.500	0.972		1	WG1159996
Methane	74-82-8	16	0.400	ND		1	WG1159996

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
TPH (GC/MS) Low Fraction	8006-61-9	101	100	413	ND	ND		2	WG1158862
Acetone	67-64-1	58.10	2.50	5.94	6.40	15.2		2	WG1158862
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1158862
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1158862
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1158862
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1158862
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1158862
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1158862
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1158862
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1158862
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1158862
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1158862
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1158862
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1158862
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1158862
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1158862
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1158862
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1158862
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1158862
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1158862
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1158862
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1158862
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1158862
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1158862
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1158862
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1158862
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1158862
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1158862
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1158862
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1158862
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1158862
Ethanol	64-17-5	46.10	1.26	2.38	5.01	9.45		2	WG1158862
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1158862
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1158862
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1158862
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	2.61	12.9		2	WG1158862
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1158862
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1158862
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1158862
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1158862
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1158862
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1158862
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.711	2.47		2	WG1158862
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1158862
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1158862
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1158862
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1158862
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1158862
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1158862
2-Propanol	67-63-0	60.10	2.50	6.15	3.42	8.40		2	WG1158862
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1158862
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1158862
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1158862
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1158862
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1158862
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG1158862

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1158862
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1158862
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1158862
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1158862
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1158862
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1158862
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1158862
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1158862
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1158862
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1158862
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1158862
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1158862
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.2*				WG1158862

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	16.8		1	WG1159996
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1159996
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1159996
Methane	74-82-8	16	0.400	ND		1	WG1159996

Method Blank (MB)

(MB) R3337673-3 08/29/18 10:21

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3337673-3 08/29/18 10:21

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	0.0930	J	0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
TPH (GC/MS) Low Fraction	U		6.91	50.0
(S) 1,4-Bromofluorobenzene	*98.2*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337673-1 08/29/18 08:49 • (LCSD) R3337673-2 08/29/18 09:35

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.26	3.23	87.0	86.2	55.0-148			0.893	25
Propene	3.75	3.69	3.75	98.4	100	64.0-144			1.63	25
Dichlorodifluoromethane	3.75	3.72	3.72	99.1	99.1	64.0-139			0.0392	25
1,2-Dichlorotetrafluoroethane	3.75	3.77	3.80	101	101	70.0-130			0.793	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337673-1 08/29/18 08:49 • (LCSD) R3337673-2 08/29/18 09:35

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloromethane	3.75	3.74	3.74	99.8	99.7	70.0-130			0.125	25
Vinyl chloride	3.75	3.63	3.63	96.9	96.9	70.0-130			0.0151	25
1,3-Butadiene	3.75	3.70	3.68	98.6	98.1	70.0-130			0.577	25
Bromomethane	3.75	3.73	3.84	99.4	102	70.0-130			2.85	25
Chloroethane	3.75	3.67	3.74	97.9	99.6	70.0-130			1.79	25
Trichlorofluoromethane	3.75	3.77	3.82	101	102	70.0-130			1.10	25
1,1,2-Trichlorotrifluoroethane	3.75	3.73	3.77	99.4	100	70.0-130			0.972	25
1,1-Dichloroethene	3.75	3.77	3.79	101	101	70.0-130			0.519	25
1,1-Dichloroethane	3.75	3.71	3.76	99.0	100	70.0-130			1.17	25
Acetone	3.75	3.78	3.75	101	100	70.0-130			0.675	25
2-Propanol	3.75	3.80	3.82	101	102	70.0-139			0.419	25
Carbon disulfide	3.75	3.76	3.77	100	101	70.0-130			0.313	25
Methylene Chloride	3.75	3.60	3.65	96.0	97.2	70.0-130			1.28	25
MTBE	3.75	3.78	3.83	101	102	70.0-130			1.21	25
trans-1,2-Dichloroethene	3.75	3.75	3.79	100	101	70.0-130			1.03	25
n-Hexane	3.75	3.72	3.76	99.3	100	70.0-130			0.925	25
Vinyl acetate	3.75	3.92	3.99	105	106	70.0-130			1.61	25
Methyl Ethyl Ketone	3.75	3.84	3.85	102	103	70.0-130			0.162	25
cis-1,2-Dichloroethene	3.75	3.76	3.78	100	101	70.0-130			0.692	25
Chloroform	3.75	3.72	3.76	99.1	100	70.0-130			1.06	25
Cyclohexane	3.75	3.73	3.78	99.4	101	70.0-130			1.37	25
1,1,1-Trichloroethane	3.75	3.76	3.80	100	101	70.0-130			1.15	25
Carbon tetrachloride	3.75	3.72	3.76	99.3	100	70.0-130			1.12	25
Benzene	3.75	3.74	3.81	99.9	101	70.0-130			1.63	25
1,2-Dichloroethane	3.75	3.78	3.83	101	102	70.0-130			1.17	25
Heptane	3.75	3.79	3.81	101	102	70.0-130			0.533	25
Trichloroethylene	3.75	3.75	3.79	100	101	70.0-130			1.04	25
1,2-Dichloropropane	3.75	3.75	3.80	99.9	101	70.0-130			1.33	25
1,4-Dioxane	3.75	3.88	3.87	104	103	70.0-140			0.303	25
Bromodichloromethane	3.75	3.84	3.89	103	104	70.0-130			1.27	25
cis-1,3-Dichloropropene	3.75	3.86	3.89	103	104	70.0-130			0.851	25
4-Methyl-2-pentanone (MIBK)	3.75	3.94	4.04	105	108	70.0-139			2.52	25
Toluene	3.75	3.83	3.88	102	104	70.0-130			1.46	25
trans-1,3-Dichloropropene	3.75	3.87	3.91	103	104	70.0-130			1.05	25
1,1,2-Trichloroethane	3.75	3.81	3.85	101	103	70.0-130			1.26	25
Tetrachloroethylene	3.75	3.81	3.85	102	103	70.0-130			1.08	25
Methyl Butyl Ketone	3.75	4.10	4.08	109	109	70.0-149			0.380	25
Dibromochloromethane	3.75	3.89	3.92	104	105	70.0-130			0.839	25
1,2-Dibromoethane	3.75	3.82	3.85	102	103	70.0-130			0.913	25
Chlorobenzene	3.75	3.74	3.78	99.7	101	70.0-130			1.03	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3337673-1 08/29/18 08:49 • (LCSD) R3337673-2 08/29/18 09:35

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	3.75	3.80	3.82	101	102	70.0-130			0.551	25
m&p-Xylene	7.50	7.41	7.47	98.7	99.6	70.0-130			0.841	25
o-Xylene	3.75	3.94	3.97	105	106	70.0-130			0.649	25
Styrene	3.75	4.14	4.15	110	111	70.0-130			0.0929	25
Bromoform	3.75	4.10	4.11	109	110	70.0-130			0.272	25
1,1,2,2-Tetrachloroethane	3.75	3.93	3.93	105	105	70.0-130			0.135	25
4-Ethyltoluene	3.75	3.85	3.87	103	103	70.0-130			0.596	25
1,3,5-Trimethylbenzene	3.75	3.98	4.02	106	107	70.0-130			0.836	25
1,2,4-Trimethylbenzene	3.75	3.98	4.01	106	107	70.0-130			0.802	25
1,3-Dichlorobenzene	3.75	3.98	4.02	106	107	70.0-130			1.07	25
1,4-Dichlorobenzene	3.75	4.04	4.08	108	109	70.0-130			0.995	25
Benzyl Chloride	3.75	4.08	4.10	109	109	70.0-152			0.311	25
1,2-Dichlorobenzene	3.75	3.93	3.96	105	106	70.0-130			0.822	25
1,2,4-Trichlorobenzene	3.75	4.28	4.33	114	115	70.0-160			1.15	25
Hexachloro-1,3-butadiene	3.75	4.08	4.15	109	111	70.0-151			1.75	25
Naphthalene	3.75	4.32	4.32	115	115	70.0-159			0.0524	25
TPH (GC/MS) Low Fraction	176	190	191	108	108	70.0-130			0.567	25
Allyl Chloride	3.75	3.81	3.83	101	102	70.0-130			0.537	25
2-Chlorotoluene	3.75	3.96	4.00	106	107	70.0-130			0.947	25
Methyl Methacrylate	3.75	3.91	3.95	104	105	70.0-130			0.912	25
Tetrahydrofuran	3.75	3.76	3.81	100	102	70.0-137			1.34	25
2,2,4-Trimethylpentane	3.75	3.74	3.79	99.7	101	70.0-130			1.46	25
Vinyl Bromide	3.75	3.76	3.78	100	101	70.0-130			0.436	25
Isopropylbenzene	3.75	3.79	3.82	101	102	70.0-130			0.726	25
(S) 1,4-Bromofluorobenzene				*101*	*99.7*	*60.0-140*				

Method Blank (MB)

(MB) R3338370-3 08/31/18 11:12

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Oxygen	1.52	J	0.225	2.00
Carbon Monoxide	U		0.665	2.00
Carbon Dioxide	U		0.121	0.500
Methane	U		0.0584	0.400

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338370-1 08/31/18 10:35 • (LCSD) R3338370-2 08/31/18 10:53

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Oxygen	2.50	2.73	2.65	109	106	70.0-130			2.99	20
Carbon Monoxide	2.50	2.61	2.65	104	106	70.0-130			1.60	20
Carbon Dioxide	2.50	2.60	2.65	104	106	70.0-130			1.78	20
Methane	2.00	2.04	2.03	102	102	70.0-130			0.512	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Company Name/Address:
Terracon - Fort Collins, CO
1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Report to: **Aaron Varnell**

Email To: **aaron.varnell@terracon.com**

Project Description: **Greeley Fishing Pond**

City/State Collected:

Phone: **970-484-0359**
Fax: **970-484-0454**

Client Project # **21187023**

Lab Project # **TERRAFCO-21187023**

Collected by (print): **Aaron Varnell**

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No __Yes
FAX? ___No ___Yes

Canister Pressure/Vacuum

Analysis

Chain of Custody Page ___ of ___

ESC LAB SCIENCES
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12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 102 1287

Table #

Acctnum:
Template:
Prelogin:
TSR:
PB:

Shipped Via:

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	TO-15	Fixed Gasses, CO2 & Methane			Rem./Contaminant	Sample # (lab only)
SVP-01		8560	8/24/18	1350	20	7	X	X				01
SVP-02		6169	8/24/18	1420	24	6	X	X				02
SVP-03		6264	8/24/18	1445	26	5	X	X				03
SVP-04		6867	8/24/18	1320	24	8	X	X				04
SVP-07		8516	8/24/18	1230	24	6	X	X				05
												06

RAD SCREEN: <0.5 mR/hr

Remarks: 4VP2 6264 4263, 4294

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8/27	1600	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____

Temp: 0-1.1 °C Bottles Received: 5

Date: 8/28/18 Time: 0845

Hold #

Condition: (lab use only)

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	TerrAFCO	SDG#	102287
Cooler Received/Opened On:	3/28/18	Temperature:	4.4
Received By: Matthew Shacklock			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 07, 2018

Terracon - Fort Collins, CO

Sample Delivery Group:	L1022501
Samples Received:	08/31/2018
Project Number:	21187023
Description:	Greeley Fishing Pond

Report To: Aaron Varnell
1901 Sharp Point Drive, Ste C
Fort Collins, CO 80525

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

SB-1 4-8 L1022501-01 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:20 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:34	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:01	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 07:26	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/07/18 06:32	CJR

SB-1 8-12 L1022501-02 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:20 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:37	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:03	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 07:44	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/06/18 22:43	JF

SB-2 4-8 L1022501-03 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:00 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:39	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 08:17	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 08:03	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/06/18 23:07	JF

SB-2 8-12 L1022501-04 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:00 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:42	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:14	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 08:21	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/06/18 23:30	CJR

SB-3 4-8 L1022501-05 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:30 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:44	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:17	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 08:40	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/06/18 23:54	CJR

SB-3 8-12 L1022501-06 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:30 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:47	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:19	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 08:58	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/07/18 00:17	CJR

SB-4 4-8 L1022501-07 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:50 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:50	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:22	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 09:17	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/07/18 00:41	JF

SB-4 8-12 L1022501-08 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 12:50 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:52	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:24	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161324	1	09/03/18 09:11	09/05/18 09:35	JBE
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/07/18 01:04	CJR

SB-7 4-8 L1022501-09 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 13:15 | Received date/time: 08/31/18 08:45

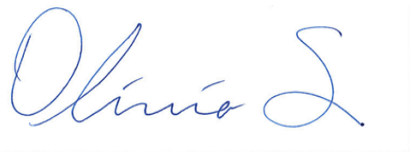
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:55	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:27	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1162177	1	09/03/18 09:11	09/06/18 12:50	DWR
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/07/18 01:28	CJR

SB-7 8-12 L1022501-10 Solid

Collected by: Jessamyn Benshoof | Collected date/time: 08/30/18 13:15 | Received date/time: 08/31/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1160906	1	09/03/18 09:00	09/04/18 10:57	EL
Metals (ICP) by Method 6010B	WG1160940	1	09/04/18 13:30	09/05/18 09:29	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1161948	1	09/03/18 09:11	09/06/18 17:26	DWR
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1160880	1	09/06/18 07:27	09/07/18 01:51	CJR

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.132		0.0200	1	09/04/2018 10:34	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.63		2.00	1	09/05/2018 09:01	WG1160940
Barium	26.9		0.500	1	09/05/2018 09:01	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:01	WG1160940
Chromium	3.27		1.00	1	09/05/2018 09:01	WG1160940
Lead	25.4		0.500	1	09/05/2018 09:01	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:01	WG1160940
Silver	ND		1.00	1	09/05/2018 09:01	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0259		0.0250	1	09/05/2018 07:26	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 07:26	WG1161324
Benzene	ND		0.00100	1	09/05/2018 07:26	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 07:26	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 07:26	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 07:26	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 07:26	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 07:26	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 07:26	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 07:26	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 07:26	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 07:26	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 07:26	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 07:26	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 07:26	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 07:26	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 07:26	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 07:26	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 07:26	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 07:26	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 07:26	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 07:26	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 07:26	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 07:26	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 07:26	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 07:26	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 07:26	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 07:26	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 07:26	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 07:26	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 07:26	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
Styrene	ND		0.0125	1	09/05/2018 07:26	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
Tetrachloroethene	ND		0.00250	1	09/05/2018 07:26	WG1161324
Toluene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 07:26	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 07:26	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 07:26	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 07:26	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 07:26	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 07:26	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 07:26	WG1161324
(S) Toluene-d8	*107*		*75.0-131*		*09/05/2018 07:26*	WG1161324
(S) Dibromofluoromethane	*88.0*		*65.0-129*		*09/05/2018 07:26*	WG1161324
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*09/05/2018 07:26*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.0838		0.0330	1	09/07/2018 06:32	WG1160880
Acenaphthylene	ND		0.0330	1	09/07/2018 06:32	WG1160880
Anthracene	0.146		0.0330	1	09/07/2018 06:32	WG1160880
Benzidine	ND	J4	0.333	1	09/07/2018 06:32	WG1160880
Benzo(a)anthracene	0.860		0.0330	1	09/07/2018 06:32	WG1160880
Benzo(b)fluoranthene	1.06		0.0330	1	09/07/2018 06:32	WG1160880
Benzo(k)fluoranthene	0.300		0.0330	1	09/07/2018 06:32	WG1160880
Benzo(g,h,i)perylene	0.274		0.0330	1	09/07/2018 06:32	WG1160880
Benzo(a)pyrene	0.796		0.0330	1	09/07/2018 06:32	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/07/2018 06:32	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/07/2018 06:32	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/07/2018 06:32	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/07/2018 06:32	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/07/2018 06:32	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/07/2018 06:32	WG1160880
Chrysene	0.945		0.0330	1	09/07/2018 06:32	WG1160880
Dibenz(a,h)anthracene	2.74		0.0330	1	09/07/2018 06:32	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/07/2018 06:32	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/07/2018 06:32	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/07/2018 06:32	WG1160880
Fluoranthene	1.37		0.0330	1	09/07/2018 06:32	WG1160880
Fluorene	ND		0.0330	1	09/07/2018 06:32	WG1160880
Hexachlorobenzene	ND		0.333	1	09/07/2018 06:32	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/07/2018 06:32	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/07/2018 06:32	WG1160880
Hexachloroethane	ND		0.333	1	09/07/2018 06:32	WG1160880
Indeno(1,2,3-cd)pyrene	8.46		0.0330	1	09/07/2018 06:32	WG1160880
Isophorone	ND		0.333	1	09/07/2018 06:32	WG1160880
Naphthalene	ND		0.0330	1	09/07/2018 06:32	WG1160880
Nitrobenzene	ND		0.333	1	09/07/2018 06:32	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/07/2018 06:32	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/07/2018 06:32	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/07/2018 06:32	WG1160880
Phenanthrene	0.586		0.0330	1	09/07/2018 06:32	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/07/2018 06:32	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/07/2018 06:32	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/07/2018 06:32	WG1160880
Diethyl phthalate	ND		0.333	1	09/07/2018 06:32	WG1160880
Dimethyl phthalate	ND		0.333	1	09/07/2018 06:32	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/07/2018 06:32	WG1160880
Pyrene	1.42		0.0330	1	09/07/2018 06:32	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/07/2018 06:32	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/07/2018 06:32	WG1160880
2-Chlorophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/07/2018 06:32	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/07/2018 06:32	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
2-Nitrophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
4-Nitrophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
Pentachlorophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
Phenol	ND		0.333	1	09/07/2018 06:32	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/07/2018 06:32	WG1160880
(S) Nitrobenzene-d5	*73.0*		*10.0-122*		*09/07/2018 06:32*	WG1160880
(S) 2-Fluorobiphenyl	*73.3*		*15.0-120*		*09/07/2018 06:32*	WG1160880
(S) p-Terphenyl-d14	*69.7*		*10.0-120*		*09/07/2018 06:32*	WG1160880
(S) Phenol-d5	*78.2*		*10.0-120*		*09/07/2018 06:32*	WG1160880
(S) 2-Fluorophenol	*82.9*		*12.0-120*		*09/07/2018 06:32*	WG1160880
(S) 2,4,6-Tribromophenol	*106*		*10.0-127*		*09/07/2018 06:32*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0208		0.0200	1	09/04/2018 10:37	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	09/05/2018 09:03	WG1160940
Barium	9.44		0.500	1	09/05/2018 09:03	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:03	WG1160940
Chromium	1.33		1.00	1	09/05/2018 09:03	WG1160940
Lead	1.37		0.500	1	09/05/2018 09:03	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:03	WG1160940
Silver	ND		1.00	1	09/05/2018 09:03	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0250	1	09/05/2018 07:44	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 07:44	WG1161324
Benzene	ND		0.00100	1	09/05/2018 07:44	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 07:44	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 07:44	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 07:44	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 07:44	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 07:44	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 07:44	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 07:44	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 07:44	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 07:44	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 07:44	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 07:44	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 07:44	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 07:44	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 07:44	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 07:44	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 07:44	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 07:44	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 07:44	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 07:44	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 07:44	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 07:44	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 07:44	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 07:44	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 07:44	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 07:44	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 07:44	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 07:44	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 07:44	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
Styrene	ND		0.0125	1	09/05/2018 07:44	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
Tetrachloroethene	ND		0.00250	1	09/05/2018 07:44	WG1161324
Toluene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 07:44	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 07:44	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 07:44	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 07:44	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 07:44	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 07:44	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 07:44	WG1161324
(S) Toluene-d8	*104*		*75.0-131*		*09/05/2018 07:44*	WG1161324
(S) Dibromofluoromethane	*93.1*		*65.0-129*		*09/05/2018 07:44*	WG1161324
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*09/05/2018 07:44*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Acenaphthylene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Anthracene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Benzidine	ND	J4	0.333	1	09/06/2018 22:43	WG1160880
Benzo(a)anthracene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Benzo(b)fluoranthene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Benzo(g,h,i)perylene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Benzo(a)pyrene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/06/2018 22:43	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/06/2018 22:43	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/06/2018 22:43	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/06/2018 22:43	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/06/2018 22:43	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/06/2018 22:43	WG1160880
Chrysene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Dibenz(a,h)anthracene	ND		0.0330	1	09/06/2018 22:43	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/06/2018 22:43	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/06/2018 22:43	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/06/2018 22:43	WG1160880
Fluoranthene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Fluorene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Hexachlorobenzene	ND		0.333	1	09/06/2018 22:43	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/06/2018 22:43	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/06/2018 22:43	WG1160880
Hexachloroethane	ND		0.333	1	09/06/2018 22:43	WG1160880
Indeno(1,2,3-cd)pyrene	0.188		0.0330	1	09/06/2018 22:43	WG1160880
Isophorone	ND		0.333	1	09/06/2018 22:43	WG1160880
Naphthalene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Nitrobenzene	ND		0.333	1	09/06/2018 22:43	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/06/2018 22:43	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/06/2018 22:43	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/06/2018 22:43	WG1160880
Phenanthrene	ND		0.0330	1	09/06/2018 22:43	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/06/2018 22:43	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/06/2018 22:43	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/06/2018 22:43	WG1160880
Diethyl phthalate	ND		0.333	1	09/06/2018 22:43	WG1160880
Dimethyl phthalate	ND		0.333	1	09/06/2018 22:43	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/06/2018 22:43	WG1160880
Pyrene	ND		0.0330	1	09/06/2018 22:43	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/06/2018 22:43	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/06/2018 22:43	WG1160880
2-Chlorophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/06/2018 22:43	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/06/2018 22:43	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
2-Nitrophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
4-Nitrophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
Pentachlorophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
Phenol	ND		0.333	1	09/06/2018 22:43	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/06/2018 22:43	WG1160880
(S) Nitrobenzene-d5	*77.5*		*10.0-122*		*09/06/2018 22:43*	WG1160880
(S) 2-Fluorobiphenyl	*72.7*		*15.0-120*		*09/06/2018 22:43*	WG1160880
(S) p-Terphenyl-d14	*80.8*		*10.0-120*		*09/06/2018 22:43*	WG1160880
(S) Phenol-d5	*77.5*		*10.0-120*		*09/06/2018 22:43*	WG1160880
(S) 2-Fluorophenol	*82.4*		*12.0-120*		*09/06/2018 22:43*	WG1160880
(S) 2,4,6-Tribromophenol	*96.1*		*10.0-127*		*09/06/2018 22:43*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0939		0.0200	1	09/04/2018 10:39	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.74		2.00	1	09/05/2018 08:17	WG1160940
Barium	55.3	O1	0.500	1	09/05/2018 08:17	WG1160940
Cadmium	0.675		0.500	1	09/05/2018 08:17	WG1160940
Chromium	7.14	O1	1.00	1	09/05/2018 08:17	WG1160940
Lead	64.3	O1	0.500	1	09/05/2018 08:17	WG1160940
Selenium	ND		2.00	1	09/05/2018 08:17	WG1160940
Silver	ND		1.00	1	09/05/2018 08:17	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0368		0.0250	1	09/05/2018 08:03	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 08:03	WG1161324
Benzene	ND		0.00100	1	09/05/2018 08:03	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 08:03	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 08:03	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 08:03	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 08:03	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 08:03	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 08:03	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 08:03	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 08:03	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 08:03	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 08:03	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 08:03	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 08:03	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 08:03	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 08:03	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 08:03	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 08:03	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 08:03	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 08:03	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 08:03	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 08:03	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 08:03	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 08:03	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 08:03	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 08:03	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 08:03	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 08:03	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 08:03	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 08:03	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
Styrene	ND		0.0125	1	09/05/2018 08:03	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
Tetrachloroethene	0.00283		0.00250	1	09/05/2018 08:03	WG1161324
Toluene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 08:03	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 08:03	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 08:03	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 08:03	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:03	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 08:03	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 08:03	WG1161324
(S) Toluene-d8	*104*		*75.0-131*		*09/05/2018 08:03*	WG1161324
(S) Dibromofluoromethane	*94.8*		*65.0-129*		*09/05/2018 08:03*	WG1161324
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*09/05/2018 08:03*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/06/2018 23:07	WG1160880
Acenaphthylene	ND		0.0330	1	09/06/2018 23:07	WG1160880
Anthracene	ND		0.0330	1	09/06/2018 23:07	WG1160880
Benzidine	ND	J4	0.333	1	09/06/2018 23:07	WG1160880
Benzo(a)anthracene	0.189		0.0330	1	09/06/2018 23:07	WG1160880
Benzo(b)fluoranthene	0.247		0.0330	1	09/06/2018 23:07	WG1160880
Benzo(k)fluoranthene	0.103		0.0330	1	09/06/2018 23:07	WG1160880
Benzo(g,h,i)perylene	0.154		0.0330	1	09/06/2018 23:07	WG1160880
Benzo(a)pyrene	0.220		0.0330	1	09/06/2018 23:07	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/06/2018 23:07	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/06/2018 23:07	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/06/2018 23:07	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/06/2018 23:07	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/06/2018 23:07	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/06/2018 23:07	WG1160880
Chrysene	0.231		0.0330	1	09/06/2018 23:07	WG1160880
Dibenz(a,h)anthracene	1.15		0.0330	1	09/06/2018 23:07	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/06/2018 23:07	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/06/2018 23:07	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/06/2018 23:07	WG1160880
Fluoranthene	0.331		0.0330	1	09/06/2018 23:07	WG1160880
Fluorene	ND		0.0330	1	09/06/2018 23:07	WG1160880
Hexachlorobenzene	ND		0.333	1	09/06/2018 23:07	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/06/2018 23:07	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/06/2018 23:07	WG1160880
Hexachloroethane	ND		0.333	1	09/06/2018 23:07	WG1160880
Indeno(1,2,3-cd)pyrene	4.08		0.0330	1	09/06/2018 23:07	WG1160880
Isophorone	ND		0.333	1	09/06/2018 23:07	WG1160880
Naphthalene	ND		0.0330	1	09/06/2018 23:07	WG1160880
Nitrobenzene	ND		0.333	1	09/06/2018 23:07	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/06/2018 23:07	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/06/2018 23:07	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/06/2018 23:07	WG1160880
Phenanthrene	0.115		0.0330	1	09/06/2018 23:07	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/06/2018 23:07	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/06/2018 23:07	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/06/2018 23:07	WG1160880
Diethyl phthalate	ND		0.333	1	09/06/2018 23:07	WG1160880
Dimethyl phthalate	ND		0.333	1	09/06/2018 23:07	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/06/2018 23:07	WG1160880
Pyrene	0.346		0.0330	1	09/06/2018 23:07	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/06/2018 23:07	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/06/2018 23:07	WG1160880
2-Chlorophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/06/2018 23:07	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/06/2018 23:07	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
2-Nitrophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
4-Nitrophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
Pentachlorophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
Phenol	ND		0.333	1	09/06/2018 23:07	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/06/2018 23:07	WG1160880
(S) Nitrobenzene-d5	*50.9*		*10.0-122*		*09/06/2018 23:07*	WG1160880
(S) 2-Fluorobiphenyl	*51.5*		*15.0-120*		*09/06/2018 23:07*	WG1160880
(S) p-Terphenyl-d14	*67.0*		*10.0-120*		*09/06/2018 23:07*	WG1160880
(S) Phenol-d5	*60.3*		*10.0-120*		*09/06/2018 23:07*	WG1160880
(S) 2-Fluorophenol	*57.4*		*12.0-120*		*09/06/2018 23:07*	WG1160880
(S) 2,4,6-Tribromophenol	*86.2*		*10.0-127*		*09/06/2018 23:07*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0240		0.0200	1	09/04/2018 10:42	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	09/05/2018 09:14	WG1160940
Barium	12.0		0.500	1	09/05/2018 09:14	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:14	WG1160940
Chromium	1.88		1.00	1	09/05/2018 09:14	WG1160940
Lead	9.77		0.500	1	09/05/2018 09:14	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:14	WG1160940
Silver	ND		1.00	1	09/05/2018 09:14	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0539		0.0250	1	09/05/2018 08:21	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 08:21	WG1161324
Benzene	ND		0.00100	1	09/05/2018 08:21	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 08:21	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 08:21	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 08:21	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 08:21	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 08:21	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 08:21	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 08:21	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 08:21	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 08:21	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 08:21	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 08:21	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 08:21	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 08:21	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 08:21	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 08:21	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 08:21	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 08:21	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 08:21	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 08:21	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 08:21	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 08:21	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 08:21	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 08:21	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 08:21	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 08:21	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 08:21	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 08:21	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 08:21	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
Styrene	ND		0.0125	1	09/05/2018 08:21	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
Tetrachloroethene	ND		0.00250	1	09/05/2018 08:21	WG1161324
Toluene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 08:21	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 08:21	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 08:21	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 08:21	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:21	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 08:21	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 08:21	WG1161324
(S) Toluene-d8	*103*		*75.0-131*		*09/05/2018 08:21*	WG1161324
(S) Dibromofluoromethane	*98.6*		*65.0-129*		*09/05/2018 08:21*	WG1161324
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*09/05/2018 08:21*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/06/2018 23:30	WG1160880
Acenaphthylene	ND		0.0330	1	09/06/2018 23:30	WG1160880
Anthracene	ND		0.0330	1	09/06/2018 23:30	WG1160880
Benzidine	ND	J4	0.333	1	09/06/2018 23:30	WG1160880
Benzo(a)anthracene	0.0339		0.0330	1	09/06/2018 23:30	WG1160880
Benzo(b)fluoranthene	0.0459		0.0330	1	09/06/2018 23:30	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/06/2018 23:30	WG1160880
Benzo(g,h,i)perylene	0.0349		0.0330	1	09/06/2018 23:30	WG1160880
Benzo(a)pyrene	0.0394		0.0330	1	09/06/2018 23:30	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/06/2018 23:30	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/06/2018 23:30	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/06/2018 23:30	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/06/2018 23:30	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/06/2018 23:30	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/06/2018 23:30	WG1160880
Chrysene	0.0372		0.0330	1	09/06/2018 23:30	WG1160880
Dibenz(a,h)anthracene	0.259		0.0330	1	09/06/2018 23:30	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/06/2018 23:30	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/06/2018 23:30	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/06/2018 23:30	WG1160880
Fluoranthene	0.0724		0.0330	1	09/06/2018 23:30	WG1160880
Fluorene	ND		0.0330	1	09/06/2018 23:30	WG1160880
Hexachlorobenzene	ND		0.333	1	09/06/2018 23:30	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/06/2018 23:30	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/06/2018 23:30	WG1160880
Hexachloroethane	ND		0.333	1	09/06/2018 23:30	WG1160880
Indeno(1,2,3-cd)pyrene	0.904		0.0330	1	09/06/2018 23:30	WG1160880
Isophorone	ND		0.333	1	09/06/2018 23:30	WG1160880
Naphthalene	ND		0.0330	1	09/06/2018 23:30	WG1160880
Nitrobenzene	ND		0.333	1	09/06/2018 23:30	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/06/2018 23:30	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/06/2018 23:30	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/06/2018 23:30	WG1160880
Phenanthrene	0.0574		0.0330	1	09/06/2018 23:30	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/06/2018 23:30	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/06/2018 23:30	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/06/2018 23:30	WG1160880
Diethyl phthalate	ND		0.333	1	09/06/2018 23:30	WG1160880
Dimethyl phthalate	ND		0.333	1	09/06/2018 23:30	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/06/2018 23:30	WG1160880
Pyrene	0.0706		0.0330	1	09/06/2018 23:30	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/06/2018 23:30	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/06/2018 23:30	WG1160880
2-Chlorophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/06/2018 23:30	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/06/2018 23:30	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
2-Nitrophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
4-Nitrophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
Pentachlorophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
Phenol	ND		0.333	1	09/06/2018 23:30	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/06/2018 23:30	WG1160880
(S) Nitrobenzene-d5	*61.9*		*10.0-122*		*09/06/2018 23:30*	WG1160880
(S) 2-Fluorobiphenyl	*61.0*		*15.0-120*		*09/06/2018 23:30*	WG1160880
(S) p-Terphenyl-d14	*74.6*		*10.0-120*		*09/06/2018 23:30*	WG1160880
(S) Phenol-d5	*65.6*		*10.0-120*		*09/06/2018 23:30*	WG1160880
(S) 2-Fluorophenol	*68.9*		*12.0-120*		*09/06/2018 23:30*	WG1160880
(S) 2,4,6-Tribromophenol	*91.8*		*10.0-127*		*09/06/2018 23:30*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0440		0.0200	1	09/04/2018 10:44	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	09/05/2018 09:17	WG1160940
Barium	15.4		0.500	1	09/05/2018 09:17	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:17	WG1160940
Chromium	2.38		1.00	1	09/05/2018 09:17	WG1160940
Lead	16.0		0.500	1	09/05/2018 09:17	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:17	WG1160940
Silver	ND		1.00	1	09/05/2018 09:17	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0250	1	09/05/2018 08:40	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 08:40	WG1161324
Benzene	ND		0.00100	1	09/05/2018 08:40	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 08:40	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 08:40	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 08:40	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 08:40	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 08:40	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 08:40	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 08:40	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 08:40	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 08:40	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 08:40	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 08:40	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 08:40	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 08:40	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 08:40	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 08:40	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 08:40	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 08:40	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 08:40	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 08:40	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 08:40	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 08:40	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 08:40	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 08:40	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 08:40	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 08:40	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 08:40	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 08:40	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 08:40	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
Styrene	ND		0.0125	1	09/05/2018 08:40	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
Tetrachloroethene	ND		0.00250	1	09/05/2018 08:40	WG1161324
Toluene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 08:40	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 08:40	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 08:40	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 08:40	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:40	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 08:40	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 08:40	WG1161324
(S) Toluene-d8	*106*		*75.0-131*		*09/05/2018 08:40*	WG1161324
(S) Dibromofluoromethane	*95.2*		*65.0-129*		*09/05/2018 08:40*	WG1161324
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*09/05/2018 08:40*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Acenaphthylene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Anthracene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Benzidine	ND	J4	0.333	1	09/06/2018 23:54	WG1160880
Benzo(a)anthracene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Benzo(b)fluoranthene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Benzo(g,h,i)perylene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Benzo(a)pyrene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/06/2018 23:54	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/06/2018 23:54	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/06/2018 23:54	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/06/2018 23:54	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/06/2018 23:54	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/06/2018 23:54	WG1160880
Chrysene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Dibenz(a,h)anthracene	ND		0.0330	1	09/06/2018 23:54	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/06/2018 23:54	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/06/2018 23:54	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/06/2018 23:54	WG1160880
Fluoranthene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Fluorene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Hexachlorobenzene	ND		0.333	1	09/06/2018 23:54	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/06/2018 23:54	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/06/2018 23:54	WG1160880
Hexachloroethane	ND		0.333	1	09/06/2018 23:54	WG1160880
Indeno(1,2,3-cd)pyrene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Isophorone	ND		0.333	1	09/06/2018 23:54	WG1160880
Naphthalene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Nitrobenzene	ND		0.333	1	09/06/2018 23:54	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/06/2018 23:54	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/06/2018 23:54	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/06/2018 23:54	WG1160880
Phenanthrene	ND		0.0330	1	09/06/2018 23:54	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/06/2018 23:54	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/06/2018 23:54	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/06/2018 23:54	WG1160880
Diethyl phthalate	ND		0.333	1	09/06/2018 23:54	WG1160880
Dimethyl phthalate	ND		0.333	1	09/06/2018 23:54	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/06/2018 23:54	WG1160880
Pyrene	ND		0.0330	1	09/06/2018 23:54	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/06/2018 23:54	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/06/2018 23:54	WG1160880
2-Chlorophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/06/2018 23:54	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/06/2018 23:54	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
2-Nitrophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
4-Nitrophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
Pentachlorophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
Phenol	ND		0.333	1	09/06/2018 23:54	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/06/2018 23:54	WG1160880
(S) Nitrobenzene-d5	*77.5*		*10.0-122*		*09/06/2018 23:54*	WG1160880
(S) 2-Fluorobiphenyl	*69.6*		*15.0-120*		*09/06/2018 23:54*	WG1160880
(S) p-Terphenyl-d14	*81.2*		*10.0-120*		*09/06/2018 23:54*	WG1160880
(S) Phenol-d5	*76.0*		*10.0-120*		*09/06/2018 23:54*	WG1160880
(S) 2-Fluorophenol	*83.1*		*12.0-120*		*09/06/2018 23:54*	WG1160880
(S) 2,4,6-Tribromophenol	*93.5*		*10.0-127*		*09/06/2018 23:54*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0223		0.0200	1	09/04/2018 10:47	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	09/05/2018 09:19	WG1160940
Barium	14.7		0.500	1	09/05/2018 09:19	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:19	WG1160940
Chromium	1.96		1.00	1	09/05/2018 09:19	WG1160940
Lead	7.65		0.500	1	09/05/2018 09:19	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:19	WG1160940
Silver	ND		1.00	1	09/05/2018 09:19	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0334		0.0250	1	09/05/2018 08:58	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 08:58	WG1161324
Benzene	ND		0.00100	1	09/05/2018 08:58	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 08:58	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 08:58	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 08:58	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 08:58	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 08:58	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 08:58	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 08:58	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 08:58	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 08:58	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 08:58	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 08:58	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 08:58	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 08:58	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 08:58	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 08:58	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 08:58	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 08:58	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 08:58	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 08:58	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 08:58	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 08:58	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 08:58	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 08:58	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 08:58	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 08:58	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 08:58	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 08:58	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 08:58	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
Styrene	ND		0.0125	1	09/05/2018 08:58	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
Tetrachloroethene	ND		0.00250	1	09/05/2018 08:58	WG1161324
Toluene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 08:58	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 08:58	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 08:58	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 08:58	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 08:58	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 08:58	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 08:58	WG1161324
(S) Toluene-d8	*103*		*75.0-131*		*09/05/2018 08:58*	WG1161324
(S) Dibromofluoromethane	*94.5*		*65.0-129*		*09/05/2018 08:58*	WG1161324
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*09/05/2018 08:58*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Acenaphthylene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Anthracene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Benzidine	ND	J4	0.333	1	09/07/2018 00:17	WG1160880
Benzo(a)anthracene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Benzo(b)fluoranthene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Benzo(g,h,i)perylene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Benzo(a)pyrene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/07/2018 00:17	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/07/2018 00:17	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/07/2018 00:17	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/07/2018 00:17	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/07/2018 00:17	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/07/2018 00:17	WG1160880
Chrysene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Dibenz(a,h)anthracene	ND		0.0330	1	09/07/2018 00:17	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/07/2018 00:17	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/07/2018 00:17	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/07/2018 00:17	WG1160880
Fluoranthene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Fluorene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Hexachlorobenzene	ND		0.333	1	09/07/2018 00:17	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/07/2018 00:17	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/07/2018 00:17	WG1160880
Hexachloroethane	ND		0.333	1	09/07/2018 00:17	WG1160880
Indeno(1,2,3-cd)pyrene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Isophorone	ND		0.333	1	09/07/2018 00:17	WG1160880
Naphthalene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Nitrobenzene	ND		0.333	1	09/07/2018 00:17	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/07/2018 00:17	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/07/2018 00:17	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/07/2018 00:17	WG1160880
Phenanthrene	ND		0.0330	1	09/07/2018 00:17	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/07/2018 00:17	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/07/2018 00:17	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/07/2018 00:17	WG1160880
Diethyl phthalate	ND		0.333	1	09/07/2018 00:17	WG1160880
Dimethyl phthalate	ND		0.333	1	09/07/2018 00:17	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/07/2018 00:17	WG1160880
Pyrene	ND		0.0330	1	09/07/2018 00:17	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/07/2018 00:17	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/07/2018 00:17	WG1160880
2-Chlorophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/07/2018 00:17	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/07/2018 00:17	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
2-Nitrophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
4-Nitrophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
Pentachlorophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
Phenol	ND		0.333	1	09/07/2018 00:17	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/07/2018 00:17	WG1160880
(S) Nitrobenzene-d5	*59.2*		*10.0-122*		*09/07/2018 00:17*	WG1160880
(S) 2-Fluorobiphenyl	*59.8*		*15.0-120*		*09/07/2018 00:17*	WG1160880
(S) p-Terphenyl-d14	*66.4*		*10.0-120*		*09/07/2018 00:17*	WG1160880
(S) Phenol-d5	*61.9*		*10.0-120*		*09/07/2018 00:17*	WG1160880
(S) 2-Fluorophenol	*65.0*		*12.0-120*		*09/07/2018 00:17*	WG1160880
(S) 2,4,6-Tribromophenol	*92.6*		*10.0-127*		*09/07/2018 00:17*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0783		0.0200	1	09/04/2018 10:50	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.71		2.00	1	09/05/2018 09:22	WG1160940
Barium	121		0.500	1	09/05/2018 09:22	WG1160940
Cadmium	0.553		0.500	1	09/05/2018 09:22	WG1160940
Chromium	14.3		1.00	1	09/05/2018 09:22	WG1160940
Lead	120		0.500	1	09/05/2018 09:22	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:22	WG1160940
Silver	ND		1.00	1	09/05/2018 09:22	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0593		0.0250	1	09/05/2018 09:17	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 09:17	WG1161324
Benzene	ND		0.00100	1	09/05/2018 09:17	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 09:17	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 09:17	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 09:17	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 09:17	WG1161324
sec-Butylbenzene	ND		0.0125	1	09/05/2018 09:17	WG1161324
tert-Butylbenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
Carbon tetrachloride	ND		0.00500	1	09/05/2018 09:17	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 09:17	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 09:17	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 09:17	WG1161324
Chloromethane	ND		0.0125	1	09/05/2018 09:17	WG1161324
2-Chlorotoluene	ND		0.00250	1	09/05/2018 09:17	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 09:17	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
Dichlorodifluoromethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,1-Dichloroethene	ND		0.00250	1	09/05/2018 09:17	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 09:17	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,1-Dichloropropene	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 09:17	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 09:17	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 09:17	WG1161324
2,2-Dichloropropane	ND		0.00250	1	09/05/2018 09:17	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 09:17	WG1161324
Ethylbenzene	ND		0.00250	1	09/05/2018 09:17	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 09:17	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/05/2018 09:17	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 09:17	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 09:17	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 09:17	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 09:17	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 09:17	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 09:17	WG1161324
n-Propylbenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
Styrene	ND		0.0125	1	09/05/2018 09:17	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
Tetrachloroethene	ND		0.00250	1	09/05/2018 09:17	WG1161324
Toluene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 09:17	WG1161324
1,1,1-Trichloroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 09:17	WG1161324
Trichlorofluoromethane	ND		0.00250	1	09/05/2018 09:17	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 09:17	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 09:17	WG1161324
Vinyl chloride	ND		0.00250	1	09/05/2018 09:17	WG1161324
Xylenes, Total	ND		0.00650	1	09/05/2018 09:17	WG1161324
(S) Toluene-d8	*104*		*75.0-131*		*09/05/2018 09:17*	WG1161324
(S) Dibromofluoromethane	*96.2*		*65.0-129*		*09/05/2018 09:17*	WG1161324
(S) 4-Bromofluorobenzene	*103*		*67.0-138*		*09/05/2018 09:17*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/07/2018 00:41	WG1160880
Acenaphthylene	ND		0.0330	1	09/07/2018 00:41	WG1160880
Anthracene	ND		0.0330	1	09/07/2018 00:41	WG1160880
Benzidine	ND	J4	0.333	1	09/07/2018 00:41	WG1160880
Benzo(a)anthracene	0.156		0.0330	1	09/07/2018 00:41	WG1160880
Benzo(b)fluoranthene	0.192		0.0330	1	09/07/2018 00:41	WG1160880
Benzo(k)fluoranthene	0.0517		0.0330	1	09/07/2018 00:41	WG1160880
Benzo(g,h,i)perylene	0.0935		0.0330	1	09/07/2018 00:41	WG1160880
Benzo(a)pyrene	0.149		0.0330	1	09/07/2018 00:41	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/07/2018 00:41	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/07/2018 00:41	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/07/2018 00:41	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/07/2018 00:41	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/07/2018 00:41	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/07/2018 00:41	WG1160880
Chrysene	0.171		0.0330	1	09/07/2018 00:41	WG1160880
Dibenz(a,h)anthracene	0.743		0.0330	1	09/07/2018 00:41	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/07/2018 00:41	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/07/2018 00:41	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/07/2018 00:41	WG1160880
Fluoranthene	0.308		0.0330	1	09/07/2018 00:41	WG1160880
Fluorene	ND		0.0330	1	09/07/2018 00:41	WG1160880
Hexachlorobenzene	ND		0.333	1	09/07/2018 00:41	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/07/2018 00:41	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/07/2018 00:41	WG1160880
Hexachloroethane	ND		0.333	1	09/07/2018 00:41	WG1160880
Indeno(1,2,3-cd)pyrene	2.41		0.0330	1	09/07/2018 00:41	WG1160880
Isophorone	ND		0.333	1	09/07/2018 00:41	WG1160880
Naphthalene	ND		0.0330	1	09/07/2018 00:41	WG1160880
Nitrobenzene	ND		0.333	1	09/07/2018 00:41	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/07/2018 00:41	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/07/2018 00:41	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/07/2018 00:41	WG1160880
Phenanthrene	0.131		0.0330	1	09/07/2018 00:41	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/07/2018 00:41	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/07/2018 00:41	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/07/2018 00:41	WG1160880
Diethyl phthalate	ND		0.333	1	09/07/2018 00:41	WG1160880
Dimethyl phthalate	ND		0.333	1	09/07/2018 00:41	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/07/2018 00:41	WG1160880
Pyrene	0.286		0.0330	1	09/07/2018 00:41	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/07/2018 00:41	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/07/2018 00:41	WG1160880
2-Chlorophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/07/2018 00:41	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/07/2018 00:41	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
2-Nitrophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
4-Nitrophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
Pentachlorophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
Phenol	ND		0.333	1	09/07/2018 00:41	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/07/2018 00:41	WG1160880
(S) Nitrobenzene-d5	*70.6*		*10.0-122*		*09/07/2018 00:41*	WG1160880
(S) 2-Fluorobiphenyl	*64.0*		*15.0-120*		*09/07/2018 00:41*	WG1160880
(S) p-Terphenyl-d14	*67.0*		*10.0-120*		*09/07/2018 00:41*	WG1160880
(S) Phenol-d5	*69.2*		*10.0-120*		*09/07/2018 00:41*	WG1160880
(S) 2-Fluorophenol	*76.6*		*12.0-120*		*09/07/2018 00:41*	WG1160880
(S) 2,4,6-Tribromophenol	*91.3*		*10.0-127*		*09/07/2018 00:41*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.143		0.0200	1	09/04/2018 10:52	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.60		2.00	1	09/05/2018 09:24	WG1160940
Barium	77.5		0.500	1	09/05/2018 09:24	WG1160940
Cadmium	0.663		0.500	1	09/05/2018 09:24	WG1160940
Chromium	9.81		1.00	1	09/05/2018 09:24	WG1160940
Lead	92.0		0.500	1	09/05/2018 09:24	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:24	WG1160940
Silver	ND		1.00	1	09/05/2018 09:24	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0865	J5	0.0250	1	09/05/2018 09:35	WG1161324
Acrylonitrile	ND		0.0125	1	09/05/2018 09:35	WG1161324
Benzene	ND	J3	0.00100	1	09/05/2018 09:35	WG1161324
Bromobenzene	ND		0.0125	1	09/05/2018 09:35	WG1161324
Bromodichloromethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
Bromoform	ND		0.0250	1	09/05/2018 09:35	WG1161324
Bromomethane	ND		0.0125	1	09/05/2018 09:35	WG1161324
n-Butylbenzene	ND		0.0125	1	09/05/2018 09:35	WG1161324
sec-Butylbenzene	ND	J3	0.0125	1	09/05/2018 09:35	WG1161324
tert-Butylbenzene	ND	J3	0.00500	1	09/05/2018 09:35	WG1161324
Carbon tetrachloride	ND	J3	0.00500	1	09/05/2018 09:35	WG1161324
Chlorobenzene	ND		0.00250	1	09/05/2018 09:35	WG1161324
Chlorodibromomethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
Chloroethane	ND		0.00500	1	09/05/2018 09:35	WG1161324
Chloroform	ND		0.00250	1	09/05/2018 09:35	WG1161324
Chloromethane	ND	J3	0.0125	1	09/05/2018 09:35	WG1161324
2-Chlorotoluene	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
4-Chlorotoluene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	09/05/2018 09:35	WG1161324
1,2-Dibromoethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
Dibromomethane	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,2-Dichlorobenzene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,3-Dichlorobenzene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,4-Dichlorobenzene	ND		0.00500	1	09/05/2018 09:35	WG1161324
Dichlorodifluoromethane	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
1,1-Dichloroethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
1,2-Dichloroethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
1,1-Dichloroethene	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
cis-1,2-Dichloroethene	ND		0.00250	1	09/05/2018 09:35	WG1161324
trans-1,2-Dichloroethene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,2-Dichloropropane	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,1-Dichloropropene	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
1,3-Dichloropropane	ND		0.00500	1	09/05/2018 09:35	WG1161324
cis-1,3-Dichloropropene	ND		0.00250	1	09/05/2018 09:35	WG1161324
trans-1,3-Dichloropropene	ND		0.00500	1	09/05/2018 09:35	WG1161324
2,2-Dichloropropane	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
Di-isopropyl ether	ND		0.00100	1	09/05/2018 09:35	WG1161324
Ethylbenzene	0.00278	J3	0.00250	1	09/05/2018 09:35	WG1161324
Hexachloro-1,3-butadiene	ND		0.0250	1	09/05/2018 09:35	WG1161324

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
p-Isopropyltoluene	ND		0.00500	1	09/05/2018 09:35	WG1161324
2-Butanone (MEK)	ND		0.0250	1	09/05/2018 09:35	WG1161324
Methylene Chloride	ND		0.0250	1	09/05/2018 09:35	WG1161324
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	09/05/2018 09:35	WG1161324
Methyl tert-butyl ether	ND		0.00100	1	09/05/2018 09:35	WG1161324
Naphthalene	ND		0.0125	1	09/05/2018 09:35	WG1161324
n-Propylbenzene	ND	J3	0.00500	1	09/05/2018 09:35	WG1161324
Styrene	ND		0.0125	1	09/05/2018 09:35	WG1161324
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
1,1,2-Trichlorotrifluoroethane	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
Tetrachloroethene	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
Toluene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,2,3-Trichlorobenzene	ND		0.00250	1	09/05/2018 09:35	WG1161324
1,2,4-Trichlorobenzene	ND		0.0125	1	09/05/2018 09:35	WG1161324
1,1,1-Trichloroethane	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
1,1,2-Trichloroethane	ND		0.00250	1	09/05/2018 09:35	WG1161324
Trichloroethene	ND		0.00100	1	09/05/2018 09:35	WG1161324
Trichlorofluoromethane	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
1,2,3-Trichloropropane	ND		0.0125	1	09/05/2018 09:35	WG1161324
1,2,4-Trimethylbenzene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,2,3-Trimethylbenzene	ND		0.00500	1	09/05/2018 09:35	WG1161324
1,3,5-Trimethylbenzene	ND		0.00500	1	09/05/2018 09:35	WG1161324
Vinyl chloride	ND	J3	0.00250	1	09/05/2018 09:35	WG1161324
Xylenes, Total	0.00799	J3	0.00650	1	09/05/2018 09:35	WG1161324
(S) Toluene-d8	*102*		*75.0-131*		*09/05/2018 09:35*	WG1161324
(S) Dibromofluoromethane	*96.0*		*65.0-129*		*09/05/2018 09:35*	WG1161324
(S) 4-Bromofluorobenzene	*105*		*67.0-138*		*09/05/2018 09:35*	WG1161324

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Acenaphthylene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Anthracene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Benzidine	ND	J4	0.333	1	09/07/2018 01:04	WG1160880
Benzo(a)anthracene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Benzo(b)fluoranthene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Benzo(g,h,i)perylene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Benzo(a)pyrene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/07/2018 01:04	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/07/2018 01:04	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/07/2018 01:04	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/07/2018 01:04	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/07/2018 01:04	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/07/2018 01:04	WG1160880
Chrysene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Dibenz(a,h)anthracene	ND		0.0330	1	09/07/2018 01:04	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/07/2018 01:04	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/07/2018 01:04	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/07/2018 01:04	WG1160880
Fluoranthene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Fluorene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Hexachlorobenzene	ND		0.333	1	09/07/2018 01:04	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/07/2018 01:04	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/07/2018 01:04	WG1160880
Hexachloroethane	ND		0.333	1	09/07/2018 01:04	WG1160880
Indeno(1,2,3-cd)pyrene	0.162		0.0330	1	09/07/2018 01:04	WG1160880
Isophorone	ND		0.333	1	09/07/2018 01:04	WG1160880
Naphthalene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Nitrobenzene	ND		0.333	1	09/07/2018 01:04	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/07/2018 01:04	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/07/2018 01:04	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/07/2018 01:04	WG1160880
Phenanthrene	ND		0.0330	1	09/07/2018 01:04	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/07/2018 01:04	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/07/2018 01:04	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/07/2018 01:04	WG1160880
Diethyl phthalate	ND		0.333	1	09/07/2018 01:04	WG1160880
Dimethyl phthalate	ND		0.333	1	09/07/2018 01:04	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/07/2018 01:04	WG1160880
Pyrene	0.0364		0.0330	1	09/07/2018 01:04	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/07/2018 01:04	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/07/2018 01:04	WG1160880
2-Chlorophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/07/2018 01:04	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/07/2018 01:04	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
2-Nitrophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
4-Nitrophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
Pentachlorophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
Phenol	ND		0.333	1	09/07/2018 01:04	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/07/2018 01:04	WG1160880
(S) Nitrobenzene-d5	*62.8*		*10.0-122*		*09/07/2018 01:04*	WG1160880
(S) 2-Fluorobiphenyl	*56.2*		*15.0-120*		*09/07/2018 01:04*	WG1160880
(S) p-Terphenyl-d14	*68.1*		*10.0-120*		*09/07/2018 01:04*	WG1160880
(S) Phenol-d5	*60.2*		*10.0-120*		*09/07/2018 01:04*	WG1160880
(S) 2-Fluorophenol	*63.4*		*12.0-120*		*09/07/2018 01:04*	WG1160880
(S) 2,4,6-Tribromophenol	*83.4*		*10.0-127*		*09/07/2018 01:04*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	09/04/2018 10:55	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	09/05/2018 09:27	WG1160940
Barium	29.7		0.500	1	09/05/2018 09:27	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:27	WG1160940
Chromium	4.29		1.00	1	09/05/2018 09:27	WG1160940
Lead	5.80		0.500	1	09/05/2018 09:27	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:27	WG1160940
Silver	ND		1.00	1	09/05/2018 09:27	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0250	1	09/06/2018 12:50	WG1162177
Acrylonitrile	ND	J4	0.0125	1	09/06/2018 12:50	WG1162177
Benzene	ND		0.00100	1	09/06/2018 12:50	WG1162177
Bromobenzene	ND		0.0125	1	09/06/2018 12:50	WG1162177
Bromodichloromethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
Bromoform	ND		0.0250	1	09/06/2018 12:50	WG1162177
Bromomethane	ND		0.0125	1	09/06/2018 12:50	WG1162177
n-Butylbenzene	ND		0.0125	1	09/06/2018 12:50	WG1162177
sec-Butylbenzene	ND		0.0125	1	09/06/2018 12:50	WG1162177
tert-Butylbenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
Carbon tetrachloride	ND		0.00500	1	09/06/2018 12:50	WG1162177
Chlorobenzene	ND		0.00250	1	09/06/2018 12:50	WG1162177
Chlorodibromomethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
Chloroethane	ND	J4	0.00500	1	09/06/2018 12:50	WG1162177
Chloroform	ND		0.00250	1	09/06/2018 12:50	WG1162177
Chloromethane	ND		0.0125	1	09/06/2018 12:50	WG1162177
2-Chlorotoluene	ND		0.00250	1	09/06/2018 12:50	WG1162177
4-Chlorotoluene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,2-Dibromo-3-Chloropropane	ND	J4	0.0250	1	09/06/2018 12:50	WG1162177
1,2-Dibromoethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
Dibromomethane	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,2-Dichlorobenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,3-Dichlorobenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,4-Dichlorobenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
Dichlorodifluoromethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,1-Dichloroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,2-Dichloroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,1-Dichloroethene	ND		0.00250	1	09/06/2018 12:50	WG1162177
cis-1,2-Dichloroethene	ND		0.00250	1	09/06/2018 12:50	WG1162177
trans-1,2-Dichloroethene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,2-Dichloropropane	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,1-Dichloropropene	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,3-Dichloropropane	ND		0.00500	1	09/06/2018 12:50	WG1162177
cis-1,3-Dichloropropene	ND		0.00250	1	09/06/2018 12:50	WG1162177
trans-1,3-Dichloropropene	ND		0.00500	1	09/06/2018 12:50	WG1162177
2,2-Dichloropropane	ND		0.00250	1	09/06/2018 12:50	WG1162177
Di-isopropyl ether	ND		0.00100	1	09/06/2018 12:50	WG1162177
Ethylbenzene	ND		0.00250	1	09/06/2018 12:50	WG1162177
Hexachloro-1,3-butadiene	ND		0.0250	1	09/06/2018 12:50	WG1162177

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/06/2018 12:50	WG1162177
p-Isopropyltoluene	ND		0.00500	1	09/06/2018 12:50	WG1162177
2-Butanone (MEK)	ND		0.0250	1	09/06/2018 12:50	WG1162177
Methylene Chloride	ND		0.0250	1	09/06/2018 12:50	WG1162177
4-Methyl-2-pentanone (MIBK)	ND	J4	0.0250	1	09/06/2018 12:50	WG1162177
Methyl tert-butyl ether	ND		0.00100	1	09/06/2018 12:50	WG1162177
Naphthalene	ND		0.0125	1	09/06/2018 12:50	WG1162177
n-Propylbenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
Styrene	ND		0.0125	1	09/06/2018 12:50	WG1162177
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
Tetrachloroethene	ND		0.00250	1	09/06/2018 12:50	WG1162177
Toluene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,2,3-Trichlorobenzene	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,2,4-Trichlorobenzene	ND		0.0125	1	09/06/2018 12:50	WG1162177
1,1,1-Trichloroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,1,2-Trichloroethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
Trichloroethene	ND		0.00100	1	09/06/2018 12:50	WG1162177
Trichlorofluoromethane	ND		0.00250	1	09/06/2018 12:50	WG1162177
1,2,3-Trichloropropane	ND		0.0125	1	09/06/2018 12:50	WG1162177
1,2,4-Trimethylbenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,2,3-Trimethylbenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
1,3,5-Trimethylbenzene	ND		0.00500	1	09/06/2018 12:50	WG1162177
Vinyl chloride	ND		0.00250	1	09/06/2018 12:50	WG1162177
Xylenes, Total	ND		0.00650	1	09/06/2018 12:50	WG1162177
(S) Toluene-d8	*105*		*75.0-131*		*09/06/2018 12:50*	WG1162177
(S) Dibromofluoromethane	*88.0*		*65.0-129*		*09/06/2018 12:50*	WG1162177
(S) 4-Bromofluorobenzene	*102*		*67.0-138*		*09/06/2018 12:50*	WG1162177

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Acenaphthylene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Anthracene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Benzidine	ND	J4	0.333	1	09/07/2018 01:28	WG1160880
Benzo(a)anthracene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Benzo(b)fluoranthene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Benzo(g,h,i)perylene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Benzo(a)pyrene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/07/2018 01:28	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/07/2018 01:28	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/07/2018 01:28	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/07/2018 01:28	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/07/2018 01:28	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/07/2018 01:28	WG1160880
Chrysene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Dibenz(a,h)anthracene	ND		0.0330	1	09/07/2018 01:28	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/07/2018 01:28	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/07/2018 01:28	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/07/2018 01:28	WG1160880
Fluoranthene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Fluorene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Hexachlorobenzene	ND		0.333	1	09/07/2018 01:28	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/07/2018 01:28	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/07/2018 01:28	WG1160880
Hexachloroethane	ND		0.333	1	09/07/2018 01:28	WG1160880
Indeno(1,2,3-cd)pyrene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Isophorone	ND		0.333	1	09/07/2018 01:28	WG1160880
Naphthalene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Nitrobenzene	ND		0.333	1	09/07/2018 01:28	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/07/2018 01:28	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/07/2018 01:28	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/07/2018 01:28	WG1160880
Phenanthrene	ND		0.0330	1	09/07/2018 01:28	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/07/2018 01:28	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/07/2018 01:28	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/07/2018 01:28	WG1160880
Diethyl phthalate	ND		0.333	1	09/07/2018 01:28	WG1160880
Dimethyl phthalate	ND		0.333	1	09/07/2018 01:28	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/07/2018 01:28	WG1160880
Pyrene	ND		0.0330	1	09/07/2018 01:28	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/07/2018 01:28	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/07/2018 01:28	WG1160880
2-Chlorophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/07/2018 01:28	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/07/2018 01:28	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
2-Nitrophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
4-Nitrophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
Pentachlorophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
Phenol	ND		0.333	1	09/07/2018 01:28	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/07/2018 01:28	WG1160880
(S) Nitrobenzene-d5	*71.3*		*10.0-122*		*09/07/2018 01:28*	WG1160880
(S) 2-Fluorobiphenyl	*67.3*		*15.0-120*		*09/07/2018 01:28*	WG1160880
(S) p-Terphenyl-d14	*69.1*		*10.0-120*		*09/07/2018 01:28*	WG1160880
(S) Phenol-d5	*75.6*		*10.0-120*		*09/07/2018 01:28*	WG1160880
(S) 2-Fluorophenol	*81.0*		*12.0-120*		*09/07/2018 01:28*	WG1160880
(S) 2,4,6-Tribromophenol	*94.9*		*10.0-127*		*09/07/2018 01:28*	WG1160880

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0763		0.0200	1	09/04/2018 10:57	WG1160906

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	09/05/2018 09:29	WG1160940
Barium	74.4		0.500	1	09/05/2018 09:29	WG1160940
Cadmium	ND		0.500	1	09/05/2018 09:29	WG1160940
Chromium	11.5		1.00	1	09/05/2018 09:29	WG1160940
Lead	7.59		0.500	1	09/05/2018 09:29	WG1160940
Selenium	ND		2.00	1	09/05/2018 09:29	WG1160940
Silver	ND		1.00	1	09/05/2018 09:29	WG1160940

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0250	1	09/06/2018 17:26	WG1161948
Acrylonitrile	ND	J4	0.0125	1	09/06/2018 17:26	WG1161948
Benzene	ND		0.00100	1	09/06/2018 17:26	WG1161948
Bromobenzene	ND		0.0125	1	09/06/2018 17:26	WG1161948
Bromodichloromethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
Bromoform	ND		0.0250	1	09/06/2018 17:26	WG1161948
Bromomethane	ND		0.0125	1	09/06/2018 17:26	WG1161948
n-Butylbenzene	ND		0.0125	1	09/06/2018 17:26	WG1161948
sec-Butylbenzene	ND		0.0125	1	09/06/2018 17:26	WG1161948
tert-Butylbenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
Carbon tetrachloride	ND		0.00500	1	09/06/2018 17:26	WG1161948
Chlorobenzene	ND		0.00250	1	09/06/2018 17:26	WG1161948
Chlorodibromomethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
Chloroethane	ND	J4	0.00500	1	09/06/2018 17:26	WG1161948
Chloroform	ND		0.00250	1	09/06/2018 17:26	WG1161948
Chloromethane	ND		0.0125	1	09/06/2018 17:26	WG1161948
2-Chlorotoluene	ND		0.00250	1	09/06/2018 17:26	WG1161948
4-Chlorotoluene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,2-Dibromo-3-Chloropropane	ND	J4	0.0250	1	09/06/2018 17:26	WG1161948
1,2-Dibromoethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
Dibromomethane	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,2-Dichlorobenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,3-Dichlorobenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,4-Dichlorobenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
Dichlorodifluoromethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,1-Dichloroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,2-Dichloroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,1-Dichloroethene	ND		0.00250	1	09/06/2018 17:26	WG1161948
cis-1,2-Dichloroethene	ND		0.00250	1	09/06/2018 17:26	WG1161948
trans-1,2-Dichloroethene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,2-Dichloropropane	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,1-Dichloropropene	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,3-Dichloropropane	ND		0.00500	1	09/06/2018 17:26	WG1161948
cis-1,3-Dichloropropene	ND		0.00250	1	09/06/2018 17:26	WG1161948
trans-1,3-Dichloropropene	ND		0.00500	1	09/06/2018 17:26	WG1161948
2,2-Dichloropropane	ND		0.00250	1	09/06/2018 17:26	WG1161948
Di-isopropyl ether	ND		0.00100	1	09/06/2018 17:26	WG1161948
Ethylbenzene	ND		0.00250	1	09/06/2018 17:26	WG1161948
Hexachloro-1,3-butadiene	ND		0.0250	1	09/06/2018 17:26	WG1161948

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	09/06/2018 17:26	WG1161948
p-Isopropyltoluene	ND		0.00500	1	09/06/2018 17:26	WG1161948
2-Butanone (MEK)	ND		0.0250	1	09/06/2018 17:26	WG1161948
Methylene Chloride	ND		0.0250	1	09/06/2018 17:26	WG1161948
4-Methyl-2-pentanone (MIBK)	ND	J4	0.0250	1	09/06/2018 17:26	WG1161948
Methyl tert-butyl ether	ND		0.00100	1	09/06/2018 17:26	WG1161948
Naphthalene	ND		0.0125	1	09/06/2018 17:26	WG1161948
n-Propylbenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
Styrene	ND		0.0125	1	09/06/2018 17:26	WG1161948
1,1,1,2-Tetrachloroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,1,2,2-Tetrachloroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
Tetrachloroethene	ND		0.00250	1	09/06/2018 17:26	WG1161948
Toluene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,2,3-Trichlorobenzene	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,2,4-Trichlorobenzene	ND		0.0125	1	09/06/2018 17:26	WG1161948
1,1,1-Trichloroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,1,2-Trichloroethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
Trichloroethene	ND		0.00100	1	09/06/2018 17:26	WG1161948
Trichlorofluoromethane	ND		0.00250	1	09/06/2018 17:26	WG1161948
1,2,3-Trichloropropane	ND		0.0125	1	09/06/2018 17:26	WG1161948
1,2,4-Trimethylbenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,2,3-Trimethylbenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
1,3,5-Trimethylbenzene	ND		0.00500	1	09/06/2018 17:26	WG1161948
Vinyl chloride	ND		0.00250	1	09/06/2018 17:26	WG1161948
Xylenes, Total	ND		0.00650	1	09/06/2018 17:26	WG1161948
(S) Toluene-d8	*110*		*75.0-131*		*09/06/2018 17:26*	WG1161948
(S) Dibromofluoromethane	*88.0*		*65.0-129*		*09/06/2018 17:26*	WG1161948
(S) 4-Bromofluorobenzene	*101*		*67.0-138*		*09/06/2018 17:26*	WG1161948

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Acenaphthylene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Anthracene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Benzidine	ND	J4	0.333	1	09/07/2018 01:51	WG1160880
Benzo(a)anthracene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Benzo(b)fluoranthene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Benzo(k)fluoranthene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Benzo(g,h,i)perylene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Benzo(a)pyrene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Bis(2-chlorethoxy)methane	ND		0.333	1	09/07/2018 01:51	WG1160880
Bis(2-chloroethyl)ether	ND		0.333	1	09/07/2018 01:51	WG1160880
Bis(2-chloroisopropyl)ether	ND		0.333	1	09/07/2018 01:51	WG1160880
4-Bromophenyl-phenylether	ND		0.333	1	09/07/2018 01:51	WG1160880
2-Chloronaphthalene	ND		0.0330	1	09/07/2018 01:51	WG1160880
4-Chlorophenyl-phenylether	ND		0.333	1	09/07/2018 01:51	WG1160880
Chrysene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Dibenz(a,h)anthracene	ND		0.0330	1	09/07/2018 01:51	WG1160880
3,3-Dichlorobenzidine	ND		0.333	1	09/07/2018 01:51	WG1160880
2,4-Dinitrotoluene	ND		0.333	1	09/07/2018 01:51	WG1160880
2,6-Dinitrotoluene	ND		0.333	1	09/07/2018 01:51	WG1160880
Fluoranthene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Fluorene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Hexachlorobenzene	ND		0.333	1	09/07/2018 01:51	WG1160880

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	09/07/2018 01:51	WG1160880
Hexachlorocyclopentadiene	ND		0.333	1	09/07/2018 01:51	WG1160880
Hexachloroethane	ND		0.333	1	09/07/2018 01:51	WG1160880
Indeno(1,2,3-cd)pyrene	0.309		0.0330	1	09/07/2018 01:51	WG1160880
Isophorone	ND		0.333	1	09/07/2018 01:51	WG1160880
Naphthalene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Nitrobenzene	ND		0.333	1	09/07/2018 01:51	WG1160880
n-Nitrosodimethylamine	ND		0.333	1	09/07/2018 01:51	WG1160880
n-Nitrosodiphenylamine	ND		0.333	1	09/07/2018 01:51	WG1160880
n-Nitrosodi-n-propylamine	ND		0.333	1	09/07/2018 01:51	WG1160880
Phenanthrene	ND		0.0330	1	09/07/2018 01:51	WG1160880
Benzylbutyl phthalate	ND		0.333	1	09/07/2018 01:51	WG1160880
Bis(2-ethylhexyl)phthalate	ND		0.333	1	09/07/2018 01:51	WG1160880
Di-n-butyl phthalate	ND		0.333	1	09/07/2018 01:51	WG1160880
Diethyl phthalate	ND		0.333	1	09/07/2018 01:51	WG1160880
Dimethyl phthalate	ND		0.333	1	09/07/2018 01:51	WG1160880
Di-n-octyl phthalate	ND		0.333	1	09/07/2018 01:51	WG1160880
Pyrene	ND		0.0330	1	09/07/2018 01:51	WG1160880
1,2,4-Trichlorobenzene	ND		0.333	1	09/07/2018 01:51	WG1160880
4-Chloro-3-methylphenol	ND		0.333	1	09/07/2018 01:51	WG1160880
2-Chlorophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
2,4-Dichlorophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
2,4-Dimethylphenol	ND		0.333	1	09/07/2018 01:51	WG1160880
4,6-Dinitro-2-methylphenol	ND		0.333	1	09/07/2018 01:51	WG1160880
2,4-Dinitrophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
2-Nitrophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
4-Nitrophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
Pentachlorophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
Phenol	ND		0.333	1	09/07/2018 01:51	WG1160880
2,4,6-Trichlorophenol	ND		0.333	1	09/07/2018 01:51	WG1160880
(S) Nitrobenzene-d5	*66.4*		*10.0-122*		*09/07/2018 01:51*	WG1160880
(S) 2-Fluorobiphenyl	*62.5*		*15.0-120*		*09/07/2018 01:51*	WG1160880
(S) p-Terphenyl-d14	*71.2*		*10.0-120*		*09/07/2018 01:51*	WG1160880
(S) Phenol-d5	*65.2*		*10.0-120*		*09/07/2018 01:51*	WG1160880
(S) 2-Fluorophenol	*71.9*		*12.0-120*		*09/07/2018 01:51*	WG1160880
(S) 2,4,6-Tribromophenol	*83.6*		*10.0-127*		*09/07/2018 01:51*	WG1160880

Method Blank (MB)

(MB) R3338978-1 09/04/18 09:43

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3338978-2 09/04/18 09:45 • (LCSD) R3338978-3 09/04/18 09:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.325	0.320	108	107	80.0-120			1.67	20

L1021632-41 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1021632-41 09/04/18 09:51 • (MS) R3338978-4 09/04/18 09:53 • (MSD) R3338978-5 09/04/18 10:03

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.0237	0.415	0.336	130	104	1	75.0-125	J5	J3	20.9	20

Method Blank (MB)

(MB) R3339213-1 09/05/18 08:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.170	0.500
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Lead	U		0.190	0.500
Selenium	U		0.620	2.00
Silver	U		0.120	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339213-2 09/05/18 08:12 • (LCSD) R3339213-3 09/05/18 08:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	95.7	96.4	95.7	96.4	80.0-120			0.706	20
Barium	100	102	102	102	102	80.0-120			0.127	20
Cadmium	100	98.3	98.5	98.3	98.5	80.0-120			0.189	20
Chromium	100	99.4	99.0	99.4	99.0	80.0-120			0.481	20
Lead	100	97.6	98.0	97.6	98.0	80.0-120			0.378	20
Selenium	100	95.3	95.5	95.3	95.5	80.0-120			0.175	20
Silver	20.0	18.5	18.4	92.6	92.1	80.0-120			0.519	20

L1022501-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022501-03 09/05/18 08:17 • (MS) R3339213-6 09/05/18 08:24 • (MSD) R3339213-7 09/05/18 08:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	6.74	105	97.7	98.6	91.0	1	75.0-125			7.48	20
Barium	100	55.3	159	164	104	108	1	75.0-125			2.69	20
Cadmium	100	0.675	103	94.5	102	93.9	1	75.0-125			8.45	20
Chromium	100	7.14	108	101	101	94.0	1	75.0-125			6.85	20
Lead	100	64.3	153	144	88.5	79.3	1	75.0-125			6.20	20
Selenium	100	ND	99.5	90.4	99.5	90.4	1	75.0-125			9.52	20
Silver	20.0	ND	19.5	18.0	95.6	87.9	1	75.0-125			8.14	20

Method Blank (MB)

(MB) R3339414-1 09/05/18 03:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Acrylonitrile	U		0.00190	0.0125
Benzene	U		0.000400	0.00100
Bromobenzene	U		0.00105	0.0125
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
n-Butylbenzene	U		0.00384	0.0125
sec-Butylbenzene	U		0.00253	0.0125
tert-Butylbenzene	U		0.00155	0.00500
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
2-Chlorotoluene	U		0.000920	0.00250
4-Chlorotoluene	U		0.00113	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
Dibromomethane	U		0.00100	0.00500
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
cis-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
1,1-Dichloropropene	U		0.000700	0.00250
1,3-Dichloropropane	U		0.00175	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
2,2-Dichloropropane	U		0.000793	0.00250
Di-isopropyl ether	U		0.000350	0.00100
Ethylbenzene	U		0.000530	0.00250
Hexachloro-1,3-butadiene	U		0.0127	0.0250
Isopropylbenzene	U		0.000863	0.00250

Method Blank (MB)

(MB) R3339414-1 09/05/18 03:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00233	0.00500
2-Butanone (MEK)	U		0.0125	0.0250
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Naphthalene	U		0.00312	0.0125
n-Propylbenzene	U		0.00118	0.00500
Styrene	U		0.00273	0.0125
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	U		0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	U		0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
1,2,3-Trichloropropane	U		0.00510	0.0125
1,2,3-Trimethylbenzene	U		0.00115	0.00500
1,2,4-Trimethylbenzene	U		0.00116	0.00500
1,3,5-Trimethylbenzene	U		0.00108	0.00500
Vinyl chloride	U		0.000683	0.00250
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*105*			*75.0-131*
(S) Dibromofluoromethane	*94.8*			*65.0-129*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*

Laboratory Control Sample (LCS)

(LCS) R3339414-2 09/05/18 10:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.625	0.554	88.6	10.0-160	
Acrylonitrile	0.625	0.643	103	45.0-153	
Benzene	0.125	0.116	92.7	70.0-123	
Bromobenzene	0.125	0.124	98.9	73.0-121	
Bromodichloromethane	0.125	0.124	99.3	73.0-121	

Laboratory Control Sample (LCS)

(LCS) R3339414-2 09/05/18 10:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromoform	0.125	0.135	108	64.0-132	
Bromomethane	0.125	0.117	93.7	56.0-147	
n-Butylbenzene	0.125	0.116	92.7	68.0-135	
sec-Butylbenzene	0.125	0.123	98.7	74.0-130	
tert-Butylbenzene	0.125	0.119	95.5	75.0-127	
Carbon tetrachloride	0.125	0.140	112	66.0-128	
Chlorobenzene	0.125	0.132	105	76.0-128	
Chlorodibromomethane	0.125	0.138	111	74.0-127	
Chloroethane	0.125	0.134	107	61.0-134	
Chloroform	0.125	0.111	88.9	72.0-123	
Chloromethane	0.125	0.139	111	51.0-138	
2-Chlorotoluene	0.125	0.123	98.4	75.0-124	
4-Chlorotoluene	0.125	0.118	94.3	75.0-124	
1,2-Dibromo-3-Chloropropane	0.125	0.144	115	59.0-130	
1,2-Dibromoethane	0.125	0.132	106	74.0-128	
Dibromomethane	0.125	0.124	98.8	75.0-122	
1,2-Dichlorobenzene	0.125	0.131	105	76.0-124	
1,3-Dichlorobenzene	0.125	0.125	99.6	76.0-125	
1,4-Dichlorobenzene	0.125	0.123	98.4	77.0-121	
Dichlorodifluoromethane	0.125	0.120	95.8	43.0-156	
1,1-Dichloroethane	0.125	0.121	97.0	70.0-127	
1,2-Dichloroethane	0.125	0.118	94.0	65.0-131	
1,1-Dichloroethene	0.125	0.122	97.8	65.0-131	
cis-1,2-Dichloroethene	0.125	0.110	88.3	73.0-125	
trans-1,2-Dichloroethene	0.125	0.114	91.5	71.0-125	
1,2-Dichloropropane	0.125	0.129	103	74.0-125	
1,1-Dichloropropene	0.125	0.123	98.0	73.0-125	
1,3-Dichloropropane	0.125	0.142	114	80.0-125	
cis-1,3-Dichloropropene	0.125	0.134	107	76.0-127	
trans-1,3-Dichloropropene	0.125	0.137	109	73.0-127	
2,2-Dichloropropane	0.125	0.121	97.1	59.0-135	
Di-isopropyl ether	0.125	0.131	104	60.0-136	
Ethylbenzene	0.125	0.132	105	74.0-126	
Hexachloro-1,3-butadiene	0.125	0.117	93.5	57.0-150	
Isopropylbenzene	0.125	0.126	101	72.0-127	
p-Isopropyltoluene	0.125	0.123	98.1	72.0-133	
2-Butanone (MEK)	0.625	0.707	113	30.0-160	
Methylene Chloride	0.125	0.0956	76.4	68.0-123	
4-Methyl-2-pentanone (MIBK)	0.625	0.767	123	56.0-143	
Methyl tert-butyl ether	0.125	0.112	89.5	66.0-132	

Laboratory Control Sample (LCS)

(LCS) R3339414-2 09/05/18 10:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.125	0.139	111	59.0-130	
n-Propylbenzene	0.125	0.121	97.1	74.0-126	
Styrene	0.125	0.124	99.0	72.0-127	
1,1,1,2-Tetrachloroethane	0.125	0.129	103	74.0-129	
1,1,2,2-Tetrachloroethane	0.125	0.112	89.9	68.0-128	
Tetrachloroethene	0.125	0.132	105	70.0-136	
Toluene	0.125	0.125	100	75.0-121	
1,1,2-Trichlorotrifluoroethane	0.125	0.125	100	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.128	102	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.128	103	62.0-137	
1,1,1-Trichloroethane	0.125	0.121	96.4	69.0-126	
1,1,2-Trichloroethane	0.125	0.133	106	78.0-123	
Trichloroethene	0.125	0.139	111	76.0-126	
Trichlorofluoromethane	0.125	0.130	104	61.0-142	
1,2,3-Trichloropropane	0.125	0.132	106	67.0-129	
1,2,3-Trimethylbenzene	0.125	0.120	95.9	74.0-124	
1,2,4-Trimethylbenzene	0.125	0.125	99.7	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.124	98.8	73.0-127	
Vinyl chloride	0.125	0.120	95.8	63.0-134	
Xylenes, Total	0.375	0.387	103	72.0-127	
(S) Toluene-d8			*108*	*75.0-131*	
(S) Dibromofluoromethane			*88.2*	*65.0-129*	
(S) 4-Bromofluorobenzene			*102*	*67.0-138*	

L1022501-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022501-08 09/05/18 09:35 • (MS) R3339414-3 09/05/18 10:49 • (MSD) R3339414-4 09/05/18 11:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.625	0.0865	12.3	10.1	1950	1600	1	10.0-160	J5	J5	19.8	40
Acrylonitrile	0.625	ND	0.867	0.642	139	103	1	10.0-160			29.8	40
Benzene	0.125	ND	0.0658	0.0972	52.7	77.7	1	10.0-149		J3	38.4	37
Bromobenzene	0.125	ND	0.0989	0.121	79.1	96.4	1	10.0-156			19.7	38
Bromodichloromethane	0.125	ND	0.0941	0.114	75.3	91.4	1	10.0-143			19.3	37
Bromoform	0.125	ND	0.141	0.126	113	101	1	10.0-146			11.4	36
Bromomethane	0.125	ND	0.0389	0.0544	31.2	43.5	1	10.0-149			33.1	38
n-Butylbenzene	0.125	ND	0.0799	0.115	63.9	92.4	1	10.0-160			36.4	40
sec-Butylbenzene	0.125	ND	0.0799	0.121	63.9	97.1	1	10.0-159		J3	41.2	39
tert-Butylbenzene	0.125	ND	0.0791	0.118	63.3	94.6	1	10.0-156		J3	39.6	39

L1022501-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022501-08 09/05/18 09:35 • (MS) R3339414-3 09/05/18 10:49 • (MSD) R3339414-4 09/05/18 11:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.125	ND	0.0629	0.118	50.3	94.3	1	10.0-145		J3	60.9	37
Chlorobenzene	0.125	ND	0.0865	0.120	69.2	96.2	1	10.0-152			32.7	39
Chlorodibromomethane	0.125	ND	0.121	0.127	96.6	102	1	10.0-146			5.18	37
Chloroethane	0.125	ND	0.0458	0.0661	36.7	52.9	1	10.0-146			36.3	40
Chloroform	0.125	ND	0.0730	0.0952	58.4	76.2	1	10.0-146			26.4	37
Chloromethane	0.125	ND	0.0471	0.0873	37.7	69.8	1	10.0-159		J3	59.8	37
2-Chlorotoluene	0.125	ND	0.0791	0.116	63.3	93.1	1	10.0-159		J3	38.1	38
4-Chlorotoluene	0.125	ND	0.0836	0.115	66.9	91.9	1	10.0-155			31.5	39
1,2-Dibromo-3-Chloropropane	0.125	ND	0.143	0.109	114	87.5	1	10.0-151			26.6	39
1,2-Dibromoethane	0.125	ND	0.125	0.119	100	94.9	1	10.0-148			5.31	34
Dibromomethane	0.125	ND	0.102	0.117	81.7	93.4	1	10.0-147			13.3	35
1,2-Dichlorobenzene	0.125	ND	0.104	0.124	82.8	99.4	1	10.0-155			18.2	37
1,3-Dichlorobenzene	0.125	ND	0.0966	0.124	77.3	98.9	1	10.0-153			24.5	38
1,4-Dichlorobenzene	0.125	ND	0.0978	0.121	78.2	97.0	1	10.0-151			21.4	38
Dichlorodifluoromethane	0.125	ND	0.0442	0.0900	35.4	72.0	1	10.0-160		J3	68.2	35
1,1-Dichloroethane	0.125	ND	0.0678	0.0985	54.3	78.8	1	10.0-147			36.9	37
1,2-Dichloroethane	0.125	ND	0.0992	0.101	79.4	80.5	1	10.0-148			1.37	35
1,1-Dichloroethene	0.125	ND	0.0556	0.0996	44.5	79.7	1	10.0-155		J3	56.6	37
cis-1,2-Dichloroethene	0.125	ND	0.0672	0.0877	53.8	70.2	1	10.0-149			26.4	37
trans-1,2-Dichloroethene	0.125	ND	0.0528	0.0708	42.3	56.6	1	10.0-150			29.0	37
1,2-Dichloropropane	0.125	ND	0.0919	0.116	73.5	93.1	1	10.0-148			23.5	37
1,1-Dichloropropene	0.125	ND	0.0525	0.0902	42.0	72.1	1	10.0-153		J3	52.9	35
1,3-Dichloropropane	0.125	ND	0.129	0.131	103	105	1	10.0-154			2.02	35
cis-1,3-Dichloropropene	0.125	ND	0.0970	0.121	77.6	96.9	1	10.0-151			22.1	37
trans-1,3-Dichloropropene	0.125	ND	0.110	0.118	87.7	94.7	1	10.0-148			7.71	37
2,2-Dichloropropane	0.125	ND	0.0407	0.0820	32.6	65.6	1	10.0-138		J3	67.2	36
Di-isopropyl ether	0.125	ND	0.0922	0.119	73.8	95.2	1	10.0-147			25.4	36
Ethylbenzene	0.125	0.00278	0.0797	0.121	61.5	95.0	1	10.0-160		J3	41.5	38
Hexachloro-1,3-butadiene	0.125	ND	0.0955	0.124	76.4	99.1	1	10.0-160			25.8	40
Isopropylbenzene	0.125	ND	0.0787	0.121	63.0	96.4	1	10.0-155		J3	41.9	38
p-Isopropyltoluene	0.125	ND	0.0850	0.122	68.0	97.9	1	10.0-160			36.0	40
2-Butanone (MEK)	0.625	ND	0.918	0.725	147	116	1	10.0-160			23.5	40
Methylene Chloride	0.125	ND	0.0826	0.101	66.0	80.6	1	10.0-141			19.9	37
4-Methyl-2-pentanone (MIBK)	0.625	ND	0.774	0.611	124	97.8	1	10.0-160			23.5	35
Methyl tert-butyl ether	0.125	ND	0.0794	0.0899	63.5	71.9	1	11.0-147			12.4	35
Naphthalene	0.125	ND	0.128	0.111	102	89.1	1	10.0-160			13.8	36
n-Propylbenzene	0.125	ND	0.0742	0.118	59.4	94.1	1	10.0-158		J3	45.3	38
Styrene	0.125	ND	0.0933	0.121	74.6	96.7	1	10.0-160			25.8	40
1,1,1,2-Tetrachloroethane	0.125	ND	0.0904	0.114	72.3	91.0	1	10.0-149			22.9	39
1,1,2,2-Tetrachloroethane	0.125	ND	0.123	0.107	98.6	86.0	1	10.0-160			13.7	35

L1022501-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022501-08 09/05/18 09:35 • (MS) R3339414-3 09/05/18 10:49 • (MSD) R3339414-4 09/05/18 11:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Tetrachloroethene	0.125	ND	0.0681	0.113	53.2	89.2	1	10.0-156		J3	49.6	39
Toluene	0.125	ND	0.0830	0.122	63.0	93.9	1	10.0-156			37.8	38
1,1,2-Trichlorotrifluoroethane	0.125	ND	0.0583	0.107	46.7	85.4	1	10.0-160		J3	58.6	36
1,2,3-Trichlorobenzene	0.125	ND	0.108	0.109	86.4	87.6	1	10.0-160			1.34	40
1,2,4-Trichlorobenzene	0.125	ND	0.101	0.116	80.6	93.1	1	10.0-160			14.4	40
1,1,1-Trichloroethane	0.125	ND	0.0588	0.104	47.0	83.0	1	10.0-144		J3	55.3	35
1,1,2-Trichloroethane	0.125	ND	0.131	0.129	105	103	1	10.0-160			1.50	35
Trichloroethene	0.125	ND	0.0779	0.114	62.3	91.2	1	10.0-156			37.6	38
Trichlorofluoromethane	0.125	ND	0.0499	0.0876	39.9	70.1	1	10.0-160		J3	54.9	40
1,2,3-Trichloropropane	0.125	ND	0.146	0.122	117	97.5	1	10.0-156			18.0	35
1,2,3-Trimethylbenzene	0.125	ND	0.0883	0.114	70.6	91.1	1	10.0-160			25.4	36
1,2,4-Trimethylbenzene	0.125	ND	0.0860	0.118	67.1	92.3	1	10.0-160			31.0	36
1,3,5-Trimethylbenzene	0.125	ND	0.0821	0.120	65.6	96.0	1	10.0-160			37.5	38
Vinyl chloride	0.125	ND	0.0408	0.0862	32.6	69.0	1	10.0-160		J3	71.5	37
Xylenes, Total	0.375	0.00799	0.241	0.361	62.1	94.1	1	10.0-160		J3	39.9	38
(S) Toluene-d8					*103*	*106*		*75.0-131*				
(S) Dibromofluoromethane					*95.0*	*83.3*		*65.0-129*				
(S) 4-Bromofluorobenzene					*108*	*104*		*67.0-138*				

Method Blank (MB)

(MB) R3339894-2 09/06/18 11:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Acrylonitrile	U		0.00190	0.0125
Benzene	U		0.000400	0.00100
Bromobenzene	U		0.00105	0.0125
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
n-Butylbenzene	U		0.00384	0.0125
sec-Butylbenzene	U		0.00253	0.0125
tert-Butylbenzene	U		0.00155	0.00500
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
2-Chlorotoluene	U		0.000920	0.00250
4-Chlorotoluene	U		0.00113	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
Dibromomethane	U		0.00100	0.00500
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
cis-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
1,1-Dichloropropene	U		0.000700	0.00250
1,3-Dichloropropane	U		0.00175	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
2,2-Dichloropropane	U		0.000793	0.00250
Di-isopropyl ether	U		0.000350	0.00100
Ethylbenzene	U		0.000530	0.00250
Hexachloro-1,3-butadiene	U		0.0127	0.0250
Isopropylbenzene	U		0.000863	0.00250

Method Blank (MB)

(MB) R3339894-2 09/06/18 11:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00233	0.00500
2-Butanone (MEK)	U		0.0125	0.0250
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Naphthalene	U		0.00312	0.0125
n-Propylbenzene	U		0.00118	0.00500
Styrene	U		0.00273	0.0125
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	0.000784	J	0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	0.000781	J	0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
1,2,3-Trichloropropane	U		0.00510	0.0125
1,2,3-Trimethylbenzene	U		0.00115	0.00500
1,2,4-Trimethylbenzene	U		0.00116	0.00500
1,3,5-Trimethylbenzene	U		0.00108	0.00500
Vinyl chloride	U		0.000683	0.00250
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*108*			*75.0-131*
(S) Dibromofluoromethane	*88.1*			*65.0-129*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*

Laboratory Control Sample (LCS)

(LCS) R3339894-1 09/06/18 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.625	0.578	92.5	10.0-160	
Acrylonitrile	0.625	1.12	179	45.0-153	J4
Benzene	0.125	0.121	97.1	70.0-123	
Bromobenzene	0.125	0.122	97.2	73.0-121	
Bromodichloromethane	0.125	0.128	102	73.0-121	

Laboratory Control Sample (LCS)

(LCS) R3339894-1 09/06/18 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromoform	0.125	0.148	118	64.0-132	
Bromomethane	0.125	0.115	91.6	56.0-147	
n-Butylbenzene	0.125	0.107	85.3	68.0-135	
sec-Butylbenzene	0.125	0.113	90.2	74.0-130	
tert-Butylbenzene	0.125	0.111	89.1	75.0-127	
Carbon tetrachloride	0.125	0.127	101	66.0-128	
Chlorobenzene	0.125	0.121	96.7	76.0-128	
Chlorodibromomethane	0.125	0.133	106	74.0-127	
Chloroethane	0.125	0.0637	50.9	61.0-134	J4
Chloroform	0.125	0.124	98.9	72.0-123	
Chloromethane	0.125	0.123	98.1	51.0-138	
2-Chlorotoluene	0.125	0.113	90.8	75.0-124	
4-Chlorotoluene	0.125	0.117	93.7	75.0-124	
1,2-Dibromo-3-Chloropropane	0.125	0.169	135	59.0-130	J4
1,2-Dibromoethane	0.125	0.136	109	74.0-128	
Dibromomethane	0.125	0.134	107	75.0-122	
1,2-Dichlorobenzene	0.125	0.131	105	76.0-124	
1,3-Dichlorobenzene	0.125	0.124	99.5	76.0-125	
1,4-Dichlorobenzene	0.125	0.121	97.0	77.0-121	
Dichlorodifluoromethane	0.125	0.117	93.2	43.0-156	
1,1-Dichloroethane	0.125	0.127	101	70.0-127	
1,2-Dichloroethane	0.125	0.135	108	65.0-131	
1,1-Dichloroethene	0.125	0.114	91.2	65.0-131	
cis-1,2-Dichloroethene	0.125	0.123	98.8	73.0-125	
trans-1,2-Dichloroethene	0.125	0.117	93.5	71.0-125	
1,2-Dichloropropane	0.125	0.132	106	74.0-125	
1,1-Dichloropropene	0.125	0.122	97.3	73.0-125	
1,3-Dichloropropane	0.125	0.138	110	80.0-125	
cis-1,3-Dichloropropene	0.125	0.125	99.8	76.0-127	
trans-1,3-Dichloropropene	0.125	0.136	108	73.0-127	
2,2-Dichloropropane	0.125	0.116	92.6	59.0-135	
Di-isopropyl ether	0.125	0.130	104	60.0-136	
Ethylbenzene	0.125	0.117	93.2	74.0-126	
Hexachloro-1,3-butadiene	0.125	0.107	85.6	57.0-150	
Isopropylbenzene	0.125	0.115	92.2	72.0-127	
p-Isopropyltoluene	0.125	0.114	91.0	72.0-133	
2-Butanone (MEK)	0.625	0.961	154	30.0-160	
Methylene Chloride	0.125	0.116	92.7	68.0-123	
4-Methyl-2-pentanone (MIBK)	0.625	0.899	144	56.0-143	J4
Methyl tert-butyl ether	0.125	0.122	97.8	66.0-132	

Laboratory Control Sample (LCS)

(LCS) R3339894-1 09/06/18 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.125	0.149	120	59.0-130	
n-Propylbenzene	0.125	0.114	91.4	74.0-126	
Styrene	0.125	0.121	97.0	72.0-127	
1,1,1,2-Tetrachloroethane	0.125	0.117	93.3	74.0-129	
1,1,2,2-Tetrachloroethane	0.125	0.134	107	68.0-128	
Tetrachloroethene	0.125	0.119	95.3	70.0-136	
Toluene	0.125	0.113	90.0	75.0-121	
1,1,2-Trichlorotrifluoroethane	0.125	0.119	95.0	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.126	101	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.126	101	62.0-137	
1,1,1-Trichloroethane	0.125	0.103	82.0	69.0-126	
1,1,2-Trichloroethane	0.125	0.138	111	78.0-123	
Trichloroethene	0.125	0.128	103	76.0-126	
Trichlorofluoromethane	0.125	0.129	104	61.0-142	
1,2,3-Trichloropropane	0.125	0.154	124	67.0-129	
1,2,3-Trimethylbenzene	0.125	0.111	88.8	74.0-124	
1,2,4-Trimethylbenzene	0.125	0.114	91.0	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.114	91.5	73.0-127	
Vinyl chloride	0.125	0.110	87.8	63.0-134	
Xylenes, Total	0.375	0.346	92.3	72.0-127	
(S) Toluene-d8			*97.5*	*75.0-131*	
(S) Dibromofluoromethane			*102*	*65.0-129*	
(S) 4-Bromofluorobenzene			*102*	*67.0-138*	

Method Blank (MB)

(MB) R3339728-2 09/06/18 11:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Acrylonitrile	U		0.00190	0.0125
Benzene	U		0.000400	0.00100
Bromobenzene	U		0.00105	0.0125
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
n-Butylbenzene	U		0.00384	0.0125
sec-Butylbenzene	U		0.00253	0.0125
tert-Butylbenzene	U		0.00155	0.00500
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
2-Chlorotoluene	U		0.000920	0.00250
4-Chlorotoluene	U		0.00113	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
Dibromomethane	U		0.00100	0.00500
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
cis-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
1,1-Dichloropropene	U		0.000700	0.00250
1,3-Dichloropropane	U		0.00175	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
2,2-Dichloropropane	U		0.000793	0.00250
Di-isopropyl ether	U		0.000350	0.00100
Ethylbenzene	U		0.000530	0.00250
Hexachloro-1,3-butadiene	U		0.0127	0.0250
Isopropylbenzene	U		0.000863	0.00250

Method Blank (MB)

(MB) R3339728-2 09/06/18 11:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00233	0.00500
2-Butanone (MEK)	U		0.0125	0.0250
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Naphthalene	U		0.00312	0.0125
n-Propylbenzene	U		0.00118	0.00500
Styrene	U		0.00273	0.0125
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	0.000784	J	0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	0.000781	J	0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
1,2,3-Trichloropropane	U		0.00510	0.0125
1,2,3-Trimethylbenzene	U		0.00115	0.00500
1,2,4-Trimethylbenzene	U		0.00116	0.00500
1,3,5-Trimethylbenzene	U		0.00108	0.00500
Vinyl chloride	U		0.000683	0.00250
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*108*			*75.0-131*
(S) Dibromofluoromethane	*88.1*			*65.0-129*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*

Laboratory Control Sample (LCS)

(LCS) R3339728-1 09/06/18 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.625	0.578	92.5	10.0-160	
Acrylonitrile	0.625	1.12	179	45.0-153	J4
Benzene	0.125	0.121	97.1	70.0-123	
Bromobenzene	0.125	0.122	97.2	73.0-121	
Bromodichloromethane	0.125	0.128	102	73.0-121	

Laboratory Control Sample (LCS)

(LCS) R3339728-1 09/06/18 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromoform	0.125	0.148	118	64.0-132	
Bromomethane	0.125	0.115	91.6	56.0-147	
n-Butylbenzene	0.125	0.107	85.3	68.0-135	
sec-Butylbenzene	0.125	0.113	90.2	74.0-130	
tert-Butylbenzene	0.125	0.111	89.1	75.0-127	
Carbon tetrachloride	0.125	0.127	101	66.0-128	
Chlorobenzene	0.125	0.121	96.7	76.0-128	
Chlorodibromomethane	0.125	0.133	106	74.0-127	
Chloroethane	0.125	0.0637	50.9	61.0-134	J4
Chloroform	0.125	0.124	98.9	72.0-123	
Chloromethane	0.125	0.123	98.1	51.0-138	
2-Chlorotoluene	0.125	0.113	90.8	75.0-124	
4-Chlorotoluene	0.125	0.117	93.7	75.0-124	
1,2-Dibromo-3-Chloropropane	0.125	0.169	135	59.0-130	J4
1,2-Dibromoethane	0.125	0.136	109	74.0-128	
Dibromomethane	0.125	0.134	107	75.0-122	
1,2-Dichlorobenzene	0.125	0.131	105	76.0-124	
1,3-Dichlorobenzene	0.125	0.124	99.5	76.0-125	
1,4-Dichlorobenzene	0.125	0.121	97.0	77.0-121	
Dichlorodifluoromethane	0.125	0.117	93.2	43.0-156	
1,1-Dichloroethane	0.125	0.127	101	70.0-127	
1,2-Dichloroethane	0.125	0.135	108	65.0-131	
1,1-Dichloroethene	0.125	0.114	91.2	65.0-131	
cis-1,2-Dichloroethene	0.125	0.123	98.8	73.0-125	
trans-1,2-Dichloroethene	0.125	0.117	93.5	71.0-125	
1,2-Dichloropropane	0.125	0.132	106	74.0-125	
1,1-Dichloropropene	0.125	0.122	97.3	73.0-125	
1,3-Dichloropropane	0.125	0.138	110	80.0-125	
cis-1,3-Dichloropropene	0.125	0.125	99.8	76.0-127	
trans-1,3-Dichloropropene	0.125	0.136	108	73.0-127	
2,2-Dichloropropane	0.125	0.116	92.6	59.0-135	
Di-isopropyl ether	0.125	0.130	104	60.0-136	
Ethylbenzene	0.125	0.117	93.2	74.0-126	
Hexachloro-1,3-butadiene	0.125	0.107	85.6	57.0-150	
Isopropylbenzene	0.125	0.115	92.2	72.0-127	
p-Isopropyltoluene	0.125	0.114	91.0	72.0-133	
2-Butanone (MEK)	0.625	0.961	154	30.0-160	
Methylene Chloride	0.125	0.116	92.7	68.0-123	
4-Methyl-2-pentanone (MIBK)	0.625	0.899	144	56.0-143	J4
Methyl tert-butyl ether	0.125	0.122	97.8	66.0-132	

Laboratory Control Sample (LCS)

(LCS) R3339728-1 09/06/18 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.125	0.149	120	59.0-130	
n-Propylbenzene	0.125	0.114	91.4	74.0-126	
Styrene	0.125	0.121	97.0	72.0-127	
1,1,1,2-Tetrachloroethane	0.125	0.117	93.3	74.0-129	
1,1,2,2-Tetrachloroethane	0.125	0.134	107	68.0-128	
Tetrachloroethene	0.125	0.119	95.3	70.0-136	
Toluene	0.125	0.113	90.0	75.0-121	
1,1,2-Trichlorotrifluoroethane	0.125	0.119	95.0	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.126	101	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.126	101	62.0-137	
1,1,1-Trichloroethane	0.125	0.103	82.0	69.0-126	
1,1,2-Trichloroethane	0.125	0.138	111	78.0-123	
Trichloroethene	0.125	0.128	103	76.0-126	
Trichlorofluoromethane	0.125	0.129	104	61.0-142	
1,2,3-Trichloropropane	0.125	0.154	124	67.0-129	
1,2,3-Trimethylbenzene	0.125	0.111	88.8	74.0-124	
1,2,4-Trimethylbenzene	0.125	0.114	91.0	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.114	91.5	73.0-127	
Vinyl chloride	0.125	0.110	87.8	63.0-134	
Xylenes, Total	0.375	0.346	92.3	72.0-127	
(S) Toluene-d8			*97.5*	*75.0-131*	
(S) Dibromofluoromethane			*102*	*65.0-129*	
(S) 4-Bromofluorobenzene			*102*	*67.0-138*	

Method Blank (MB)

(MB) R3339889-3 09/06/18 22:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0330
Acenaphthylene	U		0.00671	0.0330
Anthracene	U		0.00632	0.0330
Benzidine	U		0.0637	0.333
Benzo(a)anthracene	U		0.00428	0.0330
Benzo(b)fluoranthene	U		0.00695	0.0330
Benzo(k)fluoranthene	U		0.00582	0.0330
Benzo(g,h,i)perylene	U		0.00721	0.0330
Benzo(a)pyrene	U		0.00548	0.0330
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
2-Chloronaphthalene	U		0.00639	0.0330
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0330
Dibenz(a,h)anthracene	U		0.00821	0.0330
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0330
Fluorene	U		0.00682	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0330
Isophorone	U		0.00522	0.333
Naphthalene	0.0375		0.00889	0.0330
Nitrobenzene	U		0.00695	0.333
n-Nitrosodimethylamine	U		0.0647	0.333
n-Nitrosodiphenylamine	U		0.0900	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0330
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333

Method Blank (MB)

(MB) R3339889-3 09/06/18 22:20

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Pyrene	U		0.0123	0.0330
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*80.8*			*10.0-122*
(S) 2-Fluorobiphenyl	*76.0*			*15.0-120*
(S) p-Terphenyl-d14	*74.2*			*10.0-120*
(S) Phenol-d5	*86.2*			*10.0-120*
(S) 2-Fluorophenol	*91.0*			*12.0-120*
(S) 2,4,6-Tribromophenol	*95.2*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339889-1 09/06/18 21:33 • (LCSD) R3339889-2 09/06/18 21:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.666	0.531	0.505	79.7	75.8	38.0-120			5.02	22
Acenaphthylene	0.666	0.529	0.499	79.4	74.9	40.0-120			5.84	22
Anthracene	0.666	0.456	0.443	68.5	66.5	42.0-120			2.89	20
Benzidine	0.666	ND	ND	0.000	0.000	1.00-120	J4	J4	0.000	40
Benzo(a)anthracene	0.666	0.523	0.509	78.5	76.4	44.0-120			2.71	20
Benzo(b)fluoranthene	0.666	0.524	0.508	78.7	76.3	43.0-120			3.10	22
Benzo(k)fluoranthene	0.666	0.555	0.514	83.3	77.2	44.0-120			7.67	21
Benzo(g,h,i)perylene	0.666	0.608	0.582	91.3	87.4	43.0-120			4.37	22
Benzo(a)pyrene	0.666	0.555	0.520	83.3	78.1	45.0-120			6.51	20
Bis(2-chlorethoxy)methane	0.666	0.426	0.389	64.0	58.4	20.0-120			9.08	23
Bis(2-chloroethyl)ether	0.666	0.515	0.495	77.3	74.3	16.0-120			3.96	31
Bis(2-chloroisopropyl)ether	0.666	0.455	0.422	68.3	63.4	23.0-120			7.53	30
4-Bromophenyl-phenylether	0.666	0.541	0.497	81.2	74.6	40.0-120			8.48	21
2-Chloronaphthalene	0.666	0.508	0.459	76.3	68.9	35.0-120			10.1	24

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339889-1 09/06/18 21:33 • (LCSD) R3339889-2 09/06/18 21:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.666	0.539	0.475	80.9	71.3	40.0-120			12.6	22
Chrysene	0.666	0.526	0.521	79.0	78.2	43.0-120			0.955	20
Dibenz(a,h)anthracene	0.666	0.566	0.540	85.0	81.1	44.0-120			4.70	22
3,3-Dichlorobenzidine	0.666	0.488	0.469	73.3	70.4	28.0-120			3.97	23
2,4-Dinitrotoluene	0.666	0.563	0.547	84.5	82.1	45.0-120			2.88	21
2,6-Dinitrotoluene	0.666	0.511	0.490	76.7	73.6	42.0-120			4.20	21
Fluoranthene	0.666	0.525	0.508	78.8	76.3	44.0-120			3.29	21
Fluorene	0.666	0.540	0.511	81.1	76.7	41.0-120			5.52	22
Hexachlorobenzene	0.666	0.584	0.546	87.7	82.0	39.0-120			6.73	21
Hexachloro-1,3-butadiene	0.666	0.406	0.389	61.0	58.4	15.0-120			4.28	28
Hexachlorocyclopentadiene	0.666	0.448	0.407	67.3	61.1	15.0-120			9.59	31
Hexachloroethane	0.666	0.451	0.438	67.7	65.8	17.0-120			2.92	31
Indeno(1,2,3-cd)pyrene	0.666	0.598	0.567	89.8	85.1	45.0-120			5.32	21
Isophorone	0.666	0.445	0.410	66.8	61.6	23.0-120			8.19	23
Naphthalene	0.666	0.438	0.413	65.8	62.0	18.0-120			5.88	24
Nitrobenzene	0.666	0.477	0.433	71.6	65.0	17.0-120			9.67	26
n-Nitrosodimethylamine	0.666	0.623	0.536	93.5	80.5	10.0-125			15.0	33
n-Nitrosodiphenylamine	0.666	0.503	0.464	75.5	69.7	40.0-120			8.07	21
n-Nitrosodi-n-propylamine	0.666	0.479	0.444	71.9	66.7	26.0-120			7.58	27
Phenanthrene	0.666	0.495	0.468	74.3	70.3	42.0-120			5.61	20
Benzylbutyl phthalate	0.666	0.562	0.540	84.4	81.1	40.0-120			3.99	21
Bis(2-ethylhexyl)phthalate	0.666	0.588	0.563	88.3	84.5	41.0-120			4.34	21
Di-n-butyl phthalate	0.666	0.522	0.502	78.4	75.4	43.0-120			3.91	20
Diethyl phthalate	0.666	0.552	0.513	82.9	77.0	43.0-120			7.32	21
Dimethyl phthalate	0.666	0.513	0.482	77.0	72.4	43.0-120			6.23	22
Di-n-octyl phthalate	0.666	0.605	0.577	90.8	86.6	40.0-120			4.74	21
Pyrene	0.666	0.560	0.542	84.1	81.4	41.0-120			3.27	21
1,2,4-Trichlorobenzene	0.666	0.424	0.394	63.7	59.2	17.0-120			7.33	26
4-Chloro-3-methylphenol	0.666	0.446	0.429	67.0	64.4	28.0-120			3.89	20
2-Chlorophenol	0.666	0.500	0.466	75.1	70.0	28.0-120			7.04	28
2,4-Dichlorophenol	0.666	0.466	0.429	70.0	64.4	25.0-120			8.27	21
2,4-Dimethylphenol	0.666	0.440	0.400	66.1	60.1	15.0-120			9.52	26
4,6-Dinitro-2-methylphenol	0.666	0.541	0.499	81.2	74.9	16.0-120			8.08	33
2,4-Dinitrophenol	0.666	0.463	0.391	69.5	58.7	10.0-120			16.9	40
2-Nitrophenol	0.666	0.483	0.457	72.5	68.6	20.0-120			5.53	25
4-Nitrophenol	0.666	0.588	0.541	88.3	81.2	27.0-120			8.33	24
Pentachlorophenol	0.666	0.638	0.603	95.8	90.5	29.0-120			5.64	25
Phenol	0.666	0.533	0.493	80.0	74.0	28.0-120			7.80	27
2,4,6-Trichlorophenol	0.666	0.601	0.548	90.2	82.3	37.0-120			9.23	24
(S) Nitrobenzene-d5				*71.2*	*65.8*	*10.0-122*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3339889-1 09/06/18 21:33 • (LCSD) R3339889-2 09/06/18 21:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*79.6*	*71.8*	*15.0-120*				
(S) p-Terphenyl-d14				*70.3*	*79.9*	*10.0-120*				
(S) Phenol-d5				*83.3*	*76.1*	*10.0-120*				
(S) 2-Fluorophenol				*90.1*	*82.4*	*12.0-120*				
(S) 2,4,6-Tribromophenol				*98.8*	*90.8*	*10.0-127*				

L1022464-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022464-09 09/07/18 02:38 • (MS) R3339889-4 09/07/18 03:02 • (MSD) R3339889-5 09/07/18 03:25

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.740	0.468	0.902	0.611	58.6	19.6	1	18.0-120		J3	38.4	32
Acenaphthylene	0.740	2.99	3.43	2.08	59.6	0.000	1	25.0-120	E	E J3 V	48.9	32
Anthracene	0.740	1.95	2.86	1.58	124	0.000	1	22.0-120	E J5	J3 J6	57.5	29
Benzidine	0.740	ND	ND	ND	0.000	0.000	1	1.00-120	J6	J6	0.000	40
Benzo(a)anthracene	0.740	1.82	2.35	1.62	71.9	0.000	1	25.0-120	E	J3 J6	37.0	29
Benzo(b)fluoranthene	0.740	1.52	2.52	1.41	136	0.000	1	19.0-122	E J5	J3 J6	56.3	31
Benzo(k)fluoranthene	0.740	0.441	1.13	0.759	92.8	43.8	1	23.0-120		J3	39.1	30
Benzo(g,h,i)perylene	0.740	0.690	1.13	0.626	59.6	0.000	1	10.0-120		J3 J6	57.6	33
Benzo(a)pyrene	0.740	1.72	2.75	1.53	139	0.000	1	24.0-120	E J5	J3 J6	57.1	30
Bis(2-chlorethoxy)methane	0.740	ND	0.256	0.255	34.6	35.0	1	10.0-120			0.443	34
Bis(2-chloroethyl)ether	0.740	ND	0.270	0.279	36.5	38.5	1	10.0-120			3.29	40
Bis(2-chloroisopropyl)ether	0.740	ND	0.219	0.249	29.7	34.3	1	10.0-120			12.6	40
4-Bromophenyl-phenylether	0.740	ND	0.502	0.415	67.9	57.2	1	27.0-120			19.0	30
2-Chloronaphthalene	0.740	ND	0.339	0.294	45.9	40.5	1	20.0-120			14.3	32
4-Chlorophenyl-phenylether	0.740	ND	0.429	0.378	58.0	52.0	1	24.0-120			12.6	29
Chrysene	0.740	1.71	2.53	1.45	112	0.000	1	21.0-120	E	J3 J6	54.5	29
Dibenz(a,h)anthracene	0.740	5.11	0.0802	0.0355	0.000	0.000	1	10.0-120	V	J3 V	77.2	32
3,3-Dichlorobenzidine	0.740	ND	0.477	0.406	64.5	55.9	1	10.0-120			16.1	34
2,4-Dinitrotoluene	0.740	ND	0.663	0.525	89.6	72.3	1	30.0-120			23.2	31
2,6-Dinitrotoluene	0.740	ND	0.441	0.399	59.6	55.0	1	25.0-120			9.96	31
Fluoranthene	0.740	3.19	4.30	2.52	150	0.000	1	18.0-126	E V	E J3 V	52.1	32
Fluorene	0.740	1.75	2.34	1.39	79.5	0.000	1	25.0-120	E	J3 J6	50.9	30
Hexachlorobenzene	0.740	ND	0.537	0.437	72.6	60.1	1	27.0-120			20.7	28
Hexachloro-1,3-butadiene	0.740	ND	0.234	0.236	31.7	32.6	1	10.0-120			0.962	38
Hexachlorocyclopentadiene	0.740	ND	ND	ND	0.000	0.000	1	10.0-120	J6	J6	0.000	40
Hexachloroethane	0.740	ND	0.373	0.322	50.5	44.4	1	10.0-120			14.6	40
Indeno(1,2,3-cd)pyrene	0.740	19.6	1.13	0.620	0.000	0.000	1	10.0-120	V	J3 V	57.9	32
Isophorone	0.740	ND	0.268	0.275	36.2	37.9	1	13.0-120			2.50	34

L1022464-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1022464-09 09/07/18 02:38 • (MS) R3339889-4 09/07/18 03:02 • (MSD) R3339889-5 09/07/18 03:25

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.740	7.46	6.15	3.73	0.000	0.000	1	10.0-120	E V	E J3 V	49.0	35
Nitrobenzene	0.740	ND	0.321	0.304	43.4	41.9	1	10.0-120			5.42	36
n-Nitrosodimethylamine	0.740	ND	0.281	0.313	37.9	43.1	1	10.0-127			11.0	40
n-Nitrosodiphenylamine	0.740	ND	0.626	0.459	84.6	63.2	1	17.0-120		J3	30.7	29
n-Nitrosodi-n-propylamine	0.740	ND	0.261	0.266	35.3	36.6	1	10.0-120			1.72	37
Phenanthrene	0.740	5.49	6.66	4.14	159	0.000	1	17.0-120	E V	E J3 V	46.7	31
Benzylbutyl phthalate	0.740	ND	0.716	0.561	96.8	77.3	1	23.0-120			24.3	30
Bis(2-ethylhexyl)phthalate	0.740	ND	0.710	0.541	96.0	74.5	1	17.0-126			27.1	30
Di-n-butyl phthalate	0.740	ND	0.475	0.437	64.2	60.1	1	30.0-120			8.44	29
Diethyl phthalate	0.740	ND	0.457	0.424	61.8	58.4	1	26.0-120			7.45	28
Dimethyl phthalate	0.740	ND	0.416	0.376	56.3	51.7	1	25.0-120			10.3	29
Di-n-octyl phthalate	0.740	ND	0.748	0.585	101	80.5	1	21.0-123			24.4	29
Pyrene	0.740	4.45	6.02	3.53	213	0.000	1	16.0-121	E V	E J3 V	52.1	32
1,2,4-Trichlorobenzene	0.740	ND	0.247	0.239	33.3	32.9	1	12.0-120			3.26	37
4-Chloro-3-methylphenol	0.740	ND	0.447	0.380	60.4	52.3	1	15.0-120			16.1	30
2-Chlorophenol	0.740	ND	0.266	0.292	35.9	40.2	1	15.0-120			9.33	37
2,4-Dichlorophenol	0.740	ND	0.360	0.317	48.6	43.6	1	20.0-120			12.7	31
2,4-Dimethylphenol	0.740	ND	0.330	0.310	44.6	42.7	1	10.0-120			6.36	33
4,6-Dinitro-2-methylphenol	0.740	ND	ND	ND	0.000	0.000	1	10.0-120	J6	J6	0.000	39
2,4-Dinitrophenol	0.740	ND	ND	ND	0.000	0.000	1	10.0-121	J6	J6	0.000	40
2-Nitrophenol	0.740	ND	0.281	0.286	37.9	39.4	1	12.0-120			2.00	39
4-Nitrophenol	0.740	ND	0.710	0.558	96.0	76.8	1	10.0-137			24.1	32
Pentachlorophenol	0.740	ND	0.630	0.516	85.2	71.0	1	10.0-160			19.9	31
Phenol	0.740	ND	0.317	0.350	35.8	41.0	1	12.0-120			9.85	38
2,4,6-Trichlorophenol	0.740	ND	0.449	0.405	60.7	55.8	1	19.0-120			10.3	32
(S) Nitrobenzene-d5					*36.7*	*38.3*		*10.0-122*				
(S) 2-Fluorobiphenyl					*45.3*	*42.1*		*15.0-120*				
(S) p-Terphenyl-d14					*71.9*	*54.2*		*10.0-120*				
(S) Phenol-d5					*40.8*	*46.6*		*10.0-120*				
(S) 2-Fluorophenol					*41.0*	*48.1*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*87.2*	*74.5*		*10.0-127*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Terracon - Fort Collins
1901 Sharp Point Drive Suite C
Fort Collins CO 80525

Billing Information:
Accounts Payable
1901 Sharp Point Dr., Ste C
Fort Collins, CO 80525

Report to: **Aaron Varnell**

Email To: **aaron.varnell@terracon.com**

Project Description: **Greeley Fishing Pond**

City/State Collected: **Colroado** Greeley

Phone: **970-484-0359**
Fax:

Client Project # **21187023**

Lab Project # **TERRAFCO-21187023**

Collected by (print): **Jessamyn Benshoof**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LAB SCIENCES
a subsidiary of ...
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1072501

Table H193

Acctnum:
Template:
Prelogin:
TSR:
PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RCRA Metals	8270 SVOCs	8260 VOCs	Remarks	Sample # (lab only)
SB-1	Grab	SS	4-8	8-30-2018	1220	3	X	X	X	Hold	01
SB-1	Grab	SS	8-12	8-30-2018	1220	3	X	X	X	Hold	02
SB-2	Grab	SS	4-8	8-30-2018	1200	3	X	X	X	Hold	03
SB-2	Grab	SS	8-12	8-30-2018	1200	5	X	X	X	Hold	04
SB-3	Grab	SS	4-8	8-30-2018	1230	3	X	X	X	Hold	05
SB-3	Grab	SS	8-12	8-30-2018	1230	3	X	X	X	Hold	06
SB-4	Grab	SS	4-8	8-30-18	1250	3	X	X	X	Hold	07
SB-4	Grab	SS	8-12	8-30-18	1250	3	X	X	X	Hold	08
SB-7	Grab	SS	4-8	8-30-18	1315	3	X	X	X	Hold	09
SB-7	Grab	SS	8-12	8-30-18	1315	3	X	X	X	Hold	10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
Hold all samples, contact Project Manager upon receipt

pH _____ Temp _____
RADSCREEN: <0.5 mR/hr Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 4430342 7848

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8-30-2018	1545	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: 3.7 °C Bottles Received: 30

If preservation required by Login: Date/Time

Date: 8/31/18 Time: 0845

8-217

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 16, 2018

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L1033035
Samples Received:	10/09/2018
Project Number:	21187023
Description:	Greeley Pond

Report To: Michael Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SB-02R (0-4) L1033035-01 Solid

Collected by: M. Skridulis | Collected date/time: 10/05/18 12:50 | Received date/time: 10/09/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1179718	1	10/11/18 16:16	10/12/18 14:07	ABL
Metals (ICP) by Method 6010B	WG1179505	1	10/12/18 06:33	10/13/18 10:08	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180897	1	10/10/18 08:37	10/15/18 04:11	JAH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1179639	1	10/11/18 18:42	10/12/18 03:37	JNJ

SB-02R (4-8) L1033035-02 Solid

Collected by: M. Skridulis | Collected date/time: 10/05/18 12:55 | Received date/time: 10/09/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1179718	1	10/11/18 16:16	10/12/18 14:09	ABL
Metals (ICP) by Method 6010B	WG1179505	1	10/12/18 06:33	10/13/18 10:11	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180897	1	10/10/18 08:37	10/15/18 04:30	JAH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1179639	1	10/11/18 18:42	10/12/18 04:47	JNJ

SB-05R (0-4) L1033035-03 Solid

Collected by: M. Skridulis | Collected date/time: 10/05/18 13:10 | Received date/time: 10/09/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1179718	1	10/11/18 16:16	10/12/18 14:12	ABL
Metals (ICP) by Method 6010B	WG1179505	1	10/12/18 06:33	10/13/18 10:14	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180897	1	10/10/18 08:37	10/15/18 04:49	JAH
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1179639	2	10/11/18 18:42	10/12/18 07:30	JNJ

SB-05R (4-8) L1033035-04 Solid

Collected by: M. Skridulis | Collected date/time: 10/05/18 13:15 | Received date/time: 10/09/18 08:45

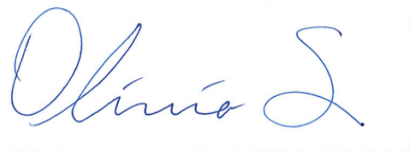
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1179718	1	10/11/18 16:16	10/12/18 14:15	ABL
Metals (ICP) by Method 6010B	WG1179505	1	10/12/18 06:33	10/13/18 10:16	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180909	1	10/10/18 08:37	10/14/18 18:59	ACG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1179639	2	10/11/18 18:42	10/12/18 07:54	JNJ

SB-08 (0-4) L1033035-05 Solid

Collected by: M. Skridulis | Collected date/time: 10/05/18 13:30 | Received date/time: 10/09/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7471A	WG1179718	1	10/11/18 16:16	10/12/18 14:17	ABL
Metals (ICP) by Method 6010B	WG1179505	1	10/12/18 06:33	10/13/18 10:19	TRB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180909	1	10/10/18 08:37	10/14/18 19:18	ACG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1179639	1	10/11/18 18:42	10/12/18 05:10	JNJ

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.146		0.0200	1	10/12/2018 14:07	WG1179718

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.05		2.00	1	10/13/2018 10:08	WG1179505
Barium	57.3		0.500	1	10/13/2018 10:08	WG1179505
Cadmium	ND		0.500	1	10/13/2018 10:08	WG1179505
Chromium	6.32		1.00	1	10/13/2018 10:08	WG1179505
Lead	39.2		0.500	1	10/13/2018 10:08	WG1179505
Selenium	ND		2.00	1	10/13/2018 10:08	WG1179505
Silver	ND		1.00	1	10/13/2018 10:08	WG1179505

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0250	1	10/15/2018 04:11	WG1180897
Acrylonitrile	ND	J4	0.0125	1	10/15/2018 04:11	WG1180897
Benzene	ND		0.00100	1	10/15/2018 04:11	WG1180897
Bromobenzene	ND		0.0125	1	10/15/2018 04:11	WG1180897
Bromodichloromethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
Bromoform	ND		0.0250	1	10/15/2018 04:11	WG1180897
Bromomethane	ND		0.0125	1	10/15/2018 04:11	WG1180897
n-Butylbenzene	ND		0.0125	1	10/15/2018 04:11	WG1180897
sec-Butylbenzene	ND		0.0125	1	10/15/2018 04:11	WG1180897
tert-Butylbenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
Carbon tetrachloride	ND		0.00500	1	10/15/2018 04:11	WG1180897
Chlorobenzene	ND		0.00250	1	10/15/2018 04:11	WG1180897
Chlorodibromomethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
Chloroethane	ND		0.00500	1	10/15/2018 04:11	WG1180897
Chloroform	ND		0.00250	1	10/15/2018 04:11	WG1180897
Chloromethane	ND		0.0125	1	10/15/2018 04:11	WG1180897
2-Chlorotoluene	ND		0.00250	1	10/15/2018 04:11	WG1180897
4-Chlorotoluene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	10/15/2018 04:11	WG1180897
1,2-Dibromoethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
Dibromomethane	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,2-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,3-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,4-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
Dichlorodifluoromethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,1-Dichloroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,2-Dichloroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,1-Dichloroethene	ND		0.00250	1	10/15/2018 04:11	WG1180897
cis-1,2-Dichloroethene	ND		0.00250	1	10/15/2018 04:11	WG1180897
trans-1,2-Dichloroethene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,2-Dichloropropane	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,1-Dichloropropene	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,3-Dichloropropane	ND		0.00500	1	10/15/2018 04:11	WG1180897
cis-1,3-Dichloropropene	ND		0.00250	1	10/15/2018 04:11	WG1180897
trans-1,3-Dichloropropene	ND		0.00500	1	10/15/2018 04:11	WG1180897
2,2-Dichloropropane	ND	J4	0.00250	1	10/15/2018 04:11	WG1180897
Di-isopropyl ether	ND		0.00100	1	10/15/2018 04:11	WG1180897
Ethylbenzene	ND		0.00250	1	10/15/2018 04:11	WG1180897
Hexachloro-1,3-butadiene	ND		0.0250	1	10/15/2018 04:11	WG1180897

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	10/15/2018 04:11	WG1180897
p-Isopropyltoluene	ND		0.00500	1	10/15/2018 04:11	WG1180897
2-Butanone (MEK)	ND	J4	0.0250	1	10/15/2018 04:11	WG1180897
Methylene Chloride	ND		0.0250	1	10/15/2018 04:11	WG1180897
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	10/15/2018 04:11	WG1180897
Methyl tert-butyl ether	ND		0.00100	1	10/15/2018 04:11	WG1180897
Naphthalene	ND		0.0125	1	10/15/2018 04:11	WG1180897
n-Propylbenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
Styrene	ND		0.0125	1	10/15/2018 04:11	WG1180897
1,1,1,2-Tetrachloroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,1,2,2-Tetrachloroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
Tetrachloroethene	ND		0.00250	1	10/15/2018 04:11	WG1180897
Toluene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,2,3-Trichlorobenzene	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,2,4-Trichlorobenzene	ND		0.0125	1	10/15/2018 04:11	WG1180897
1,1,1-Trichloroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,1,2-Trichloroethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
Trichloroethene	ND		0.00100	1	10/15/2018 04:11	WG1180897
Trichlorofluoromethane	ND		0.00250	1	10/15/2018 04:11	WG1180897
1,2,3-Trichloropropane	ND		0.0125	1	10/15/2018 04:11	WG1180897
1,2,4-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,2,3-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
1,3,5-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:11	WG1180897
Vinyl chloride	ND		0.00250	1	10/15/2018 04:11	WG1180897
Xylenes, Total	ND		0.00650	1	10/15/2018 04:11	WG1180897
(S) Toluene-d8	*109*		*75.0-131*		*10/15/2018 04:11*	WG1180897
(S) Dibromofluoromethane	*106*		*65.0-129*		*10/15/2018 04:11*	WG1180897
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*10/15/2018 04:11*	WG1180897

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Acenaphthylene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Anthracene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Benzidine	ND	J4 J6	0.333	1	10/12/2018 03:37	WG1179639
Benzo(a)anthracene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Benzo(b)fluoranthene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Benzo(k)fluoranthene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Benzo(g,h,i)perylene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Benzo(a)pyrene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Bis(2-chlorethoxy)methane	ND		0.333	1	10/12/2018 03:37	WG1179639
Bis(2-chloroethyl)ether	ND		0.333	1	10/12/2018 03:37	WG1179639
Bis(2-chloroisopropyl)ether	ND		0.333	1	10/12/2018 03:37	WG1179639
4-Bromophenyl-phenylether	ND		0.333	1	10/12/2018 03:37	WG1179639
2-Chloronaphthalene	ND		0.0333	1	10/12/2018 03:37	WG1179639
4-Chlorophenyl-phenylether	ND		0.333	1	10/12/2018 03:37	WG1179639
Chrysene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Dibenz(a,h)anthracene	ND		0.0333	1	10/12/2018 03:37	WG1179639
3,3-Dichlorobenzidine	ND		0.333	1	10/12/2018 03:37	WG1179639
2,4-Dinitrotoluene	ND		0.333	1	10/12/2018 03:37	WG1179639
2,6-Dinitrotoluene	ND		0.333	1	10/12/2018 03:37	WG1179639
Fluoranthene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Fluorene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Hexachlorobenzene	ND		0.333	1	10/12/2018 03:37	WG1179639

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	10/12/2018 03:37	WG1179639
Hexachlorocyclopentadiene	ND		0.333	1	10/12/2018 03:37	WG1179639
Hexachloroethane	ND		0.333	1	10/12/2018 03:37	WG1179639
Indeno(1,2,3-cd)pyrene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Isophorone	ND		0.333	1	10/12/2018 03:37	WG1179639
Naphthalene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Nitrobenzene	ND		0.333	1	10/12/2018 03:37	WG1179639
n-Nitrosodimethylamine	ND		0.333	1	10/12/2018 03:37	WG1179639
n-Nitrosodiphenylamine	ND		0.333	1	10/12/2018 03:37	WG1179639
n-Nitrosodi-n-propylamine	ND		0.333	1	10/12/2018 03:37	WG1179639
Phenanthrene	ND		0.0333	1	10/12/2018 03:37	WG1179639
Benzylbutyl phthalate	ND		0.333	1	10/12/2018 03:37	WG1179639
Bis(2-ethylhexyl)phthalate	ND		0.333	1	10/12/2018 03:37	WG1179639
Di-n-butyl phthalate	ND		0.333	1	10/12/2018 03:37	WG1179639
Diethyl phthalate	ND		0.333	1	10/12/2018 03:37	WG1179639
Dimethyl phthalate	ND		0.333	1	10/12/2018 03:37	WG1179639
Di-n-octyl phthalate	ND		0.333	1	10/12/2018 03:37	WG1179639
Pyrene	ND		0.0333	1	10/12/2018 03:37	WG1179639
1,2,4-Trichlorobenzene	ND		0.333	1	10/12/2018 03:37	WG1179639
4-Chloro-3-methylphenol	ND		0.333	1	10/12/2018 03:37	WG1179639
2-Chlorophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
2,4-Dichlorophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
2,4-Dimethylphenol	ND		0.333	1	10/12/2018 03:37	WG1179639
4,6-Dinitro-2-methylphenol	ND		0.333	1	10/12/2018 03:37	WG1179639
2,4-Dinitrophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
2-Nitrophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
4-Nitrophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
Pentachlorophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
Phenol	ND		0.333	1	10/12/2018 03:37	WG1179639
2,4,6-Trichlorophenol	ND		0.333	1	10/12/2018 03:37	WG1179639
(S) 2-Fluorophenol	*86.2*		*12.0-120*		*10/12/2018 03:37*	WG1179639
(S) Phenol-d5	*74.1*		*10.0-120*		*10/12/2018 03:37*	WG1179639
(S) Nitrobenzene-d5	*78.9*		*10.0-122*		*10/12/2018 03:37*	WG1179639
(S) 2-Fluorobiphenyl	*75.5*		*15.0-120*		*10/12/2018 03:37*	WG1179639
(S) 2,4,6-Tribromophenol	*77.2*		*10.0-127*		*10/12/2018 03:37*	WG1179639
(S) p-Terphenyl-d14	*74.0*		*10.0-120*		*10/12/2018 03:37*	WG1179639

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.121		0.0200	1	10/12/2018 14:09	WG1179718

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.42		2.00	1	10/13/2018 10:11	WG1179505
Barium	62.7		0.500	1	10/13/2018 10:11	WG1179505
Cadmium	ND		0.500	1	10/13/2018 10:11	WG1179505
Chromium	7.68		1.00	1	10/13/2018 10:11	WG1179505
Lead	45.9		0.500	1	10/13/2018 10:11	WG1179505
Selenium	ND		2.00	1	10/13/2018 10:11	WG1179505
Silver	ND		1.00	1	10/13/2018 10:11	WG1179505

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0250	1	10/15/2018 04:30	WG1180897
Acrylonitrile	ND	J4	0.0125	1	10/15/2018 04:30	WG1180897
Benzene	ND		0.00100	1	10/15/2018 04:30	WG1180897
Bromobenzene	ND		0.0125	1	10/15/2018 04:30	WG1180897
Bromodichloromethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
Bromoform	ND		0.0250	1	10/15/2018 04:30	WG1180897
Bromomethane	ND		0.0125	1	10/15/2018 04:30	WG1180897
n-Butylbenzene	ND		0.0125	1	10/15/2018 04:30	WG1180897
sec-Butylbenzene	ND		0.0125	1	10/15/2018 04:30	WG1180897
tert-Butylbenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
Carbon tetrachloride	ND		0.00500	1	10/15/2018 04:30	WG1180897
Chlorobenzene	ND		0.00250	1	10/15/2018 04:30	WG1180897
Chlorodibromomethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
Chloroethane	ND		0.00500	1	10/15/2018 04:30	WG1180897
Chloroform	ND		0.00250	1	10/15/2018 04:30	WG1180897
Chloromethane	ND		0.0125	1	10/15/2018 04:30	WG1180897
2-Chlorotoluene	ND		0.00250	1	10/15/2018 04:30	WG1180897
4-Chlorotoluene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	10/15/2018 04:30	WG1180897
1,2-Dibromoethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
Dibromomethane	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,2-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,3-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,4-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
Dichlorodifluoromethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,1-Dichloroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,2-Dichloroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,1-Dichloroethene	ND		0.00250	1	10/15/2018 04:30	WG1180897
cis-1,2-Dichloroethene	ND		0.00250	1	10/15/2018 04:30	WG1180897
trans-1,2-Dichloroethene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,2-Dichloropropane	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,1-Dichloropropene	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,3-Dichloropropane	ND		0.00500	1	10/15/2018 04:30	WG1180897
cis-1,3-Dichloropropene	ND		0.00250	1	10/15/2018 04:30	WG1180897
trans-1,3-Dichloropropene	ND		0.00500	1	10/15/2018 04:30	WG1180897
2,2-Dichloropropane	ND	J4	0.00250	1	10/15/2018 04:30	WG1180897
Di-isopropyl ether	ND		0.00100	1	10/15/2018 04:30	WG1180897
Ethylbenzene	ND		0.00250	1	10/15/2018 04:30	WG1180897
Hexachloro-1,3-butadiene	ND		0.0250	1	10/15/2018 04:30	WG1180897

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	10/15/2018 04:30	WG1180897
p-Isopropyltoluene	ND		0.00500	1	10/15/2018 04:30	WG1180897
2-Butanone (MEK)	ND	J4	0.0250	1	10/15/2018 04:30	WG1180897
Methylene Chloride	ND		0.0250	1	10/15/2018 04:30	WG1180897
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	10/15/2018 04:30	WG1180897
Methyl tert-butyl ether	ND		0.00100	1	10/15/2018 04:30	WG1180897
Naphthalene	ND		0.0125	1	10/15/2018 04:30	WG1180897
n-Propylbenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
Styrene	ND		0.0125	1	10/15/2018 04:30	WG1180897
1,1,1,2-Tetrachloroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,1,2,2-Tetrachloroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
Tetrachloroethene	ND		0.00250	1	10/15/2018 04:30	WG1180897
Toluene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,2,3-Trichlorobenzene	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,2,4-Trichlorobenzene	ND		0.0125	1	10/15/2018 04:30	WG1180897
1,1,1-Trichloroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,1,2-Trichloroethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
Trichloroethene	ND		0.00100	1	10/15/2018 04:30	WG1180897
Trichlorofluoromethane	ND		0.00250	1	10/15/2018 04:30	WG1180897
1,2,3-Trichloropropane	ND		0.0125	1	10/15/2018 04:30	WG1180897
1,2,4-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,2,3-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
1,3,5-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:30	WG1180897
Vinyl chloride	ND		0.00250	1	10/15/2018 04:30	WG1180897
Xylenes, Total	ND		0.00650	1	10/15/2018 04:30	WG1180897
(S) Toluene-d8	*108*		*75.0-131*		*10/15/2018 04:30*	WG1180897
(S) Dibromofluoromethane	*106*		*65.0-129*		*10/15/2018 04:30*	WG1180897
(S) 4-Bromofluorobenzene	*106*		*67.0-138*		*10/15/2018 04:30*	WG1180897

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Acenaphthylene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Anthracene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Benzidine	ND	J4	0.333	1	10/12/2018 04:47	WG1179639
Benzo(a)anthracene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Benzo(b)fluoranthene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Benzo(k)fluoranthene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Benzo(g,h,i)perylene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Benzo(a)pyrene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Bis(2-chlorethoxy)methane	ND		0.333	1	10/12/2018 04:47	WG1179639
Bis(2-chloroethyl)ether	ND		0.333	1	10/12/2018 04:47	WG1179639
Bis(2-chloroisopropyl)ether	ND		0.333	1	10/12/2018 04:47	WG1179639
4-Bromophenyl-phenylether	ND		0.333	1	10/12/2018 04:47	WG1179639
2-Chloronaphthalene	ND		0.0333	1	10/12/2018 04:47	WG1179639
4-Chlorophenyl-phenylether	ND		0.333	1	10/12/2018 04:47	WG1179639
Chrysene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Dibenz(a,h)anthracene	ND		0.0333	1	10/12/2018 04:47	WG1179639
3,3-Dichlorobenzidine	ND		0.333	1	10/12/2018 04:47	WG1179639
2,4-Dinitrotoluene	ND		0.333	1	10/12/2018 04:47	WG1179639
2,6-Dinitrotoluene	ND		0.333	1	10/12/2018 04:47	WG1179639
Fluoranthene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Fluorene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Hexachlorobenzene	ND		0.333	1	10/12/2018 04:47	WG1179639

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	10/12/2018 04:47	WG1179639
Hexachlorocyclopentadiene	ND		0.333	1	10/12/2018 04:47	WG1179639
Hexachloroethane	ND		0.333	1	10/12/2018 04:47	WG1179639
Indeno(1,2,3-cd)pyrene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Isophorone	ND		0.333	1	10/12/2018 04:47	WG1179639
Naphthalene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Nitrobenzene	ND		0.333	1	10/12/2018 04:47	WG1179639
n-Nitrosodimethylamine	ND		0.333	1	10/12/2018 04:47	WG1179639
n-Nitrosodiphenylamine	ND		0.333	1	10/12/2018 04:47	WG1179639
n-Nitrosodi-n-propylamine	ND		0.333	1	10/12/2018 04:47	WG1179639
Phenanthrene	ND		0.0333	1	10/12/2018 04:47	WG1179639
Benzylbutyl phthalate	ND		0.333	1	10/12/2018 04:47	WG1179639
Bis(2-ethylhexyl)phthalate	ND		0.333	1	10/12/2018 04:47	WG1179639
Di-n-butyl phthalate	ND		0.333	1	10/12/2018 04:47	WG1179639
Diethyl phthalate	ND		0.333	1	10/12/2018 04:47	WG1179639
Dimethyl phthalate	ND		0.333	1	10/12/2018 04:47	WG1179639
Di-n-octyl phthalate	ND		0.333	1	10/12/2018 04:47	WG1179639
Pyrene	ND		0.0333	1	10/12/2018 04:47	WG1179639
1,2,4-Trichlorobenzene	ND		0.333	1	10/12/2018 04:47	WG1179639
4-Chloro-3-methylphenol	ND		0.333	1	10/12/2018 04:47	WG1179639
2-Chlorophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
2,4-Dichlorophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
2,4-Dimethylphenol	ND		0.333	1	10/12/2018 04:47	WG1179639
4,6-Dinitro-2-methylphenol	ND		0.333	1	10/12/2018 04:47	WG1179639
2,4-Dinitrophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
2-Nitrophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
4-Nitrophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
Pentachlorophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
Phenol	ND		0.333	1	10/12/2018 04:47	WG1179639
2,4,6-Trichlorophenol	ND		0.333	1	10/12/2018 04:47	WG1179639
(S) 2-Fluorophenol	*75.0*		*12.0-120*		*10/12/2018 04:47*	WG1179639
(S) Phenol-d5	*64.4*		*10.0-120*		*10/12/2018 04:47*	WG1179639
(S) Nitrobenzene-d5	*70.6*		*10.0-122*		*10/12/2018 04:47*	WG1179639
(S) 2-Fluorobiphenyl	*65.2*		*15.0-120*		*10/12/2018 04:47*	WG1179639
(S) 2,4,6-Tribromophenol	*67.7*		*10.0-127*		*10/12/2018 04:47*	WG1179639
(S) p-Terphenyl-d14	*66.1*		*10.0-120*		*10/12/2018 04:47*	WG1179639

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.152		0.0200	1	10/12/2018 14:12	WG1179718

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.66		2.00	1	10/13/2018 10:14	WG1179505
Barium	173		0.500	1	10/13/2018 10:14	WG1179505
Cadmium	0.676		0.500	1	10/13/2018 10:14	WG1179505
Chromium	11.3		1.00	1	10/13/2018 10:14	WG1179505
Lead	61.9		0.500	1	10/13/2018 10:14	WG1179505
Selenium	ND		2.00	1	10/13/2018 10:14	WG1179505
Silver	ND		1.00	1	10/13/2018 10:14	WG1179505

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND	J4	0.0250	1	10/15/2018 04:49	WG1180897
Acrylonitrile	ND	J4	0.0125	1	10/15/2018 04:49	WG1180897
Benzene	ND		0.00100	1	10/15/2018 04:49	WG1180897
Bromobenzene	ND		0.0125	1	10/15/2018 04:49	WG1180897
Bromodichloromethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
Bromoform	ND		0.0250	1	10/15/2018 04:49	WG1180897
Bromomethane	ND		0.0125	1	10/15/2018 04:49	WG1180897
n-Butylbenzene	ND		0.0125	1	10/15/2018 04:49	WG1180897
sec-Butylbenzene	ND		0.0125	1	10/15/2018 04:49	WG1180897
tert-Butylbenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
Carbon tetrachloride	ND		0.00500	1	10/15/2018 04:49	WG1180897
Chlorobenzene	ND		0.00250	1	10/15/2018 04:49	WG1180897
Chlorodibromomethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
Chloroethane	ND		0.00500	1	10/15/2018 04:49	WG1180897
Chloroform	ND		0.00250	1	10/15/2018 04:49	WG1180897
Chloromethane	ND		0.0125	1	10/15/2018 04:49	WG1180897
2-Chlorotoluene	ND		0.00250	1	10/15/2018 04:49	WG1180897
4-Chlorotoluene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	10/15/2018 04:49	WG1180897
1,2-Dibromoethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
Dibromomethane	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,2-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,3-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,4-Dichlorobenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
Dichlorodifluoromethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,1-Dichloroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,2-Dichloroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,1-Dichloroethene	ND		0.00250	1	10/15/2018 04:49	WG1180897
cis-1,2-Dichloroethene	ND		0.00250	1	10/15/2018 04:49	WG1180897
trans-1,2-Dichloroethene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,2-Dichloropropane	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,1-Dichloropropene	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,3-Dichloropropane	ND		0.00500	1	10/15/2018 04:49	WG1180897
cis-1,3-Dichloropropene	ND		0.00250	1	10/15/2018 04:49	WG1180897
trans-1,3-Dichloropropene	ND		0.00500	1	10/15/2018 04:49	WG1180897
2,2-Dichloropropane	ND	J4	0.00250	1	10/15/2018 04:49	WG1180897
Di-isopropyl ether	ND		0.00100	1	10/15/2018 04:49	WG1180897
Ethylbenzene	ND		0.00250	1	10/15/2018 04:49	WG1180897
Hexachloro-1,3-butadiene	ND		0.0250	1	10/15/2018 04:49	WG1180897

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	10/15/2018 04:49	WG1180897
p-Isopropyltoluene	ND		0.00500	1	10/15/2018 04:49	WG1180897
2-Butanone (MEK)	ND	J4	0.0250	1	10/15/2018 04:49	WG1180897
Methylene Chloride	ND		0.0250	1	10/15/2018 04:49	WG1180897
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	10/15/2018 04:49	WG1180897
Methyl tert-butyl ether	ND		0.00100	1	10/15/2018 04:49	WG1180897
Naphthalene	ND		0.0125	1	10/15/2018 04:49	WG1180897
n-Propylbenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
Styrene	ND		0.0125	1	10/15/2018 04:49	WG1180897
1,1,1,2-Tetrachloroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,1,2,2-Tetrachloroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
Tetrachloroethene	ND		0.00250	1	10/15/2018 04:49	WG1180897
Toluene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,2,3-Trichlorobenzene	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,2,4-Trichlorobenzene	ND		0.0125	1	10/15/2018 04:49	WG1180897
1,1,1-Trichloroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,1,2-Trichloroethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
Trichloroethene	ND		0.00100	1	10/15/2018 04:49	WG1180897
Trichlorofluoromethane	ND		0.00250	1	10/15/2018 04:49	WG1180897
1,2,3-Trichloropropane	ND		0.0125	1	10/15/2018 04:49	WG1180897
1,2,4-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,2,3-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
1,3,5-Trimethylbenzene	ND		0.00500	1	10/15/2018 04:49	WG1180897
Vinyl chloride	ND		0.00250	1	10/15/2018 04:49	WG1180897
Xylenes, Total	ND		0.00650	1	10/15/2018 04:49	WG1180897
(S) Toluene-d8	*107*		*75.0-131*		*10/15/2018 04:49*	WG1180897
(S) Dibromofluoromethane	*108*		*65.0-129*		*10/15/2018 04:49*	WG1180897
(S) 4-Bromofluorobenzene	*104*		*67.0-138*		*10/15/2018 04:49*	WG1180897

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Acenaphthylene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Anthracene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Benzidine	ND	J4	0.666	2	10/12/2018 07:30	WG1179639
Benzo(a)anthracene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Benzo(b)fluoranthene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Benzo(k)fluoranthene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Benzo(g,h,i)perylene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Benzo(a)pyrene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Bis(2-chlorethoxy)methane	ND		0.666	2	10/12/2018 07:30	WG1179639
Bis(2-chloroethyl)ether	ND		0.666	2	10/12/2018 07:30	WG1179639
Bis(2-chloroisopropyl)ether	ND		0.666	2	10/12/2018 07:30	WG1179639
4-Bromophenyl-phenylether	ND		0.666	2	10/12/2018 07:30	WG1179639
2-Chloronaphthalene	ND		0.0666	2	10/12/2018 07:30	WG1179639
4-Chlorophenyl-phenylether	ND		0.666	2	10/12/2018 07:30	WG1179639
Chrysene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Dibenz(a,h)anthracene	ND		0.0666	2	10/12/2018 07:30	WG1179639
3,3-Dichlorobenzidine	ND		0.666	2	10/12/2018 07:30	WG1179639
2,4-Dinitrotoluene	ND		0.666	2	10/12/2018 07:30	WG1179639
2,6-Dinitrotoluene	ND		0.666	2	10/12/2018 07:30	WG1179639
Fluoranthene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Fluorene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Hexachlorobenzene	ND		0.666	2	10/12/2018 07:30	WG1179639

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.666	2	10/12/2018 07:30	WG1179639
Hexachlorocyclopentadiene	ND		0.666	2	10/12/2018 07:30	WG1179639
Hexachloroethane	ND		0.666	2	10/12/2018 07:30	WG1179639
Indeno(1,2,3-cd)pyrene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Isophorone	ND		0.666	2	10/12/2018 07:30	WG1179639
Naphthalene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Nitrobenzene	ND		0.666	2	10/12/2018 07:30	WG1179639
n-Nitrosodimethylamine	ND		0.666	2	10/12/2018 07:30	WG1179639
n-Nitrosodiphenylamine	ND		0.666	2	10/12/2018 07:30	WG1179639
n-Nitrosodi-n-propylamine	ND		0.666	2	10/12/2018 07:30	WG1179639
Phenanthrene	ND		0.0666	2	10/12/2018 07:30	WG1179639
Benzylbutyl phthalate	ND		0.666	2	10/12/2018 07:30	WG1179639
Bis(2-ethylhexyl)phthalate	ND		0.666	2	10/12/2018 07:30	WG1179639
Di-n-butyl phthalate	ND		0.666	2	10/12/2018 07:30	WG1179639
Diethyl phthalate	ND		0.666	2	10/12/2018 07:30	WG1179639
Dimethyl phthalate	ND		0.666	2	10/12/2018 07:30	WG1179639
Di-n-octyl phthalate	ND		0.666	2	10/12/2018 07:30	WG1179639
Pyrene	ND		0.0666	2	10/12/2018 07:30	WG1179639
1,2,4-Trichlorobenzene	ND		0.666	2	10/12/2018 07:30	WG1179639
4-Chloro-3-methylphenol	ND		0.666	2	10/12/2018 07:30	WG1179639
2-Chlorophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
2,4-Dichlorophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
2,4-Dimethylphenol	ND		0.666	2	10/12/2018 07:30	WG1179639
4,6-Dinitro-2-methylphenol	ND		0.666	2	10/12/2018 07:30	WG1179639
2,4-Dinitrophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
2-Nitrophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
4-Nitrophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
Pentachlorophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
Phenol	ND		0.666	2	10/12/2018 07:30	WG1179639
2,4,6-Trichlorophenol	ND		0.666	2	10/12/2018 07:30	WG1179639
(S) 2-Fluorophenol	*95.2*		*12.0-120*		*10/12/2018 07:30*	WG1179639
(S) Phenol-d5	*81.5*		*10.0-120*		*10/12/2018 07:30*	WG1179639
(S) Nitrobenzene-d5	*86.5*		*10.0-122*		*10/12/2018 07:30*	WG1179639
(S) 2-Fluorobiphenyl	*88.6*		*15.0-120*		*10/12/2018 07:30*	WG1179639
(S) 2,4,6-Tribromophenol	*88.4*		*10.0-127*		*10/12/2018 07:30*	WG1179639
(S) p-Terphenyl-d14	*76.9*		*10.0-120*		*10/12/2018 07:30*	WG1179639

Sample Narrative:

L1033035-03 WG1179639: Dilution due to matrix impact during extract concentration procedure

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.106		0.0200	1	10/12/2018 14:15	WG1179718

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.94		2.00	1	10/13/2018 10:16	WG1179505
Barium	104		0.500	1	10/13/2018 10:16	WG1179505
Cadmium	0.803		0.500	1	10/13/2018 10:16	WG1179505
Chromium	9.69		1.00	1	10/13/2018 10:16	WG1179505
Lead	47.1		0.500	1	10/13/2018 10:16	WG1179505
Selenium	ND		2.00	1	10/13/2018 10:16	WG1179505
Silver	ND		1.00	1	10/13/2018 10:16	WG1179505

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	0.0773		0.0250	1	10/14/2018 18:59	WG1180909
Acrylonitrile	ND		0.0125	1	10/14/2018 18:59	WG1180909
Benzene	ND		0.00100	1	10/14/2018 18:59	WG1180909
Bromobenzene	ND		0.0125	1	10/14/2018 18:59	WG1180909
Bromodichloromethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
Bromoform	ND		0.0250	1	10/14/2018 18:59	WG1180909
Bromomethane	ND		0.0125	1	10/14/2018 18:59	WG1180909
n-Butylbenzene	ND		0.0125	1	10/14/2018 18:59	WG1180909
sec-Butylbenzene	ND		0.0125	1	10/14/2018 18:59	WG1180909
tert-Butylbenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
Carbon tetrachloride	ND		0.00500	1	10/14/2018 18:59	WG1180909
Chlorobenzene	0.00389		0.00250	1	10/14/2018 18:59	WG1180909
Chlorodibromomethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
Chloroethane	ND		0.00500	1	10/14/2018 18:59	WG1180909
Chloroform	ND		0.00250	1	10/14/2018 18:59	WG1180909
Chloromethane	ND		0.0125	1	10/14/2018 18:59	WG1180909
2-Chlorotoluene	ND		0.00250	1	10/14/2018 18:59	WG1180909
4-Chlorotoluene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	10/14/2018 18:59	WG1180909
1,2-Dibromoethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
Dibromomethane	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,2-Dichlorobenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,3-Dichlorobenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,4-Dichlorobenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
Dichlorodifluoromethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,1-Dichloroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,2-Dichloroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,1-Dichloroethene	ND		0.00250	1	10/14/2018 18:59	WG1180909
cis-1,2-Dichloroethene	ND		0.00250	1	10/14/2018 18:59	WG1180909
trans-1,2-Dichloroethene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,2-Dichloropropane	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,1-Dichloropropene	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,3-Dichloropropane	ND	J4	0.00500	1	10/14/2018 18:59	WG1180909
cis-1,3-Dichloropropene	ND		0.00250	1	10/14/2018 18:59	WG1180909
trans-1,3-Dichloropropene	ND	J4	0.00500	1	10/14/2018 18:59	WG1180909
2,2-Dichloropropane	ND		0.00250	1	10/14/2018 18:59	WG1180909
Di-isopropyl ether	ND		0.00100	1	10/14/2018 18:59	WG1180909
Ethylbenzene	ND		0.00250	1	10/14/2018 18:59	WG1180909
Hexachloro-1,3-butadiene	ND		0.0250	1	10/14/2018 18:59	WG1180909

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	10/14/2018 18:59	WG1180909
p-Isopropyltoluene	ND		0.00500	1	10/14/2018 18:59	WG1180909
2-Butanone (MEK)	0.0306		0.0250	1	10/14/2018 18:59	WG1180909
Methylene Chloride	ND		0.0250	1	10/14/2018 18:59	WG1180909
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	10/14/2018 18:59	WG1180909
Methyl tert-butyl ether	ND		0.00100	1	10/14/2018 18:59	WG1180909
Naphthalene	ND		0.0125	1	10/14/2018 18:59	WG1180909
n-Propylbenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
Styrene	ND		0.0125	1	10/14/2018 18:59	WG1180909
1,1,1,2-Tetrachloroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,1,2,2-Tetrachloroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
Tetrachloroethene	ND		0.00250	1	10/14/2018 18:59	WG1180909
Toluene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,2,3-Trichlorobenzene	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,2,4-Trichlorobenzene	ND		0.0125	1	10/14/2018 18:59	WG1180909
1,1,1-Trichloroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,1,2-Trichloroethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
Trichloroethene	ND		0.00100	1	10/14/2018 18:59	WG1180909
Trichlorofluoromethane	ND		0.00250	1	10/14/2018 18:59	WG1180909
1,2,3-Trichloropropane	ND		0.0125	1	10/14/2018 18:59	WG1180909
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,2,3-Trimethylbenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
1,3,5-Trimethylbenzene	ND		0.00500	1	10/14/2018 18:59	WG1180909
Vinyl chloride	ND		0.00250	1	10/14/2018 18:59	WG1180909
Xylenes, Total	ND		0.00650	1	10/14/2018 18:59	WG1180909
(S) Toluene-d8	*102*		*75.0-131*		*10/14/2018 18:59*	WG1180909
(S) Dibromofluoromethane	*93.5*		*65.0-129*		*10/14/2018 18:59*	WG1180909
(S) 4-Bromofluorobenzene	*89.9*		*67.0-138*		*10/14/2018 18:59*	WG1180909

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Acenaphthylene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Anthracene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Benzidine	ND	J4	0.666	2	10/12/2018 07:54	WG1179639
Benzo(a)anthracene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Benzo(b)fluoranthene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Benzo(k)fluoranthene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Benzo(g,h,i)perylene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Benzo(a)pyrene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Bis(2-chlorethoxy)methane	ND		0.666	2	10/12/2018 07:54	WG1179639
Bis(2-chloroethyl)ether	ND		0.666	2	10/12/2018 07:54	WG1179639
Bis(2-chloroisopropyl)ether	ND		0.666	2	10/12/2018 07:54	WG1179639
4-Bromophenyl-phenylether	ND		0.666	2	10/12/2018 07:54	WG1179639
2-Chloronaphthalene	ND		0.0666	2	10/12/2018 07:54	WG1179639
4-Chlorophenyl-phenylether	ND		0.666	2	10/12/2018 07:54	WG1179639
Chrysene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Dibenz(a,h)anthracene	ND		0.0666	2	10/12/2018 07:54	WG1179639
3,3-Dichlorobenzidine	ND		0.666	2	10/12/2018 07:54	WG1179639
2,4-Dinitrotoluene	ND		0.666	2	10/12/2018 07:54	WG1179639
2,6-Dinitrotoluene	ND		0.666	2	10/12/2018 07:54	WG1179639
Fluoranthene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Fluorene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Hexachlorobenzene	ND		0.666	2	10/12/2018 07:54	WG1179639

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.666	2	10/12/2018 07:54	WG1179639
Hexachlorocyclopentadiene	ND		0.666	2	10/12/2018 07:54	WG1179639
Hexachloroethane	ND		0.666	2	10/12/2018 07:54	WG1179639
Indeno(1,2,3-cd)pyrene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Isophorone	ND		0.666	2	10/12/2018 07:54	WG1179639
Naphthalene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Nitrobenzene	ND		0.666	2	10/12/2018 07:54	WG1179639
n-Nitrosodimethylamine	ND		0.666	2	10/12/2018 07:54	WG1179639
n-Nitrosodiphenylamine	ND		0.666	2	10/12/2018 07:54	WG1179639
n-Nitrosodi-n-propylamine	ND		0.666	2	10/12/2018 07:54	WG1179639
Phenanthrene	ND		0.0666	2	10/12/2018 07:54	WG1179639
Benzylbutyl phthalate	ND		0.666	2	10/12/2018 07:54	WG1179639
Bis(2-ethylhexyl)phthalate	ND		0.666	2	10/12/2018 07:54	WG1179639
Di-n-butyl phthalate	ND		0.666	2	10/12/2018 07:54	WG1179639
Diethyl phthalate	ND		0.666	2	10/12/2018 07:54	WG1179639
Dimethyl phthalate	ND		0.666	2	10/12/2018 07:54	WG1179639
Di-n-octyl phthalate	ND		0.666	2	10/12/2018 07:54	WG1179639
Pyrene	ND		0.0666	2	10/12/2018 07:54	WG1179639
1,2,4-Trichlorobenzene	ND		0.666	2	10/12/2018 07:54	WG1179639
4-Chloro-3-methylphenol	ND		0.666	2	10/12/2018 07:54	WG1179639
2-Chlorophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
2,4-Dichlorophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
2,4-Dimethylphenol	ND		0.666	2	10/12/2018 07:54	WG1179639
4,6-Dinitro-2-methylphenol	ND		0.666	2	10/12/2018 07:54	WG1179639
2,4-Dinitrophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
2-Nitrophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
4-Nitrophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
Pentachlorophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
Phenol	ND		0.666	2	10/12/2018 07:54	WG1179639
2,4,6-Trichlorophenol	ND		0.666	2	10/12/2018 07:54	WG1179639
(S) 2-Fluorophenol	*101*		*12.0-120*		*10/12/2018 07:54*	WG1179639
(S) Phenol-d5	*84.6*		*10.0-120*		*10/12/2018 07:54*	WG1179639
(S) Nitrobenzene-d5	*87.9*		*10.0-122*		*10/12/2018 07:54*	WG1179639
(S) 2-Fluorobiphenyl	*87.0*		*15.0-120*		*10/12/2018 07:54*	WG1179639
(S) 2,4,6-Tribromophenol	*92.9*		*10.0-127*		*10/12/2018 07:54*	WG1179639
(S) p-Terphenyl-d14	*84.6*		*10.0-120*		*10/12/2018 07:54*	WG1179639

Sample Narrative:

L1033035-04 WG1179639: Dilution due to matrix impact during extract concentration procedure

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0200	1	10/12/2018 14:17	WG1179718

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	ND		2.00	1	10/13/2018 10:19	WG1179505
Barium	153		0.500	1	10/13/2018 10:19	WG1179505
Cadmium	ND		0.500	1	10/13/2018 10:19	WG1179505
Chromium	20.7		1.00	1	10/13/2018 10:19	WG1179505
Lead	12.3		0.500	1	10/13/2018 10:19	WG1179505
Selenium	ND		2.00	1	10/13/2018 10:19	WG1179505
Silver	ND		1.00	1	10/13/2018 10:19	WG1179505

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0250	1	10/14/2018 19:18	WG1180909
Acrylonitrile	ND		0.0125	1	10/14/2018 19:18	WG1180909
Benzene	ND		0.00100	1	10/14/2018 19:18	WG1180909
Bromobenzene	ND		0.0125	1	10/14/2018 19:18	WG1180909
Bromodichloromethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
Bromoform	ND		0.0250	1	10/14/2018 19:18	WG1180909
Bromomethane	ND		0.0125	1	10/14/2018 19:18	WG1180909
n-Butylbenzene	ND		0.0125	1	10/14/2018 19:18	WG1180909
sec-Butylbenzene	ND		0.0125	1	10/14/2018 19:18	WG1180909
tert-Butylbenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
Carbon tetrachloride	ND		0.00500	1	10/14/2018 19:18	WG1180909
Chlorobenzene	ND		0.00250	1	10/14/2018 19:18	WG1180909
Chlorodibromomethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
Chloroethane	ND		0.00500	1	10/14/2018 19:18	WG1180909
Chloroform	ND		0.00250	1	10/14/2018 19:18	WG1180909
Chloromethane	ND		0.0125	1	10/14/2018 19:18	WG1180909
2-Chlorotoluene	ND		0.00250	1	10/14/2018 19:18	WG1180909
4-Chlorotoluene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,2-Dibromo-3-Chloropropane	ND		0.0250	1	10/14/2018 19:18	WG1180909
1,2-Dibromoethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
Dibromomethane	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,2-Dichlorobenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,3-Dichlorobenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,4-Dichlorobenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
Dichlorodifluoromethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,1-Dichloroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,2-Dichloroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,1-Dichloroethene	ND		0.00250	1	10/14/2018 19:18	WG1180909
cis-1,2-Dichloroethene	ND		0.00250	1	10/14/2018 19:18	WG1180909
trans-1,2-Dichloroethene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,2-Dichloropropane	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,1-Dichloropropene	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,3-Dichloropropane	ND	J4	0.00500	1	10/14/2018 19:18	WG1180909
cis-1,3-Dichloropropene	ND		0.00250	1	10/14/2018 19:18	WG1180909
trans-1,3-Dichloropropene	ND	J4	0.00500	1	10/14/2018 19:18	WG1180909
2,2-Dichloropropane	ND		0.00250	1	10/14/2018 19:18	WG1180909
Di-isopropyl ether	ND		0.00100	1	10/14/2018 19:18	WG1180909
Ethylbenzene	ND		0.00250	1	10/14/2018 19:18	WG1180909
Hexachloro-1,3-butadiene	ND		0.0250	1	10/14/2018 19:18	WG1180909

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Isopropylbenzene	ND		0.00250	1	10/14/2018 19:18	WG1180909
p-Isopropyltoluene	ND		0.00500	1	10/14/2018 19:18	WG1180909
2-Butanone (MEK)	ND		0.0250	1	10/14/2018 19:18	WG1180909
Methylene Chloride	ND		0.0250	1	10/14/2018 19:18	WG1180909
4-Methyl-2-pentanone (MIBK)	ND		0.0250	1	10/14/2018 19:18	WG1180909
Methyl tert-butyl ether	ND		0.00100	1	10/14/2018 19:18	WG1180909
Naphthalene	ND		0.0125	1	10/14/2018 19:18	WG1180909
n-Propylbenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
Styrene	ND		0.0125	1	10/14/2018 19:18	WG1180909
1,1,1,2-Tetrachloroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,1,2,2-Tetrachloroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,1,2-Trichlorotrifluoroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
Tetrachloroethene	ND		0.00250	1	10/14/2018 19:18	WG1180909
Toluene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,2,3-Trichlorobenzene	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,2,4-Trichlorobenzene	ND		0.0125	1	10/14/2018 19:18	WG1180909
1,1,1-Trichloroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,1,2-Trichloroethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
Trichloroethene	ND		0.00100	1	10/14/2018 19:18	WG1180909
Trichlorofluoromethane	ND		0.00250	1	10/14/2018 19:18	WG1180909
1,2,3-Trichloropropane	ND		0.0125	1	10/14/2018 19:18	WG1180909
1,2,4-Trimethylbenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,2,3-Trimethylbenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
1,3,5-Trimethylbenzene	ND		0.00500	1	10/14/2018 19:18	WG1180909
Vinyl chloride	ND		0.00250	1	10/14/2018 19:18	WG1180909
Xylenes, Total	ND		0.00650	1	10/14/2018 19:18	WG1180909
(S) Toluene-d8	*103*		*75.0-131*		*10/14/2018 19:18*	WG1180909
(S) Dibromofluoromethane	*95.5*		*65.0-129*		*10/14/2018 19:18*	WG1180909
(S) 4-Bromofluorobenzene	*86.3*		*67.0-138*		*10/14/2018 19:18*	WG1180909

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Acenaphthylene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Anthracene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Benzidine	ND	J4	0.333	1	10/12/2018 05:10	WG1179639
Benzo(a)anthracene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Benzo(b)fluoranthene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Benzo(k)fluoranthene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Benzo(g,h,i)perylene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Benzo(a)pyrene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Bis(2-chlorethoxy)methane	ND		0.333	1	10/12/2018 05:10	WG1179639
Bis(2-chloroethyl)ether	ND		0.333	1	10/12/2018 05:10	WG1179639
Bis(2-chloroisopropyl)ether	ND		0.333	1	10/12/2018 05:10	WG1179639
4-Bromophenyl-phenylether	ND		0.333	1	10/12/2018 05:10	WG1179639
2-Chloronaphthalene	ND		0.0333	1	10/12/2018 05:10	WG1179639
4-Chlorophenyl-phenylether	ND		0.333	1	10/12/2018 05:10	WG1179639
Chrysene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Dibenz(a,h)anthracene	ND		0.0333	1	10/12/2018 05:10	WG1179639
3,3-Dichlorobenzidine	ND		0.333	1	10/12/2018 05:10	WG1179639
2,4-Dinitrotoluene	ND		0.333	1	10/12/2018 05:10	WG1179639
2,6-Dinitrotoluene	ND		0.333	1	10/12/2018 05:10	WG1179639
Fluoranthene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Fluorene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Hexachlorobenzene	ND		0.333	1	10/12/2018 05:10	WG1179639

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.333	1	10/12/2018 05:10	WG1179639
Hexachlorocyclopentadiene	ND		0.333	1	10/12/2018 05:10	WG1179639
Hexachloroethane	ND		0.333	1	10/12/2018 05:10	WG1179639
Indeno(1,2,3-cd)pyrene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Isophorone	ND		0.333	1	10/12/2018 05:10	WG1179639
Naphthalene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Nitrobenzene	ND		0.333	1	10/12/2018 05:10	WG1179639
n-Nitrosodimethylamine	ND		0.333	1	10/12/2018 05:10	WG1179639
n-Nitrosodiphenylamine	ND		0.333	1	10/12/2018 05:10	WG1179639
n-Nitrosodi-n-propylamine	ND		0.333	1	10/12/2018 05:10	WG1179639
Phenanthrene	ND		0.0333	1	10/12/2018 05:10	WG1179639
Benzylbutyl phthalate	ND		0.333	1	10/12/2018 05:10	WG1179639
Bis(2-ethylhexyl)phthalate	ND		0.333	1	10/12/2018 05:10	WG1179639
Di-n-butyl phthalate	ND		0.333	1	10/12/2018 05:10	WG1179639
Diethyl phthalate	ND		0.333	1	10/12/2018 05:10	WG1179639
Dimethyl phthalate	ND		0.333	1	10/12/2018 05:10	WG1179639
Di-n-octyl phthalate	ND		0.333	1	10/12/2018 05:10	WG1179639
Pyrene	ND		0.0333	1	10/12/2018 05:10	WG1179639
1,2,4-Trichlorobenzene	ND		0.333	1	10/12/2018 05:10	WG1179639
4-Chloro-3-methylphenol	ND		0.333	1	10/12/2018 05:10	WG1179639
2-Chlorophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
2,4-Dichlorophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
2,4-Dimethylphenol	ND		0.333	1	10/12/2018 05:10	WG1179639
4,6-Dinitro-2-methylphenol	ND		0.333	1	10/12/2018 05:10	WG1179639
2,4-Dinitrophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
2-Nitrophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
4-Nitrophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
Pentachlorophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
Phenol	ND		0.333	1	10/12/2018 05:10	WG1179639
2,4,6-Trichlorophenol	ND		0.333	1	10/12/2018 05:10	WG1179639
(S) 2-Fluorophenol	*65.0*		*12.0-120*		*10/12/2018 05:10*	WG1179639
(S) Phenol-d5	*54.6*		*10.0-120*		*10/12/2018 05:10*	WG1179639
(S) Nitrobenzene-d5	*61.2*		*10.0-122*		*10/12/2018 05:10*	WG1179639
(S) 2-Fluorobiphenyl	*55.7*		*15.0-120*		*10/12/2018 05:10*	WG1179639
(S) 2,4,6-Tribromophenol	*55.4*		*10.0-127*		*10/12/2018 05:10*	WG1179639
(S) p-Terphenyl-d14	*45.0*		*10.0-120*		*10/12/2018 05:10*	WG1179639

Method Blank (MB)

(MB) R3350198-5 10/12/18 14:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350198-1 10/12/18 13:46 • (LCSD) R3350198-2 10/12/18 13:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.301	0.283	100	94.2	80.0-120			6.39	20

L1033422-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033422-08 10/12/18 13:59 • (MS) R3350198-3 10/12/18 14:02 • (MSD) R3350198-4 10/12/18 14:04

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.376	0.0347	0.407	0.435	99.2	107	1	75.0-125			6.60	20

Method Blank (MB)

(MB) R3350303-1 10/13/18 09:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Barium	U		0.170	0.500
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Lead	U		0.190	0.500
Selenium	U		0.620	2.00
Silver	U		0.120	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350303-2 10/13/18 09:36 • (LCSD) R3350303-3 10/13/18 09:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	97.0	95.8	97.0	95.8	80.0-120			1.22	20
Barium	100	102	100	102	100	80.0-120			1.23	20
Cadmium	100	96.6	95.5	96.6	95.5	80.0-120			1.22	20
Chromium	100	98.7	98.1	98.7	98.1	80.0-120			0.639	20
Lead	100	96.7	95.3	96.7	95.3	80.0-120			1.46	20
Selenium	100	96.7	95.3	96.7	95.3	80.0-120			1.45	20
Silver	20.0	18.4	18.4	92.2	91.9	80.0-120			0.299	20

L1033560-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033560-01 10/13/18 09:41 • (MS) R3350303-6 10/13/18 09:49 • (MSD) R3350303-7 10/13/18 09:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.31	97.6	94.5	95.3	92.2	1	75.0-125			3.20	20
Barium	100	92.4	193	188	101	95.1	1	75.0-125			2.82	20
Cadmium	100	ND	96.2	93.0	96.1	92.9	1	75.0-125			3.39	20
Chromium	100	12.9	113	109	101	96.1	1	75.0-125			3.98	20
Lead	100	7.28	106	102	98.3	94.3	1	75.0-125			3.82	20
Selenium	100	ND	95.1	91.3	95.1	91.3	1	75.0-125			4.16	20
Silver	20.0	ND	18.7	18.0	93.6	90.2	1	75.0-125			3.73	20

Method Blank (MB)

(MB) R3350784-3 10/14/18 23:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Acrylonitrile	U		0.00190	0.0125
Benzene	U		0.000400	0.00100
Bromobenzene	U		0.00105	0.0125
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
n-Butylbenzene	U		0.00384	0.0125
sec-Butylbenzene	U		0.00253	0.0125
tert-Butylbenzene	U		0.00155	0.00500
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
2-Chlorotoluene	U		0.000920	0.00250
4-Chlorotoluene	U		0.00113	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
Dibromomethane	U		0.00100	0.00500
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
cis-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
1,1-Dichloropropene	U		0.000700	0.00250
1,3-Dichloropropane	U		0.00175	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
2,2-Dichloropropane	U		0.000793	0.00250
Di-isopropyl ether	U		0.000350	0.00100
Ethylbenzene	U		0.000530	0.00250
Hexachloro-1,3-butadiene	U		0.0127	0.0250
Isopropylbenzene	U		0.000863	0.00250

Method Blank (MB)

(MB) R3350784-3 10/14/18 23:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00233	0.00500
2-Butanone (MEK)	U		0.0125	0.0250
Methylene Chloride	0.00726	J	0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Naphthalene	U		0.00312	0.0125
n-Propylbenzene	U		0.00118	0.00500
Styrene	U		0.00273	0.0125
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	U		0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	U		0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
1,2,3-Trichloropropane	U		0.00510	0.0125
1,2,3-Trimethylbenzene	U		0.00115	0.00500
1,2,4-Trimethylbenzene	U		0.00116	0.00500
1,3,5-Trimethylbenzene	U		0.00108	0.00500
Vinyl chloride	U		0.000683	0.00250
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*109*			*75.0-131*
(S) Dibromofluoromethane	*107*			*65.0-129*
(S) 4-Bromofluorobenzene	*106*			*67.0-138*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350784-1 10/14/18 22:13 • (LCSD) R3350784-2 10/14/18 22:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.625	0.897	1.12	144	179	10.0-160		J4	22.1	31
Acrylonitrile	0.625	0.884	1.07	141	171	45.0-153		J4	18.8	22
Benzene	0.125	0.133	0.139	107	112	70.0-123			4.44	20
Bromobenzene	0.125	0.124	0.119	99.3	95.5	73.0-121			3.87	20
Bromodichloromethane	0.125	0.149	0.148	119	118	73.0-121			0.572	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350784-1 10/14/18 22:13 • (LCSD) R3350784-2 10/14/18 22:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.125	0.126	0.123	101	98.7	64.0-132			2.42	20
Bromomethane	0.125	0.143	0.137	114	110	56.0-147			3.83	20
n-Butylbenzene	0.125	0.127	0.126	101	101	68.0-135			0.377	20
sec-Butylbenzene	0.125	0.122	0.122	97.5	97.4	74.0-130			0.138	20
tert-Butylbenzene	0.125	0.123	0.122	98.7	97.7	75.0-127			1.02	20
Carbon tetrachloride	0.125	0.138	0.139	110	111	66.0-128			0.878	20
Chlorobenzene	0.125	0.0962	0.0955	77.0	76.4	76.0-128			0.788	20
Chlorodibromomethane	0.125	0.117	0.114	93.3	91.0	74.0-127			2.49	20
Chloroethane	0.125	0.142	0.139	114	111	61.0-134			1.99	20
Chloroform	0.125	0.126	0.129	101	103	72.0-123			2.28	20
Chloromethane	0.125	0.158	0.169	126	135	51.0-138			7.05	20
2-Chlorotoluene	0.125	0.127	0.124	102	99.3	75.0-124			2.65	20
4-Chlorotoluene	0.125	0.129	0.128	103	102	75.0-124			1.17	20
1,2-Dibromo-3-Chloropropane	0.125	0.0975	0.102	78.0	81.7	59.0-130			4.62	20
1,2-Dibromoethane	0.125	0.122	0.120	97.5	96.0	74.0-128			1.52	20
Dibromomethane	0.125	0.129	0.132	103	106	75.0-122			2.27	20
1,2-Dichlorobenzene	0.125	0.120	0.119	96.0	95.2	76.0-124			0.799	20
1,3-Dichlorobenzene	0.125	0.120	0.118	96.0	94.5	76.0-125			1.64	20
1,4-Dichlorobenzene	0.125	0.122	0.119	97.3	95.0	77.0-121			2.42	20
Dichlorodifluoromethane	0.125	0.135	0.141	108	113	43.0-156			3.93	20
1,1-Dichloroethane	0.125	0.152	0.155	122	124	70.0-127			1.90	20
1,2-Dichloroethane	0.125	0.149	0.152	119	122	65.0-131			2.27	20
1,1-Dichloroethene	0.125	0.145	0.146	116	117	65.0-131			0.680	20
cis-1,2-Dichloroethene	0.125	0.143	0.149	114	119	73.0-125			4.01	20
trans-1,2-Dichloroethene	0.125	0.131	0.135	105	108	71.0-125			2.79	20
1,2-Dichloropropane	0.125	0.145	0.140	116	112	74.0-125			3.90	20
1,1-Dichloropropene	0.125	0.131	0.140	104	112	73.0-125			6.72	20
1,3-Dichloropropane	0.125	0.128	0.127	102	101	80.0-125			0.579	20
cis-1,3-Dichloropropene	0.125	0.124	0.124	99.3	99.1	76.0-127			0.161	20
trans-1,3-Dichloropropene	0.125	0.135	0.131	108	105	73.0-127			2.70	20
2,2-Dichloropropane	0.125	0.174	0.170	139	136	59.0-135	J4	J4	2.09	20
Di-isopropyl ether	0.125	0.153	0.161	122	129	60.0-136			5.13	20
Ethylbenzene	0.125	0.117	0.113	93.8	90.3	74.0-126			3.85	20
Hexachloro-1,3-butadiene	0.125	0.107	0.105	85.5	83.9	57.0-150			1.90	20
Isopropylbenzene	0.125	0.129	0.128	103	102	72.0-127			0.802	20
p-Isopropyltoluene	0.125	0.116	0.114	92.8	91.2	72.0-133			1.78	20
2-Butanone (MEK)	0.625	1.22	1.40	196	224	30.0-160	J4	J4	13.2	24
Methylene Chloride	0.125	0.139	0.139	111	111	68.0-123			0.588	20
4-Methyl-2-pentanone (MIBK)	0.625	0.669	0.681	107	109	56.0-143			1.68	20
Methyl tert-butyl ether	0.125	0.152	0.160	122	128	66.0-132			4.77	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350784-1 10/14/18 22:13 • (LCSD) R3350784-2 10/14/18 22:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.125	0.110	0.111	88.2	88.8	59.0-130			0.665	20
n-Propylbenzene	0.125	0.132	0.129	105	103	74.0-126			2.37	20
Styrene	0.125	0.121	0.120	96.6	96.0	72.0-127			0.570	20
1,1,1,2-Tetrachloroethane	0.125	0.125	0.125	99.8	99.8	74.0-129			0.0465	20
1,1,2,2-Tetrachloroethane	0.125	0.137	0.133	110	106	68.0-128			3.44	20
Tetrachloroethene	0.125	0.0954	0.0940	76.3	75.2	70.0-136			1.43	20
Toluene	0.125	0.120	0.120	95.8	96.3	75.0-121			0.482	20
1,1,2-Trichlorotrifluoroethane	0.125	0.127	0.131	102	105	61.0-139			3.16	20
1,2,3-Trichlorobenzene	0.125	0.110	0.112	87.8	89.7	59.0-139			2.21	20
1,2,4-Trichlorobenzene	0.125	0.102	0.104	81.5	83.1	62.0-137			1.93	20
1,1,1-Trichloroethane	0.125	0.143	0.141	114	113	69.0-126			1.38	20
1,1,2-Trichloroethane	0.125	0.117	0.112	93.7	89.9	78.0-123			4.11	20
Trichloroethene	0.125	0.113	0.121	90.5	97.1	76.0-126			7.01	20
Trichlorofluoromethane	0.125	0.129	0.128	103	102	61.0-142			0.991	20
1,2,3-Trichloropropane	0.125	0.119	0.123	95.2	98.3	67.0-129			3.23	20
1,2,3-Trimethylbenzene	0.125	0.118	0.115	94.6	92.0	74.0-124			2.81	20
1,2,4-Trimethylbenzene	0.125	0.120	0.122	96.2	97.5	70.0-126			1.33	20
1,3,5-Trimethylbenzene	0.125	0.123	0.122	98.4	97.5	73.0-127			0.908	20
Vinyl chloride	0.125	0.131	0.126	105	101	63.0-134			3.62	20
Xylenes, Total	0.375	0.338	0.331	90.1	88.3	72.0-127			2.09	20
(S) Toluene-d8				*107*	*102*	*75.0-131*				
(S) Dibromofluoromethane				*112*	*114*	*65.0-129*				
(S) 4-Bromofluorobenzene				*103*	*103*	*67.0-138*				

L1032979-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1032979-16 10/15/18 05:46 • (MS) R3350784-4 10/15/18 06:05 • (MSD) R3350784-5 10/15/18 06:24

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.759	10.9	42.7	39.1	117	104	35.8	10.0-160			8.83	40
Acrylonitrile	0.759	0.903	39.5	35.8	142	128	35.8	10.0-160			9.76	40
Benzene	0.152	U	2.63	4.89	48.3	89.9	35.8	10.0-149		J3	60.2	37
Bromobenzene	0.152	U	3.83	5.17	70.5	95.0	35.8	10.0-156			29.6	38
Bromodichloromethane	0.152	0.749	4.29	6.29	65.1	102	35.8	10.0-143		J3	37.8	37
Bromoform	0.152	U	5.33	5.64	98.0	104	35.8	10.0-146			5.60	36
Bromomethane	0.152	U	1.90	4.04	34.9	74.3	35.8	10.0-149		J3	72.1	38
n-Butylbenzene	0.152	1.02	3.71	6.14	49.4	94.2	35.8	10.0-160		J3	49.3	40
sec-Butylbenzene	0.152	3.76	5.34	7.69	29.1	72.3	35.8	10.0-159			36.0	39
tert-Butylbenzene	0.152	0.644	3.28	5.83	48.5	95.4	35.8	10.0-156		J3	56.0	39

L1032979-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1032979-16 10/15/18 05:46 • (MS) R3350784-4 10/15/18 06:05 • (MSD) R3350784-5 10/15/18 06:24

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.152	U	2.22	5.26	40.8	96.7	35.8	10.0-145		J3	81.4	37
Chlorobenzene	0.152	U	2.46	4.14	45.2	76.1	35.8	10.0-152		J3	50.9	39
Chlorodibromomethane	0.152	U	4.19	5.23	77.0	96.2	35.8	10.0-146			22.2	37
Chloroethane	0.152	U	2.04	4.70	37.6	86.5	35.8	10.0-146		J3	78.8	40
Chloroform	0.152	0.112	3.02	5.24	53.6	94.4	35.8	10.0-146		J3	53.7	37
Chloromethane	0.152	U	2.21	3.67	40.6	67.5	35.8	10.0-159		J3	49.7	37
2-Chlorotoluene	0.152	U	3.24	5.41	59.6	99.6	35.8	10.0-159		J3	50.2	38
4-Chlorotoluene	0.152	0.0635	3.44	5.48	62.1	99.6	35.8	10.0-155		J3	45.6	39
1,2-Dibromo-3-Chloropropane	0.152	U	4.71	4.49	86.6	82.6	35.8	10.0-151			4.69	39
1,2-Dibromoethane	0.152	U	4.23	4.77	77.8	87.8	35.8	10.0-148			12.1	34
Dibromomethane	0.152	0.0832	4.28	5.23	77.1	94.7	35.8	10.0-147			20.1	35
1,2-Dichlorobenzene	0.152	U	3.90	5.28	71.7	97.1	35.8	10.0-155			30.1	37
1,3-Dichlorobenzene	0.152	U	3.54	5.30	65.1	97.5	35.8	10.0-153		J3	39.9	38
1,4-Dichlorobenzene	0.152	U	3.75	5.24	69.0	96.3	35.8	10.0-151			33.0	38
Dichlorodifluoromethane	0.152	U	1.74	4.31	32.0	79.3	35.8	10.0-160		J3	85.1	35
1,1-Dichloroethane	0.152	U	3.06	5.77	56.2	106	35.8	10.0-147		J3	61.4	37
1,2-Dichloroethane	0.152	U	4.56	6.00	83.8	110	35.8	10.0-148			27.4	35
1,1-Dichloroethene	0.152	U	1.77	4.39	32.6	80.7	35.8	10.0-155		J3	85.0	37
cis-1,2-Dichloroethene	0.152	0.0369	3.17	5.52	57.7	101	35.8	10.0-149		J3	54.0	37
trans-1,2-Dichloroethene	0.152	U	1.64	4.20	30.2	77.2	35.8	10.0-150		J3	87.6	37
1,2-Dichloropropane	0.152	0.205	3.78	6.12	65.7	109	35.8	10.0-148		J3	47.4	37
1,1-Dichloropropene	0.152	U	1.86	4.28	34.3	78.8	35.8	10.0-153		J3	78.8	35
1,3-Dichloropropane	0.152	U	4.52	5.31	83.1	97.7	35.8	10.0-154			16.1	35
cis-1,3-Dichloropropene	0.152	U	3.62	5.03	66.6	92.5	35.8	10.0-151			32.5	37
trans-1,3-Dichloropropene	0.152	0.352	4.43	5.49	75.1	94.5	35.8	10.0-148			21.3	37
2,2-Dichloropropane	0.152	U	2.93	6.77	53.8	124	35.8	10.0-138		J3	79.3	36
Di-isopropyl ether	0.152	U	4.72	6.52	86.8	120	35.8	10.0-147			32.1	36
Ethylbenzene	0.152	0.105	2.51	4.87	44.3	87.7	35.8	10.0-160		J3	63.9	38
Hexachloro-1,3-butadiene	0.152	U	2.79	4.65	51.3	85.6	35.8	10.0-160		J3	50.1	40
Isopropylbenzene	0.152	12.3	9.78	12.2	0.000	0.000	35.8	10.0-155	J6	J6	22.3	38
p-Isopropyltoluene	0.152	0.210	2.80	5.02	47.6	88.4	35.8	10.0-160		J3	56.7	40
2-Butanone (MEK)	0.759	7.72	53.8	52.4	169	164	35.8	10.0-160	J5	J5	2.65	40
Methylene Chloride	0.152	U	3.35	4.88	61.6	89.7	35.8	10.0-141		J3	37.2	37
4-Methyl-2-pentanone (MIBK)	0.759	5.72	30.4	30.1	90.7	89.8	35.8	10.0-160			0.776	35
Methyl tert-butyl ether	0.152	U	5.81	6.76	107	124	35.8	11.0-147			15.1	35
Naphthalene	0.152	9.66	13.4	13.8	68.0	76.1	35.8	10.0-160			3.24	36
n-Propylbenzene	0.152	16.2	12.2	14.4	0.000	0.000	35.8	10.0-158	J6	J6	16.8	38
Styrene	0.152	U	3.65	5.28	67.1	97.2	35.8	10.0-160			36.6	40
1,1,1,2-Tetrachloroethane	0.152	0.0515	3.63	5.43	65.9	98.8	35.8	10.0-149		J3	39.6	39

L1032979-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1032979-16 10/15/18 05:46 • (MS) R3350784-4 10/15/18 06:05 • (MSD) R3350784-5 10/15/18 06:24

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	0.152	1.44	6.53	6.28	93.7	88.9	35.8	10.0-160			4.03	35
Tetrachloroethene	0.152	U	1.62	3.56	29.7	65.5	35.8	10.0-156		J3	75.1	39
Toluene	0.152	0.0948	2.43	4.68	42.9	84.3	35.8	10.0-156		J3	63.4	38
1,1,2-Trichlorotrifluoroethane	0.152	U	1.80	4.92	33.1	90.5	35.8	10.0-160		J3	92.9	36
1,2,3-Trichlorobenzene	0.152	U	3.83	4.92	70.4	90.5	35.8	10.0-160			25.0	40
1,2,4-Trichlorobenzene	0.152	U	3.44	4.56	63.3	83.9	35.8	10.0-160			28.0	40
1,1,1-Trichloroethane	0.152	0.206	2.39	5.59	40.1	99.0	35.8	10.0-144		J3	80.2	35
1,1,2-Trichloroethane	0.152	7.65	6.31	7.27	0.000	0.000	35.8	10.0-160	J6	J6	14.2	35
Trichloroethene	0.152	U	2.19	4.31	40.3	79.2	35.8	10.0-156		J3	65.3	38
Trichlorofluoromethane	0.152	U	1.69	4.63	31.1	85.1	35.8	10.0-160		J3	92.8	40
1,2,3-Trichloropropane	0.152	U	5.86	5.32	108	97.9	35.8	10.0-156			9.57	35
1,2,3-Trimethylbenzene	0.152	0.116	3.31	4.99	58.8	89.6	35.8	10.0-160		J3	40.3	36
1,2,4-Trimethylbenzene	0.152	0.403	3.29	5.29	53.1	89.8	35.8	10.0-160		J3	46.5	36
1,3,5-Trimethylbenzene	0.152	0.235	2.97	5.12	50.3	89.9	35.8	10.0-160		J3	53.2	38
Vinyl chloride	0.152	U	1.27	3.17	23.4	58.2	35.8	10.0-160		J3	85.1	37
Xylenes, Total	0.456	0.383	7.59	14.2	44.2	84.8	35.8	10.0-160		J3	60.7	38
(S) Toluene-d8					*105*	*106*		*75.0-131*				
(S) Dibromofluoromethane					*109*	*112*		*65.0-129*				
(S) 4-Bromofluorobenzene					*113*	*104*		*67.0-138*				

Method Blank (MB)

(MB) R3350739-3 10/14/18 18:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Acrylonitrile	U		0.00190	0.0125
Benzene	U		0.000400	0.00100
Bromobenzene	U		0.00105	0.0125
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
n-Butylbenzene	U		0.00384	0.0125
sec-Butylbenzene	U		0.00253	0.0125
tert-Butylbenzene	U		0.00155	0.00500
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
2-Chlorotoluene	U		0.000920	0.00250
4-Chlorotoluene	U		0.00113	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
Dibromomethane	U		0.00100	0.00500
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
cis-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
1,1-Dichloropropene	U		0.000700	0.00250
1,3-Dichloropropane	U		0.00175	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
2,2-Dichloropropane	U		0.000793	0.00250
Di-isopropyl ether	U		0.000350	0.00100
Ethylbenzene	U		0.000530	0.00250
Hexachloro-1,3-butadiene	U		0.0127	0.0250
Isopropylbenzene	U		0.000863	0.00250

Method Blank (MB)

(MB) R3350739-3 10/14/18 18:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00233	0.00500
2-Butanone (MEK)	U		0.0125	0.0250
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Naphthalene	U		0.00312	0.0125
n-Propylbenzene	U		0.00118	0.00500
Styrene	U		0.00273	0.0125
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	U		0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	U		0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
1,2,3-Trichloropropane	U		0.00510	0.0125
1,2,3-Trimethylbenzene	U		0.00115	0.00500
1,2,4-Trimethylbenzene	U		0.00116	0.00500
1,3,5-Trimethylbenzene	U		0.00108	0.00500
Vinyl chloride	U		0.000683	0.00250
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*104*			*75.0-131*
(S) Dibromofluoromethane	*90.2*			*65.0-129*
(S) 4-Bromofluorobenzene	*86.4*			*67.0-138*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350739-1 10/14/18 16:57 • (LCSD) R3350739-2 10/14/18 17:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.625	0.694	0.552	111	88.4	10.0-160			22.7	31
Acrylonitrile	0.625	0.621	0.616	99.4	98.5	45.0-153			0.884	22
Benzene	0.125	0.132	0.123	106	98.6	70.0-123			7.06	20
Bromobenzene	0.125	0.111	0.104	88.6	82.9	73.0-121			6.73	20
Bromodichloromethane	0.125	0.109	0.109	87.2	87.1	73.0-121			0.110	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350739-1 10/14/18 16:57 • (LCSD) R3350739-2 10/14/18 17:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.125	0.102	0.0995	81.7	79.6	64.0-132			2.59	20
Bromomethane	0.125	0.126	0.113	101	90.7	56.0-147			10.4	20
n-Butylbenzene	0.125	0.0954	0.0922	76.3	73.8	68.0-135			3.41	20
sec-Butylbenzene	0.125	0.101	0.0937	80.4	75.0	74.0-130			7.01	20
tert-Butylbenzene	0.125	0.107	0.0982	85.5	78.6	75.0-127			8.47	20
Carbon tetrachloride	0.125	0.101	0.0996	80.6	79.7	66.0-128			1.16	20
Chlorobenzene	0.125	0.104	0.0972	83.4	77.8	76.0-128			6.96	20
Chlorodibromomethane	0.125	0.121	0.115	97.0	92.3	74.0-127			4.97	20
Chloroethane	0.125	0.115	0.104	91.7	83.4	61.0-134			9.47	20
Chloroform	0.125	0.107	0.101	85.5	81.0	72.0-123			5.41	20
Chloromethane	0.125	0.133	0.124	106	99.0	51.0-138			6.98	20
2-Chlorotoluene	0.125	0.122	0.112	97.4	89.9	75.0-124			8.02	20
4-Chlorotoluene	0.125	0.107	0.102	85.7	81.7	75.0-124			4.76	20
1,2-Dibromo-3-Chloropropane	0.125	0.108	0.112	86.0	90.0	59.0-130			4.54	20
1,2-Dibromoethane	0.125	0.111	0.107	88.6	85.7	74.0-128			3.37	20
Dibromomethane	0.125	0.107	0.116	85.8	92.5	75.0-122			7.52	20
1,2-Dichlorobenzene	0.125	0.126	0.124	101	99.3	76.0-124			1.29	20
1,3-Dichlorobenzene	0.125	0.108	0.102	86.4	81.7	76.0-125			5.49	20
1,4-Dichlorobenzene	0.125	0.109	0.104	87.5	83.0	77.0-121			5.25	20
Dichlorodifluoromethane	0.125	0.0719	0.0678	57.5	54.2	43.0-156			5.87	20
1,1-Dichloroethane	0.125	0.121	0.119	96.4	95.2	70.0-127			1.27	20
1,2-Dichloroethane	0.125	0.110	0.109	88.3	86.9	65.0-131			1.52	20
1,1-Dichloroethene	0.125	0.107	0.106	85.6	84.9	65.0-131			0.760	20
cis-1,2-Dichloroethene	0.125	0.146	0.139	117	111	73.0-125			5.13	20
trans-1,2-Dichloroethene	0.125	0.109	0.102	87.4	81.7	71.0-125			6.63	20
1,2-Dichloropropane	0.125	0.112	0.107	89.5	85.7	74.0-125			4.35	20
1,1-Dichloropropene	0.125	0.122	0.117	98.0	93.6	73.0-125			4.64	20
1,3-Dichloropropane	0.125	0.101	0.0943	80.5	75.5	80.0-125		J4	6.46	20
cis-1,3-Dichloropropene	0.125	0.119	0.115	95.2	92.2	76.0-127			3.21	20
trans-1,3-Dichloropropene	0.125	0.166	0.161	133	129	73.0-127	J4	J4	3.18	20
2,2-Dichloropropane	0.125	0.122	0.121	97.2	96.8	59.0-135			0.373	20
Di-isopropyl ether	0.125	0.113	0.113	90.2	90.4	60.0-136			0.195	20
Ethylbenzene	0.125	0.108	0.101	86.3	81.1	74.0-126			6.21	20
Hexachloro-1,3-butadiene	0.125	0.169	0.172	135	137	57.0-150			1.88	20
Isopropylbenzene	0.125	0.111	0.106	88.7	84.6	72.0-127			4.74	20
p-Isopropyltoluene	0.125	0.0974	0.0917	77.9	73.3	72.0-133			6.09	20
2-Butanone (MEK)	0.625	0.858	0.772	137	124	30.0-160			10.5	24
Methylene Chloride	0.125	0.0940	0.0942	75.2	75.4	68.0-123			0.275	20
4-Methyl-2-pentanone (MIBK)	0.625	0.716	0.707	115	113	56.0-143			1.24	20
Methyl tert-butyl ether	0.125	0.108	0.110	86.7	88.1	66.0-132			1.51	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350739-1 10/14/18 16:57 • (LCSD) R3350739-2 10/14/18 17:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.125	0.116	0.116	92.6	93.1	59.0-130			0.544	20
n-Propylbenzene	0.125	0.125	0.120	99.8	95.9	74.0-126			4.08	20
Styrene	0.125	0.112	0.105	90.0	84.1	72.0-127			6.68	20
1,1,1,2-Tetrachloroethane	0.125	0.155	0.149	124	119	74.0-129			3.40	20
1,1,2,2-Tetrachloroethane	0.125	0.124	0.125	99.0	100	68.0-128			1.09	20
Tetrachloroethene	0.125	0.129	0.118	103	94.2	70.0-136			9.13	20
Toluene	0.125	0.108	0.104	86.5	83.1	75.0-121			4.05	20
1,1,2-Trichlorotrifluoroethane	0.125	0.0911	0.0852	72.9	68.1	61.0-139			6.73	20
1,2,3-Trichlorobenzene	0.125	0.126	0.126	101	101	59.0-139			0.294	20
1,2,4-Trichlorobenzene	0.125	0.131	0.135	104	108	62.0-137			3.07	20
1,1,1-Trichloroethane	0.125	0.127	0.124	101	99.5	69.0-126			1.70	20
1,1,2-Trichloroethane	0.125	0.116	0.110	93.2	88.4	78.0-123			5.30	20
Trichloroethene	0.125	0.118	0.113	94.4	90.1	76.0-126			4.67	20
Trichlorofluoromethane	0.125	0.108	0.105	86.8	83.7	61.0-142			3.54	20
1,2,3-Trichloropropane	0.125	0.124	0.118	98.8	94.4	67.0-129			4.58	20
1,2,3-Trimethylbenzene	0.125	0.121	0.115	97.1	91.8	74.0-124			5.66	20
1,2,4-Trimethylbenzene	0.125	0.109	0.104	87.3	83.0	70.0-126			4.99	20
1,3,5-Trimethylbenzene	0.125	0.119	0.113	95.0	90.1	73.0-127			5.34	20
Vinyl chloride	0.125	0.161	0.154	129	123	63.0-134			4.48	20
Xylenes, Total	0.375	0.349	0.331	93.1	88.3	72.0-127			5.29	20
(S) Toluene-d8				*103*	*101*	*75.0-131*				
(S) Dibromofluoromethane				*93.4*	*96.8*	*65.0-129*				
(S) 4-Bromofluorobenzene				*88.9*	*88.1*	*67.0-138*				

L1033038-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033038-06 10/14/18 21:08 • (MS) R3350739-4 10/15/18 01:07 • (MSD) R3350739-5 10/15/18 01:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.808	U	0.702	0.289	87.0	35.7	1	10.0-160		J3	83.5	40
Acrylonitrile	0.808	U	0.716	0.659	88.7	81.6	1	10.0-160			8.35	40
Benzene	0.162	U	0.135	0.0695	83.3	43.0	1	10.0-149		J3	63.8	37
Bromobenzene	0.162	U	0.149	0.0915	91.9	56.6	1	10.0-156		J3	47.5	38
Bromodichloromethane	0.162	U	0.155	0.0908	95.7	56.2	1	10.0-143		J3	52.0	37
Bromoform	0.162	U	0.136	0.106	84.3	65.5	1	10.0-146			25.1	36
Bromomethane	0.162	U	0.0553	0.0285	34.3	17.6	1	10.0-149		J3	64.1	38
n-Butylbenzene	0.162	U	0.147	0.0695	91.1	43.0	1	10.0-160		J3	71.7	40
sec-Butylbenzene	0.162	U	0.138	0.0656	85.5	40.6	1	10.0-159		J3	71.3	39
tert-Butylbenzene	0.162	U	0.149	0.0673	92.0	41.7	1	10.0-156		J3	75.3	39

L1033038-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033038-06 10/14/18 21:08 • (MS) R3350739-4 10/15/18 01:07 • (MSD) R3350739-5 10/15/18 01:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.162	U	0.111	0.0444	69.0	27.5	1	10.0-145		J3	86.1	37
Chlorobenzene	0.162	U	0.127	0.0659	78.6	40.8	1	10.0-152		J3	63.3	39
Chlorodibromomethane	0.162	U	0.161	0.114	99.5	70.3	1	10.0-146			34.3	37
Chloroethane	0.162	U	0.0419	0.0217	25.9	13.5	1	10.0-146		J3	63.3	40
Chloroform	0.162	U	0.129	0.0709	79.6	43.9	1	10.0-146		J3	57.8	37
Chloromethane	0.162	U	0.0861	0.0368	53.3	22.8	1	10.0-159		J3	80.2	37
2-Chlorotoluene	0.162	U	0.151	0.0833	93.7	51.5	1	10.0-159		J3	58.0	38
4-Chlorotoluene	0.162	U	0.152	0.0758	93.8	46.9	1	10.0-155		J3	66.6	39
1,2-Dibromo-3-Chloropropane	0.162	U	0.112	0.112	69.4	69.4	1	10.0-151			0.0749	39
1,2-Dibromoethane	0.162	U	0.130	0.100	80.3	62.2	1	10.0-148			25.4	34
Dibromomethane	0.162	U	0.127	0.102	78.6	63.0	1	10.0-147			22.0	35
1,2-Dichlorobenzene	0.162	U	0.162	0.109	101	67.6	1	10.0-155		J3	39.2	37
1,3-Dichlorobenzene	0.162	U	0.138	0.0795	85.2	49.2	1	10.0-153		J3	53.6	38
1,4-Dichlorobenzene	0.162	U	0.140	0.0854	86.6	52.8	1	10.0-151		J3	48.5	38
Dichlorodifluoromethane	0.162	U	0.0920	0.0343	56.9	21.3	1	10.0-160		J3	91.3	35
1,1-Dichloroethane	0.162	U	0.136	0.0685	84.3	42.4	1	10.0-147		J3	66.2	37
1,2-Dichloroethane	0.162	U	0.133	0.0993	82.3	61.5	1	10.0-148			29.0	35
1,1-Dichloroethene	0.162	U	0.101	0.0424	62.5	26.2	1	10.0-155		J3	81.8	37
cis-1,2-Dichloroethene	0.162	U	0.148	0.0821	91.8	50.8	1	10.0-149		J3	57.4	37
trans-1,2-Dichloroethene	0.162	U	0.0847	0.0358	52.4	22.2	1	10.0-150		J3	81.2	37
1,2-Dichloropropane	0.162	U	0.137	0.0763	85.0	47.2	1	10.0-148		J3	57.1	37
1,1-Dichloropropene	0.162	U	0.116	0.0449	71.8	27.8	1	10.0-153		J3	88.3	35
1,3-Dichloropropane	0.162	U	0.128	0.0938	79.5	58.1	1	10.0-154			31.1	35
cis-1,3-Dichloropropene	0.162	U	0.149	0.0925	91.9	57.3	1	10.0-151		J3	46.5	37
trans-1,3-Dichloropropene	0.162	U	0.202	0.142	125	87.9	1	10.0-148			35.0	37
2,2-Dichloropropane	0.162	U	0.0974	0.0460	60.3	28.4	1	10.0-138		J3	71.7	36
Di-isopropyl ether	0.162	U	0.136	0.0906	84.0	56.1	1	10.0-147		J3	39.9	36
Ethylbenzene	0.162	U	0.139	0.0624	86.3	38.6	1	10.0-160		J3	76.4	38
Hexachloro-1,3-butadiene	0.162	U	0.248	0.127	154	78.8	1	10.0-160		J3	64.4	40
Isopropylbenzene	0.162	U	0.150	0.0686	92.6	42.4	1	10.0-155		J3	74.3	38
p-Isopropyltoluene	0.162	U	0.131	0.0653	81.1	40.4	1	10.0-160		J3	67.0	40
2-Butanone (MEK)	0.808	U	1.38	1.19	171	147	1	10.0-160	J5		14.7	40
Methylene Chloride	0.162	U	0.0996	0.0574	61.6	35.5	1	10.0-141		J3	53.8	37
4-Methyl-2-pentanone (MIBK)	0.808	U	0.795	0.710	98.4	87.9	1	10.0-160			11.2	35
Methyl tert-butyl ether	0.162	U	0.121	0.102	75.0	63.1	1	11.0-147			17.3	35
Naphthalene	0.162	U	0.182	0.148	112	91.9	1	10.0-160			20.1	36
n-Propylbenzene	0.162	U	0.176	0.0824	109	51.0	1	10.0-158		J3	72.6	38
Styrene	0.162	U	0.154	0.0873	95.1	54.0	1	10.0-160		J3	55.1	40
1,1,1,2-Tetrachloroethane	0.162	U	0.198	0.113	122	70.0	1	10.0-149		J3	54.4	39

L1033038-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033038-06 10/14/18 21:08 • (MS) R3350739-4 10/15/18 01:07 • (MSD) R3350739-5 10/15/18 01:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	0.162	U	0.145	0.136	89.5	83.9	1	10.0-160			6.44	35
Tetrachloroethene	0.162	U	0.136	0.0533	84.3	33.0	1	10.0-156		J3	87.5	39
Toluene	0.162	U	0.136	0.0647	84.4	40.1	1	10.0-156		J3	71.3	38
1,1,2-Trichlorotrifluoroethane	0.162	U	0.0924	0.0328	57.2	20.3	1	10.0-160		J3	95.2	36
1,2,3-Trichlorobenzene	0.162	U	0.161	0.130	99.6	80.5	1	10.0-160			21.2	40
1,2,4-Trichlorobenzene	0.162	U	0.175	0.125	108	77.6	1	10.0-160			33.2	40
1,1,1-Trichloroethane	0.162	U	0.153	0.0608	94.5	37.7	1	10.0-144		J3	86.0	35
1,1,2-Trichloroethane	0.162	U	0.152	0.118	94.2	72.7	1	10.0-160			25.7	35
Trichloroethene	0.162	U	0.133	0.0613	82.1	37.9	1	10.0-156		J3	73.5	38
Trichlorofluoromethane	0.162	U	0.0501	0.0258	31.0	16.0	1	10.0-160		J3	64.0	40
1,2,3-Trichloropropane	0.162	U	0.156	0.138	96.5	85.7	1	10.0-156			11.9	35
1,2,3-Trimethylbenzene	0.162	U	0.176	0.0998	109	61.8	1	10.0-160		J3	55.1	36
1,2,4-Trimethylbenzene	0.162	U	0.241	0.102	149	63.2	1	10.0-160		J3	81.0	36
1,3,5-Trimethylbenzene	0.162	U	0.183	0.0849	113	52.5	1	10.0-160		J3	73.1	38
Vinyl chloride	0.162	U	0.0975	0.0405	60.3	25.0	1	10.0-160		J3	82.7	37
Xylenes, Total	0.485	U	0.485	0.214	100	44.2	1	10.0-160		J3	77.4	38
(S) Toluene-d8					*104*	*102*		*75.0-131*				
(S) Dibromofluoromethane					*87.1*	*95.9*		*65.0-129*				
(S) 4-Bromofluorobenzene					*96.9*	*96.6*		*67.0-138*				

Method Blank (MB)

(MB) R3350070-3 10/12/18 00:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0333
Acenaphthylene	U		0.00671	0.0333
Anthracene	U		0.00632	0.0333
Benzidine	U		0.0637	0.333
Benzo(a)anthracene	U		0.00428	0.0333
Benzo(b)fluoranthene	U		0.00695	0.0333
Benzo(k)fluoranthene	U		0.00582	0.0333
Benzo(g,h,i)perylene	U		0.00721	0.0333
Benzo(a)pyrene	U		0.00548	0.0333
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
2-Chloronaphthalene	U		0.00639	0.0333
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0333
Dibenz(a,h)anthracene	U		0.00821	0.0333
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0333
Fluorene	U		0.00682	0.0333
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0333
Isophorone	U		0.00522	0.333
Naphthalene	U		0.00889	0.0333
Nitrobenzene	U		0.00695	0.333
n-Nitrosodimethylamine	U		0.0647	0.333
n-Nitrosodiphenylamine	U		0.0900	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0333
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333

Method Blank (MB)

(MB) R3350070-3 10/12/18 00:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Pyrene	U		0.0123	0.0333
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*84.4*			*10.0-122*
(S) 2-Fluorobiphenyl	*77.2*			*15.0-120*
(S) p-Terphenyl-d14	*76.0*			*10.0-120*
(S) Phenol-d5	*77.9*			*10.0-120*
(S) 2-Fluorophenol	*90.4*			*12.0-120*
(S) 2,4,6-Tribromophenol	*70.4*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350070-1 10/11/18 23:22 • (LCSD) R3350070-2 10/11/18 23:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.666	0.564	0.491	84.7	73.7	38.0-120			13.8	22
Acenaphthylene	0.666	0.563	0.479	84.5	71.9	40.0-120			16.1	22
Anthracene	0.666	0.511	0.451	76.7	67.7	42.0-120			12.5	20
Benzidine	0.666	ND	ND	0.000	0.000	1.00-120	J4	J4	0.000	40
Benzo(a)anthracene	0.666	0.540	0.479	81.1	71.9	44.0-120			12.0	20
Benzo(b)fluoranthene	0.666	0.542	0.462	81.4	69.4	43.0-120			15.9	22
Benzo(k)fluoranthene	0.666	0.543	0.498	81.5	74.8	44.0-120			8.65	21
Benzo(g,h,i)perylene	0.666	0.596	0.525	89.5	78.8	43.0-120			12.7	22
Benzo(a)pyrene	0.666	0.532	0.472	79.9	70.9	45.0-120			12.0	20
Bis(2-chlorethoxy)methane	0.666	0.498	0.416	74.8	62.5	20.0-120			17.9	23
Bis(2-chloroethyl)ether	0.666	0.518	0.436	77.8	65.5	16.0-120			17.2	31
Bis(2-chloroisopropyl)ether	0.666	0.493	0.425	74.0	63.8	23.0-120			14.8	30
4-Bromophenyl-phenylether	0.666	0.536	0.452	80.5	67.9	40.0-120			17.0	21
2-Chloronaphthalene	0.666	0.547	0.461	82.1	69.2	35.0-120			17.1	24

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350070-1 10/11/18 23:22 • (LCSD) R3350070-2 10/11/18 23:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.666	0.540	0.463	81.1	69.5	40.0-120			15.4	22
Chrysene	0.666	0.543	0.476	81.5	71.5	43.0-120			13.2	20
Dibenz(a,h)anthracene	0.666	0.548	0.478	82.3	71.8	44.0-120			13.6	22
3,3-Dichlorobenzidine	0.666	0.444	0.399	66.7	59.9	28.0-120			10.7	23
2,4-Dinitrotoluene	0.666	0.602	0.523	90.4	78.5	45.0-120			14.0	21
2,6-Dinitrotoluene	0.666	0.587	0.498	88.1	74.8	42.0-120			16.4	21
Fluoranthene	0.666	0.569	0.497	85.4	74.6	44.0-120			13.5	21
Fluorene	0.666	0.569	0.499	85.4	74.9	41.0-120			13.1	22
Hexachlorobenzene	0.666	0.543	0.456	81.5	68.5	39.0-120			17.4	21
Hexachloro-1,3-butadiene	0.666	0.582	0.478	87.4	71.8	15.0-120			19.6	28
Hexachlorocyclopentadiene	0.666	0.553	0.472	83.0	70.9	15.0-120			15.8	31
Hexachloroethane	0.666	0.531	0.439	79.7	65.9	17.0-120			19.0	31
Indeno(1,2,3-cd)pyrene	0.666	0.578	0.503	86.8	75.5	45.0-120			13.9	21
Isophorone	0.666	0.533	0.454	80.0	68.2	23.0-120			16.0	23
Naphthalene	0.666	0.539	0.448	80.9	67.3	18.0-120			18.4	24
Nitrobenzene	0.666	0.593	0.491	89.0	73.7	17.0-120			18.8	26
n-Nitrosodimethylamine	0.666	0.403	0.318	60.5	47.7	10.0-125			23.6	33
n-Nitrosodiphenylamine	0.666	0.522	0.458	78.4	68.8	40.0-120			13.1	21
n-Nitrosodi-n-propylamine	0.666	0.522	0.440	78.4	66.1	26.0-120			17.0	27
Phenanthrene	0.666	0.536	0.464	80.5	69.7	42.0-120			14.4	20
Benzylbutyl phthalate	0.666	0.603	0.542	90.5	81.4	40.0-120			10.7	21
Bis(2-ethylhexyl)phthalate	0.666	0.608	0.537	91.3	80.6	41.0-120			12.4	21
Di-n-butyl phthalate	0.666	0.612	0.543	91.9	81.5	43.0-120			11.9	20
Diethyl phthalate	0.666	0.602	0.526	90.4	79.0	43.0-120			13.5	21
Dimethyl phthalate	0.666	0.563	0.490	84.5	73.6	43.0-120			13.9	22
Di-n-octyl phthalate	0.666	0.624	0.558	93.7	83.8	40.0-120			11.2	21
Pyrene	0.666	0.560	0.492	84.1	73.9	41.0-120			12.9	21
1,2,4-Trichlorobenzene	0.666	0.540	0.439	81.1	65.9	17.0-120			20.6	26
4-Chloro-3-methylphenol	0.666	0.570	0.494	85.6	74.2	28.0-120			14.3	20
2-Chlorophenol	0.666	0.563	0.472	84.5	70.9	28.0-120			17.6	28
2,4-Dichlorophenol	0.666	0.560	0.470	84.1	70.6	25.0-120			17.5	21
2,4-Dimethylphenol	0.666	0.585	0.494	87.8	74.2	15.0-120			16.9	26
4,6-Dinitro-2-methylphenol	0.666	0.551	0.471	82.7	70.7	16.0-120			15.7	33
2,4-Dinitrophenol	0.666	0.482	0.417	72.4	62.6	10.0-120			14.5	40
2-Nitrophenol	0.666	0.578	0.482	86.8	72.4	20.0-120			18.1	25
4-Nitrophenol	0.666	0.521	0.454	78.2	68.2	27.0-120			13.7	24
Pentachlorophenol	0.666	0.581	0.490	87.2	73.6	29.0-120			17.0	25
Phenol	0.666	0.527	0.486	79.1	73.0	28.0-120			8.09	27
2,4,6-Trichlorophenol	0.666	0.564	0.498	84.7	74.8	37.0-120			12.4	24
(S) Nitrobenzene-d5				*94.3*	*71.2*	*10.0-122*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350070-1 10/11/18 23:22 • (LCSD) R3350070-2 10/11/18 23:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*87.4*	*70.3*	*15.0-120*				
(S) p-Terphenyl-d14				*75.1*	*75.1*	*10.0-120*				
(S) Phenol-d5				*85.1*	*67.3*	*10.0-120*				
(S) 2-Fluorophenol				*101*	*77.8*	*12.0-120*				
(S) 2,4,6-Tribromophenol				*84.4*	*68.2*	*10.0-127*				

L1033035-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033035-01 10/12/18 03:37 • (MS) R3350070-4 10/12/18 04:00 • (MSD) R3350070-5 10/12/18 04:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.652	ND	0.444	0.463	68.1	74.0	1	18.0-120			4.19	32
Acenaphthylene	0.652	ND	0.438	0.453	67.2	72.4	1	25.0-120			3.37	32
Anthracene	0.652	ND	0.434	0.433	66.6	69.2	1	22.0-120			0.231	29
Benzidine	0.652	ND	ND	ND	0.000	0.000	1	1.00-120	J6	J6	0.000	40
Benzo(a)anthracene	0.652	ND	0.460	0.449	70.6	71.7	1	25.0-120			2.42	29
Benzo(b)fluoranthene	0.652	ND	0.465	0.434	71.3	69.3	1	19.0-122			6.90	31
Benzo(k)fluoranthene	0.652	ND	0.444	0.469	68.1	74.9	1	23.0-120			5.48	30
Benzo(g,h,i)perylene	0.652	ND	0.479	0.474	73.5	75.7	1	10.0-120			1.05	33
Benzo(a)pyrene	0.652	ND	0.454	0.448	69.6	71.6	1	24.0-120			1.33	30
Bis(2-chlorethoxy)methane	0.652	ND	0.363	0.389	55.7	62.1	1	10.0-120			6.91	34
Bis(2-chloroethyl)ether	0.652	ND	0.368	0.413	56.4	66.0	1	10.0-120			11.5	40
Bis(2-chloroisopropyl)ether	0.652	ND	0.354	0.400	54.3	63.9	1	10.0-120			12.2	40
4-Bromophenyl-phenylether	0.652	ND	0.439	0.438	67.3	70.0	1	27.0-120			0.228	30
2-Chloronaphthalene	0.652	ND	0.408	0.429	62.6	68.5	1	20.0-120			5.02	32
4-Chlorophenyl-phenylether	0.652	ND	0.436	0.442	66.9	70.6	1	24.0-120			1.37	29
Chrysene	0.652	ND	0.468	0.466	71.8	74.4	1	21.0-120			0.428	29
Dibenz(a,h)anthracene	0.652	ND	0.459	0.447	70.4	71.4	1	10.0-120			2.65	32
3,3-Dichlorobenzidine	0.652	ND	0.291	0.298	44.6	47.6	1	10.0-120			2.38	34
2,4-Dinitrotoluene	0.652	ND	0.484	0.482	74.2	77.0	1	30.0-120			0.414	31
2,6-Dinitrotoluene	0.652	ND	0.481	0.477	73.8	76.2	1	25.0-120			0.835	31
Fluoranthene	0.652	ND	0.498	0.485	76.4	77.5	1	18.0-126			2.64	32
Fluorene	0.652	ND	0.466	0.469	71.5	74.9	1	25.0-120			0.642	30
Hexachlorobenzene	0.652	ND	0.447	0.438	68.6	70.0	1	27.0-120			2.03	28
Hexachloro-1,3-butadiene	0.652	ND	0.408	0.465	62.6	74.3	1	10.0-120			13.1	38
Hexachlorocyclopentadiene	0.652	ND	0.164	0.198	25.2	31.6	1	10.0-120			18.8	40
Hexachloroethane	0.652	ND	0.321	0.356	49.2	56.9	1	10.0-120			10.3	40
Indeno(1,2,3-cd)pyrene	0.652	ND	0.484	0.471	74.2	75.2	1	10.0-120			2.72	32
Isophorone	0.652	ND	0.390	0.431	59.8	68.8	1	13.0-120			9.99	34

L1033035-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033035-01 10/12/18 03:37 • (MS) R3350070-4 10/12/18 04:00 • (MSD) R3350070-5 10/12/18 04:23

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.652	ND	0.383	0.429	58.7	68.5	1	10.0-120			11.3	35
Nitrobenzene	0.652	ND	0.408	0.462	62.6	73.8	1	10.0-120			12.4	36
n-Nitrosodimethylamine	0.652	ND	0.276	0.317	42.3	50.6	1	10.0-127			13.8	40
n-Nitrosodiphenylamine	0.652	ND	0.431	0.431	66.1	68.8	1	17.0-120			0.000	29
n-Nitrosodi-n-propylamine	0.652	ND	0.369	0.422	56.6	67.4	1	10.0-120			13.4	37
Phenanthrene	0.652	ND	0.456	0.454	69.9	72.5	1	17.0-120			0.440	31
Benzylbutyl phthalate	0.652	ND	0.507	0.502	77.8	80.2	1	23.0-120			0.991	30
Bis(2-ethylhexyl)phthalate	0.652	ND	0.531	0.504	81.4	80.5	1	17.0-126			5.22	30
Di-n-butyl phthalate	0.652	ND	0.538	0.531	82.5	84.8	1	30.0-120			1.31	29
Diethyl phthalate	0.652	ND	0.500	0.490	76.7	78.3	1	26.0-120			2.02	28
Dimethyl phthalate	0.652	ND	0.463	0.467	71.0	74.6	1	25.0-120			0.860	29
Di-n-octyl phthalate	0.652	ND	0.543	0.522	83.3	83.4	1	21.0-123			3.94	29
Pyrene	0.652	ND	0.457	0.466	70.1	74.4	1	16.0-121			1.95	32
1,2,4-Trichlorobenzene	0.652	ND	0.378	0.415	58.0	66.3	1	12.0-120			9.33	37
4-Chloro-3-methylphenol	0.652	ND	0.459	0.467	70.4	74.6	1	15.0-120			1.73	30
2-Chlorophenol	0.652	ND	0.396	0.448	60.7	71.6	1	15.0-120			12.3	37
2,4-Dichlorophenol	0.652	ND	0.423	0.458	64.9	73.2	1	20.0-120			7.95	31
2,4-Dimethylphenol	0.652	ND	0.435	0.477	66.7	76.2	1	10.0-120			9.21	33
4,6-Dinitro-2-methylphenol	0.652	ND	0.209	0.265	32.1	42.3	1	10.0-120			23.6	39
2,4-Dinitrophenol	0.652	ND	0.218	0.263	33.4	42.0	1	10.0-121			18.7	40
2-Nitrophenol	0.652	ND	0.402	0.460	61.7	73.5	1	12.0-120			13.5	39
4-Nitrophenol	0.652	ND	0.482	0.478	73.9	76.4	1	10.0-137			0.833	32
Pentachlorophenol	0.652	ND	0.468	0.458	71.8	73.2	1	10.0-160			2.16	31
Phenol	0.652	ND	0.424	0.472	65.0	75.4	1	12.0-120			10.7	38
2,4,6-Trichlorophenol	0.652	ND	0.454	0.464	69.6	74.1	1	19.0-120			2.18	32
(S) Nitrobenzene-d5					*64.4*	*72.5*		*10.0-122*				
(S) 2-Fluorobiphenyl					*65.3*	*69.6*		*15.0-120*				
(S) p-Terphenyl-d14					*65.0*	*67.4*		*10.0-120*				
(S) Phenol-d5					*62.4*	*66.3*		*10.0-120*				
(S) 2-Fluorophenol					*71.2*	*78.3*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*74.5*	*74.1*		*10.0-127*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Terracon - Longmont
~~2831~~ 1831 Lefthand Circle, Suite C
Longmont, CO 80501

Billing Information: **Same as Address**

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical
National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1033035
F068

Report to: Mike Skridulis

Email To: Mike.Skridulis@terracon.com

Project Description: **Greeley Pond**

City/State Collected: Greeley, CO

Phone: **303-454-5249**
Fax: **970-484-0454**

Client Project # ~~22187023~~ M2 21187023

Lab Project #

Collected by (print): M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature): M. S

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: STANDARD

Acctnum: **TERRALCO**
Template:
Prelogin:
TSR: **Daphne Richards**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOC8260 - 4oz Soil Jar	SVOC - 4oz Soil Jar	Total Metals - 4oz Soil Jar	Remarks	Sample # (lab only)
SB-02R (0-4)	G	SS		10/5/18	1250	3	X	X	X		-01
SB-02R (4-8)				10/5/18	1255	3	X	X	X		02
SB-05R (0-4)				10/5/18	1310	3	X	X	X		03
SB-05R (4-8)				10/5/18	1315	3	X	X	X		04
SB-08 (0-4)				10/5/18	1330	3	X	X	X		05

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Fed ex: 4510 1654 8157

RAD SCREEN: <0.5 mR/hr pH _____ Temp _____ Flow _____ Other _____

Samples returned via: ___ UPS X FedEx ___ Courier ___

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ___NP X Y ___N
COC Signed/Accurate: X ___N
Bottles arrive intact: X ___N
Correct bottles used: X ___N
Sufficient volume sent: X ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No (circled) HCL / MeoH TBR
M.S. / TT	10/8/18	1600		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: -0.2°C 3.5 3.3 Bottles Received: 15
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) asm	Date: 10/9/18 Time: 845

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

Pace Analytical®
National Center for Testing & Innovation

Login #: L1033035	Client: TERRALCO	Date: 10/9/18	Evaluated by: Jeremy

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courie
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: What Metals?

Client informed by:		Call		Email x		Voice Mail		Date: 10/10/18	Time: 0910
TSR Initials: OS	Client Contact: Mike Skridulis								

Login Instructions:

Please log metals for MRCRA8

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 17, 2018

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L1033873
Samples Received:	10/11/2018
Project Number:	22187023
Description:	Greeley Pond

Report To: Michael Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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SVP-02 L1033873-01 Air

Collected by	Collected date/time	Received date/time
Charles Covington	10/09/18 12:40	10/11/18 08:45

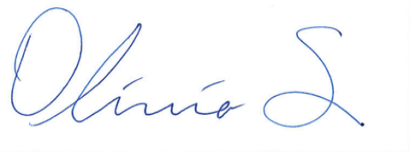
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015M	WG1181520	1	10/17/18 10:35	10/17/18 10:35	MEL
Volatile Organic Compounds (MS) by Method TO-15	WG1179411	2	10/11/18 20:03	10/11/18 20:03	AMC

SVP-02B L1033873-02 Air

Collected by	Collected date/time	Received date/time
Charles Covington	10/09/18 13:15	10/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015M	WG1181520	1	10/17/18 10:38	10/17/18 10:38	MEL
Volatile Organic Compounds (MS) by Method TO-15	WG1179411	2	10/11/18 20:46	10/11/18 20:46	AMC

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Volatile Organic Compounds (GC) by Method 8015M

Analyte	CAS #	Mol. Wt.	RDL1 ppmv	RDL2 mg/m3	Result ppmv	Result mg/m3	Qualifier	Dilution	Batch
Methane	74-82-8	16	10.0	6.54	ND	ND		1	WG1181520
Ethane	74-84-0	30	10.0	12.3	ND	ND		1	WG1181520
Ethene	74-85-1	28	10.0	11.5	ND	ND		1	WG1181520

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	3.90	9.28		2	WG1179411
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1179411
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1179411
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1179411
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1179411
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1179411
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1179411
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1179411
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1179411
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1179411
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1179411
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1179411
Chloroform	67-66-3	119	0.400	1.95	1.26	6.13		2	WG1179411
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1179411
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1179411
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1179411
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1179411
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1179411
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1179411
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1179411
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1179411
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1179411
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1179411
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1179411
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	0.767	3.04		2	WG1179411
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	1.36	5.39		2	WG1179411
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1179411
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1179411
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1179411
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1179411
Ethanol	64-17-5	46.10	1.26	2.38	3.85	7.26		2	WG1179411
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1179411
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1179411
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	2.21	12.4		2	WG1179411
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	3.97	19.6		2	WG1179411
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1179411
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	15.7	110		2	WG1179411
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1179411
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1179411
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1179411
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1179411
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.442	1.54		2	WG1179411
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1179411
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1179411
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1179411
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1179411
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1179411
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1179411

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1179411
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1179411
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1179411
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1179411
Tetrachloroethylene	127-18-4	166	0.400	2.72	96.1	652		2	WG1179411
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1179411
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG1179411
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1179411
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1179411
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1179411
Trichloroethylene	79-01-6	131	0.400	2.14	8.93	47.8		2	WG1179411
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1179411
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1179411
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1179411
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1179411
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1179411
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1179411
m&p-Xylene	1330-20-7	106	0.800	3.47	1.46	6.34		2	WG1179411
o-Xylene	95-47-6	106	0.400	1.73	0.510	2.21		2	WG1179411
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.4*				WG1179411

Volatile Organic Compounds (GC) by Method 8015M

Analyte	CAS #	Mol. Wt.	RDL1 ppmv	RDL2 mg/m3	Result ppmv	Result mg/m3	Qualifier	Dilution	Batch
Methane	74-82-8	16	10.0	6.54	ND	ND		1	WG1181520
Ethane	74-84-0	30	10.0	12.3	ND	ND		1	WG1181520
Ethene	74-85-1	28	10.0	11.5	ND	ND		1	WG1181520

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	3.29	7.81		2	WG1179411
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1179411
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1179411
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1179411
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1179411
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1179411
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1179411
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1179411
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1179411
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1179411
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1179411
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1179411
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1179411
Chloromethane	74-87-3	50.50	0.400	0.826	0.444	0.916		2	WG1179411
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1179411
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1179411
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1179411
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1179411
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1179411
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1179411
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1179411
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1179411
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1179411
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1179411
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1179411
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1179411
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1179411
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1179411
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1179411
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1179411
Ethanol	64-17-5	46.10	1.26	2.38	3.95	7.44		2	WG1179411
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1179411
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1179411
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1179411
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.416	2.06		2	WG1179411
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1179411
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1179411
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1179411
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1179411
n-Hexane	110-54-3	86.20	0.400	1.41	0.447	1.58		2	WG1179411
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1179411
Methylene Chloride	75-09-2	84.90	0.400	1.39	1.34	4.65		2	WG1179411
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1179411
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1179411
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1179411
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1179411
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1179411
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1179411

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1179411
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1179411
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1179411
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1179411
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1179411
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1179411
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG1179411
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1179411
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1179411
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1179411
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1179411
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1179411
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1179411
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1179411
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1179411
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1179411
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1179411
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1179411
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1179411
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*95.5*				WG1179411

Method Blank (MB)

(MB) R3351398-3 10/17/18 10:31

Analyte	MB Result ppmv	MB Qualifier	MB MDL ppmv	MB RDL ppmv
Methane	U		6.98	10.0
Ethane	U		3.86	10.0
Ethene	U		3.61	10.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3351398-1 10/17/18 10:09 • (LCSD) R3351398-2 10/17/18 10:12

Analyte	Spike Amount ppmv	LCS Result ppmv	LCSD Result ppmv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	500	523	506	105	101	79.0-115			3.33	20
Ethane	500	519	511	104	102	85.0-115			1.53	20
Ethene	500	504	494	101	98.9	85.0-118			1.98	20

Method Blank (MB)

(MB) R3349768-3 10/11/18 10:25

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3349768-3 10/11/18 10:25

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*96.2*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3349768-1 10/11/18 09:03 • (LCSD) R3349768-2 10/11/18 09:44

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	2.91	2.86	77.5	76.4	55.0-148			1.52	25
Propene	3.75	3.49	3.47	93.2	92.6	64.0-144			0.654	25
Dichlorodifluoromethane	3.75	3.87	3.85	103	103	64.0-139			0.522	25
1,2-Dichlorotetrafluoroethane	3.75	4.02	3.95	107	105	70.0-130			1.81	25
Chloromethane	3.75	3.21	3.20	85.6	85.4	70.0-130			0.210	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3349768-1 10/11/18 09:03 • (LCSD) R3349768-2 10/11/18 09:44

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.54	3.34	94.3	89.0	70.0-130			5.78	25
1,3-Butadiene	3.75	3.17	2.79	84.5	74.5	70.0-130			12.5	25
Bromomethane	3.75	3.92	3.82	105	102	70.0-130			2.70	25
Chloroethane	3.75	3.65	3.46	97.3	92.3	70.0-130			5.23	25
Trichlorofluoromethane	3.75	3.86	3.88	103	103	70.0-130			0.478	25
1,1,2-Trichlorotrifluoroethane	3.75	3.88	3.93	103	105	70.0-130			1.29	25
1,1-Dichloroethene	3.75	3.53	3.58	94.1	95.5	70.0-130			1.51	25
1,1-Dichloroethane	3.75	3.51	3.56	93.5	94.8	70.0-130			1.40	25
Acetone	3.75	3.38	3.37	90.2	89.8	70.0-130			0.416	25
2-Propanol	3.75	3.08	3.15	82.0	83.9	70.0-139			2.23	25
Carbon disulfide	3.75	3.65	3.75	97.3	100	70.0-130			2.80	25
Methylene Chloride	3.75	3.01	3.03	80.3	80.8	70.0-130			0.627	25
MTBE	3.75	3.62	3.65	96.6	97.3	70.0-130			0.683	25
trans-1,2-Dichloroethene	3.75	3.50	3.60	93.3	96.0	70.0-130			2.84	25
n-Hexane	3.75	3.43	3.42	91.5	91.3	70.0-130			0.171	25
Vinyl acetate	3.75	3.14	3.14	83.8	83.6	70.0-130			0.169	25
Methyl Ethyl Ketone	3.75	3.59	3.70	95.8	98.8	70.0-130			3.05	25
cis-1,2-Dichloroethene	3.75	3.80	3.89	101	104	70.0-130			2.30	25
Chloroform	3.75	3.72	3.74	99.3	99.9	70.0-130			0.549	25
Cyclohexane	3.75	3.76	3.82	100	102	70.0-130			1.39	25
1,1,1-Trichloroethane	3.75	3.78	3.83	101	102	70.0-130			1.35	25
Carbon tetrachloride	3.75	3.92	3.97	105	106	70.0-130			1.10	25
Benzene	3.75	3.74	3.73	99.8	99.5	70.0-130			0.209	25
1,2-Dichloroethane	3.75	3.66	3.65	97.6	97.3	70.0-130			0.315	25
Heptane	3.75	3.13	3.20	83.5	85.3	70.0-130			2.02	25
Trichloroethylene	3.75	3.93	3.95	105	105	70.0-130			0.388	25
1,2-Dichloropropane	3.75	3.59	3.60	95.6	96.1	70.0-130			0.521	25
1,4-Dioxane	3.75	4.22	4.21	113	112	70.0-140			0.232	25
Bromodichloromethane	3.75	3.78	3.83	101	102	70.0-130			1.24	25
cis-1,3-Dichloropropene	3.75	3.83	3.79	102	101	70.0-130			1.10	25
4-Methyl-2-pentanone (MIBK)	3.75	3.19	3.22	85.1	85.9	70.0-139			0.956	25
Toluene	3.75	3.92	3.93	104	105	70.0-130			0.333	25
trans-1,3-Dichloropropene	3.75	3.76	3.84	100	102	70.0-130			2.22	25
1,1,2-Trichloroethane	3.75	3.95	3.93	105	105	70.0-130			0.417	25
Tetrachloroethylene	3.75	4.34	4.45	116	119	70.0-130			2.55	25
Methyl Butyl Ketone	3.75	3.31	3.39	88.2	90.4	70.0-149			2.42	25
Dibromochloromethane	3.75	4.11	4.15	110	111	70.0-130			1.11	25
1,2-Dibromoethane	3.75	4.06	4.07	108	108	70.0-130			0.0689	25
Chlorobenzene	3.75	4.05	4.12	108	110	70.0-130			1.67	25
Ethylbenzene	3.75	3.98	3.99	106	106	70.0-130			0.0381	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3349768-1 10/11/18 09:03 • (LCSD) R3349768-2 10/11/18 09:44

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	8.16	8.13	109	108	70.0-130			0.444	25
o-Xylene	3.75	4.02	4.00	107	107	70.0-130			0.470	25
Styrene	3.75	4.18	4.16	111	111	70.0-130			0.473	25
Bromoform	3.75	4.51	4.53	120	121	70.0-130			0.525	25
1,1,2,2-Tetrachloroethane	3.75	3.90	3.93	104	105	70.0-130			0.703	25
4-Ethyltoluene	3.75	4.18	4.31	112	115	70.0-130			2.88	25
1,3,5-Trimethylbenzene	3.75	4.04	4.13	108	110	70.0-130			2.18	25
1,2,4-Trimethylbenzene	3.75	4.07	4.20	109	112	70.0-130			2.98	25
1,3-Dichlorobenzene	3.75	4.33	4.47	116	119	70.0-130			3.18	25
1,4-Dichlorobenzene	3.75	4.39	4.53	117	121	70.0-130			3.22	25
Benzyl Chloride	3.75	4.09	4.22	109	113	70.0-152			3.30	25
1,2-Dichlorobenzene	3.75	4.29	4.49	114	120	70.0-130			4.52	25
1,2,4-Trichlorobenzene	3.75	4.90	5.00	131	133	70.0-160			2.11	25
Hexachloro-1,3-butadiene	3.75	4.61	4.67	123	125	70.0-151			1.34	25
Naphthalene	3.75	4.63	4.75	124	127	70.0-159			2.58	25
Allyl Chloride	3.75	3.79	3.53	101	94.2	70.0-130			7.12	25
2-Chlorotoluene	3.75	4.29	4.37	115	116	70.0-130			1.64	25
Methyl Methacrylate	3.75	3.75	3.78	100	101	70.0-130			0.839	25
Tetrahydrofuran	3.75	2.89	2.95	77.0	78.8	70.0-137			2.26	25
2,2,4-Trimethylpentane	3.75	3.51	3.51	93.7	93.7	70.0-130			0.0134	25
Vinyl Bromide	3.75	4.14	4.03	110	107	70.0-130			2.81	25
Isopropylbenzene	3.75	4.10	4.14	109	110	70.0-130			0.969	25
(S) 1,4-Bromofluorobenzene				*97.6*	*99.3*	*60.0-140*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Company Name/Address:
Terracon - Fort Collins
1831 Lefthand Circle, Suite C
Longmont, CO 80501

Billing Information: Same

Report to: Mike Skridulis

Email To: Mike.skridulis@Terracon.com

Project Description: **Greeley Pond**

City/State Collected: Greeley, Colorado

Phone: **303-454-5249**
Fax:

Client Project # **22187023**

Lab Project #

Collected by (print): Charles Covington

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Standard

Email? ___ No X Yes
FAX? X No ___ Yes

Canister Pressure/Vacuum

Sample ID	Sample Description	Can #	Date	Time	Initial	Final
SVP-02	Soil Vapor	8656	10/9/18	1240	25	0
SVP-02B	↓	9175	10/9/18	1315	25	7

Analysis: VOCs, Methane, Ethane, ~~Ethylene~~ - TO-15, Ethene

Rem./Contaminant	Sample # (lab only)
	01
	02

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1033813
Table #
Acctnum: TERRALCO
Template:
Prelogin:
TSR: Daphne Richards
PB:
Shipped Via:

Remarks: Fedex: 4510 1654 8179

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	10/10/18		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: Amb °C Bottles Received: 2
Date: 10/11/18 Time: 0895

Condition: (lab use only)
COC Seal Intact: ___ Y ___ N ___ NA
pH Checked: NCF:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	TestAmerica	SDG#	1033873
Cooler Received/Opened On: 10/ 11/18	Temperature:	Amb	
Received By: Eric Struck			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

October 18, 2018

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L1033889
Samples Received:	10/11/2018
Project Number:	22187023
Description:	Greeley Pond

Report To: Michael Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Olivia Studebaker
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

MW-02 L1033889-01 GW

Collected by: Charles Covington
Collected date/time: 10/09/18 11:45
Received date/time: 10/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1179616	1	10/12/18 10:13	10/14/18 13:02	EL
Metals (ICP) by Method 6010B	WG1179481	1	10/12/18 15:12	10/14/18 15:42	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180297	1	10/13/18 05:31	10/13/18 05:31	ACG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180746	1	10/14/18 15:57	10/14/18 15:57	DWR
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1180434	1	10/14/18 05:42	10/15/18 23:43	AO

MW-05 L1033889-02 GW

Collected by: Charles Covington
Collected date/time: 10/09/18 13:30
Received date/time: 10/11/18 08:45

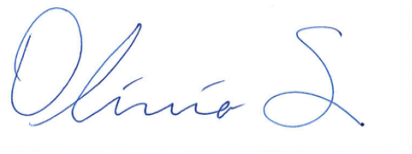
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1179616	1	10/12/18 10:13	10/14/18 13:04	EL
Metals (ICP) by Method 6010B	WG1179481	1	10/12/18 15:12	10/14/18 15:44	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180297	1	10/13/18 05:51	10/13/18 05:51	ACG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1180434	1	10/14/18 05:42	10/16/18 19:30	LEA

MW-08 L1033889-03 GW

Collected by: Charles Covington
Collected date/time: 10/09/18 15:35
Received date/time: 10/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1179616	1	10/12/18 10:13	10/14/18 13:07	EL
Metals (ICP) by Method 6010B	WG1179481	1	10/12/18 15:12	10/14/18 15:47	ST
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1180297	1	10/13/18 06:10	10/13/18 06:10	ACG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1180434	1	10/14/18 05:42	10/15/18 22:55	AO

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Olivia Studebaker
Project Manager

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury,Dissolved	ND		0.000200	1	10/14/2018 13:02	WG1179616

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Arsenic,Dissolved	ND		0.0100	1	10/14/2018 15:42	WG1179481
Barium,Dissolved	0.112		0.00500	1	10/14/2018 15:42	WG1179481
Cadmium,Dissolved	ND		0.00200	1	10/14/2018 15:42	WG1179481
Chromium,Dissolved	ND		0.0100	1	10/14/2018 15:42	WG1179481
Lead,Dissolved	ND		0.00500	1	10/14/2018 15:42	WG1179481
Selenium,Dissolved	ND		0.0100	1	10/14/2018 15:42	WG1179481
Silver,Dissolved	ND		0.00500	1	10/14/2018 15:42	WG1179481

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	10/13/2018 05:31	WG1180297
Acrolein	ND		0.0500	1	10/13/2018 05:31	WG1180297
Acrylonitrile	ND		0.0100	1	10/13/2018 05:31	WG1180297
Benzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Bromobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Bromodichloromethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
Bromoform	ND		0.00100	1	10/13/2018 05:31	WG1180297
Bromomethane	ND		0.00500	1	10/13/2018 05:31	WG1180297
n-Butylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
sec-Butylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
tert-Butylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Carbon tetrachloride	ND		0.00100	1	10/13/2018 05:31	WG1180297
Chlorobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Chlorodibromomethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
Chloroethane	ND		0.00500	1	10/13/2018 05:31	WG1180297
Chloroform	ND		0.00500	1	10/13/2018 05:31	WG1180297
Chloromethane	ND		0.00250	1	10/13/2018 05:31	WG1180297
2-Chlorotoluene	ND		0.00100	1	10/13/2018 05:31	WG1180297
4-Chlorotoluene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/13/2018 05:31	WG1180297
1,2-Dibromoethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
Dibromomethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2-Dichlorobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,3-Dichlorobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,4-Dichlorobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Dichlorodifluoromethane	ND		0.00500	1	10/13/2018 05:31	WG1180297
1,1-Dichloroethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2-Dichloroethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1-Dichloroethene	ND		0.00100	1	10/13/2018 05:31	WG1180297
cis-1,2-Dichloroethene	ND		0.00100	1	10/13/2018 05:31	WG1180297
trans-1,2-Dichloroethene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2-Dichloropropane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1-Dichloropropene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,3-Dichloropropane	ND		0.00100	1	10/13/2018 05:31	WG1180297
cis-1,3-Dichloropropene	ND		0.00100	1	10/13/2018 05:31	WG1180297
trans-1,3-Dichloropropene	ND		0.00100	1	10/13/2018 05:31	WG1180297
2,2-Dichloropropane	ND		0.00100	1	10/13/2018 05:31	WG1180297
Di-isopropyl ether	ND		0.00100	1	10/13/2018 05:31	WG1180297
Ethylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Isopropylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
p-Isopropyltoluene	ND		0.00100	1	10/13/2018 05:31	WG1180297
2-Butanone (MEK)	ND		0.0100	1	10/13/2018 05:31	WG1180297
Methylene Chloride	ND		0.00500	1	10/13/2018 05:31	WG1180297
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/13/2018 05:31	WG1180297
Methyl tert-butyl ether	ND		0.00100	1	10/13/2018 05:31	WG1180297
Naphthalene	ND		0.00500	1	10/13/2018 05:31	WG1180297
n-Propylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Styrene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1,2-Trichlorotrifluoroethane	ND	J4	0.00100	1	10/13/2018 05:31	WG1180297
Tetrachloroethene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Toluene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2,3-Trichlorobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2,4-Trichlorobenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1,1-Trichloroethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,1,2-Trichloroethane	ND		0.00100	1	10/13/2018 05:31	WG1180297
Trichloroethene	ND		0.00100	1	10/14/2018 15:57	WG1180746
Trichlorofluoromethane	ND		0.00500	1	10/13/2018 05:31	WG1180297
1,2,3-Trichloropropane	ND		0.00250	1	10/13/2018 05:31	WG1180297
1,2,4-Trimethylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,2,3-Trimethylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
1,3,5-Trimethylbenzene	ND		0.00100	1	10/13/2018 05:31	WG1180297
Vinyl chloride	ND		0.00100	1	10/13/2018 05:31	WG1180297
Xylenes, Total	ND		0.00300	1	10/13/2018 05:31	WG1180297
(S) Toluene-d8	*98.0*		*80.0-120*		*10/13/2018 05:31*	WG1180297
(S) Toluene-d8	*102*		*80.0-120*		*10/14/2018 15:57*	WG1180746
(S) Dibromofluoromethane	*101*		*75.0-120*		*10/13/2018 05:31*	WG1180297
(S) Dibromofluoromethane	*97.6*		*75.0-120*		*10/14/2018 15:57*	WG1180746
(S) 4-Bromofluorobenzene	*100*		*77.0-126*		*10/13/2018 05:31*	WG1180297
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*10/14/2018 15:57*	WG1180746

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Acenaphthylene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Anthracene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Benzidine	ND	J4	0.0100	1	10/15/2018 23:43	WG1180434
Benzo(a)anthracene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Benzo(b)fluoranthene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Benzo(k)fluoranthene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Benzo(g,h,i)perylene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Benzo(a)pyrene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Bis(2-chlorethoxy)methane	ND		0.0100	1	10/15/2018 23:43	WG1180434
Bis(2-chloroethyl)ether	ND		0.0100	1	10/15/2018 23:43	WG1180434
Bis(2-chloroisopropyl)ether	ND		0.0100	1	10/15/2018 23:43	WG1180434
4-Bromophenyl-phenylether	ND		0.0100	1	10/15/2018 23:43	WG1180434
2-Chloronaphthalene	ND		0.00100	1	10/15/2018 23:43	WG1180434
4-Chlorophenyl-phenylether	ND		0.0100	1	10/15/2018 23:43	WG1180434
Chrysene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Dibenz(a,h)anthracene	ND		0.00100	1	10/15/2018 23:43	WG1180434
3,3-Dichlorobenzidine	ND		0.0100	1	10/15/2018 23:43	WG1180434
2,4-Dinitrotoluene	ND		0.0100	1	10/15/2018 23:43	WG1180434

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
2,6-Dinitrotoluene	ND		0.0100	1	10/15/2018 23:43	WG1180434
Fluoranthene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Fluorene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Hexachlorobenzene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Hexachloro-1,3-butadiene	ND		0.0100	1	10/15/2018 23:43	WG1180434
Hexachlorocyclopentadiene	ND		0.0100	1	10/15/2018 23:43	WG1180434
Hexachloroethane	ND		0.0100	1	10/15/2018 23:43	WG1180434
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Isophorone	ND		0.0100	1	10/15/2018 23:43	WG1180434
Naphthalene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Nitrobenzene	ND		0.0100	1	10/15/2018 23:43	WG1180434
n-Nitrosodimethylamine	ND		0.0100	1	10/15/2018 23:43	WG1180434
n-Nitrosodiphenylamine	ND		0.0100	1	10/15/2018 23:43	WG1180434
n-Nitrosodi-n-propylamine	ND		0.0100	1	10/15/2018 23:43	WG1180434
Phenanthrene	ND		0.00100	1	10/15/2018 23:43	WG1180434
Benzylbutyl phthalate	ND		0.00300	1	10/15/2018 23:43	WG1180434
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	10/15/2018 23:43	WG1180434
Di-n-butyl phthalate	ND		0.00300	1	10/15/2018 23:43	WG1180434
Diethyl phthalate	ND		0.00300	1	10/15/2018 23:43	WG1180434
Dimethyl phthalate	ND		0.00300	1	10/15/2018 23:43	WG1180434
Di-n-octyl phthalate	ND		0.00300	1	10/15/2018 23:43	WG1180434
Pyrene	ND		0.00100	1	10/15/2018 23:43	WG1180434
1,2,4-Trichlorobenzene	ND		0.0100	1	10/15/2018 23:43	WG1180434
4-Chloro-3-methylphenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
2-Chlorophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
2,4-Dichlorophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
2,4-Dimethylphenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
4,6-Dinitro-2-methylphenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
2,4-Dinitrophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
2-Nitrophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
4-Nitrophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
Pentachlorophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
Phenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
2,4,6-Trichlorophenol	ND		0.0100	1	10/15/2018 23:43	WG1180434
(S) 2-Fluorophenol	*56.6*		*10.0-120*		*10/15/2018 23:43*	WG1180434
(S) Phenol-d5	*33.7*		*10.0-120*		*10/15/2018 23:43*	WG1180434
(S) Nitrobenzene-d5	*89.1*		*10.0-127*		*10/15/2018 23:43*	WG1180434
(S) 2-Fluorobiphenyl	*91.1*		*10.0-130*		*10/15/2018 23:43*	WG1180434
(S) 2,4,6-Tribromophenol	*98.4*		*10.0-155*		*10/15/2018 23:43*	WG1180434
(S) p-Terphenyl-d14	*99.8*		*10.0-128*		*10/15/2018 23:43*	WG1180434

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury,Dissolved	ND		0.000200	1	10/14/2018 13:04	WG1179616

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Arsenic,Dissolved	ND		0.0100	1	10/14/2018 15:44	WG1179481
Barium,Dissolved	0.0929		0.00500	1	10/14/2018 15:44	WG1179481
Cadmium,Dissolved	ND		0.00200	1	10/14/2018 15:44	WG1179481
Chromium,Dissolved	ND		0.0100	1	10/14/2018 15:44	WG1179481
Lead,Dissolved	ND		0.00500	1	10/14/2018 15:44	WG1179481
Selenium,Dissolved	ND		0.0100	1	10/14/2018 15:44	WG1179481
Silver,Dissolved	ND		0.00500	1	10/14/2018 15:44	WG1179481

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	10/13/2018 05:51	WG1180297
Acrolein	ND		0.0500	1	10/13/2018 05:51	WG1180297
Acrylonitrile	ND		0.0100	1	10/13/2018 05:51	WG1180297
Benzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Bromobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Bromodichloromethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
Bromoform	ND		0.00100	1	10/13/2018 05:51	WG1180297
Bromomethane	ND		0.00500	1	10/13/2018 05:51	WG1180297
n-Butylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
sec-Butylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
tert-Butylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Carbon tetrachloride	ND		0.00100	1	10/13/2018 05:51	WG1180297
Chlorobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Chlorodibromomethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
Chloroethane	ND		0.00500	1	10/13/2018 05:51	WG1180297
Chloroform	ND		0.00500	1	10/13/2018 05:51	WG1180297
Chloromethane	ND		0.00250	1	10/13/2018 05:51	WG1180297
2-Chlorotoluene	ND		0.00100	1	10/13/2018 05:51	WG1180297
4-Chlorotoluene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/13/2018 05:51	WG1180297
1,2-Dibromoethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
Dibromomethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2-Dichlorobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,3-Dichlorobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,4-Dichlorobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Dichlorodifluoromethane	ND		0.00500	1	10/13/2018 05:51	WG1180297
1,1-Dichloroethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2-Dichloroethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1-Dichloroethene	ND		0.00100	1	10/13/2018 05:51	WG1180297
cis-1,2-Dichloroethene	ND		0.00100	1	10/13/2018 05:51	WG1180297
trans-1,2-Dichloroethene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2-Dichloropropane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1-Dichloropropene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,3-Dichloropropane	ND		0.00100	1	10/13/2018 05:51	WG1180297
cis-1,3-Dichloropropene	ND		0.00100	1	10/13/2018 05:51	WG1180297
trans-1,3-Dichloropropene	ND		0.00100	1	10/13/2018 05:51	WG1180297
2,2-Dichloropropane	ND		0.00100	1	10/13/2018 05:51	WG1180297
Di-isopropyl ether	ND		0.00100	1	10/13/2018 05:51	WG1180297
Ethylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Isopropylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
p-Isopropyltoluene	ND		0.00100	1	10/13/2018 05:51	WG1180297
2-Butanone (MEK)	ND		0.0100	1	10/13/2018 05:51	WG1180297
Methylene Chloride	ND		0.00500	1	10/13/2018 05:51	WG1180297
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/13/2018 05:51	WG1180297
Methyl tert-butyl ether	ND		0.00100	1	10/13/2018 05:51	WG1180297
Naphthalene	ND		0.00500	1	10/13/2018 05:51	WG1180297
n-Propylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Styrene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1,2-Trichlorotrifluoroethane	ND	J4	0.00100	1	10/13/2018 05:51	WG1180297
Tetrachloroethene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Toluene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2,3-Trichlorobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2,4-Trichlorobenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1,1-Trichloroethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,1,2-Trichloroethane	ND		0.00100	1	10/13/2018 05:51	WG1180297
Trichloroethene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Trichlorofluoromethane	ND		0.00500	1	10/13/2018 05:51	WG1180297
1,2,3-Trichloropropane	ND		0.00250	1	10/13/2018 05:51	WG1180297
1,2,4-Trimethylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,2,3-Trimethylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
1,3,5-Trimethylbenzene	ND		0.00100	1	10/13/2018 05:51	WG1180297
Vinyl chloride	ND		0.00100	1	10/13/2018 05:51	WG1180297
Xylenes, Total	ND		0.00300	1	10/13/2018 05:51	WG1180297
(S) Toluene-d8	*99.0*		*80.0-120*		*10/13/2018 05:51*	WG1180297
(S) Dibromofluoromethane	*99.6*		*75.0-120*		*10/13/2018 05:51*	WG1180297
(S) 4-Bromofluorobenzene	*100*		*77.0-126*		*10/13/2018 05:51*	WG1180297

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Acenaphthylene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Anthracene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Benzidine	ND	J4	0.0100	1	10/16/2018 19:30	WG1180434
Benzo(a)anthracene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Benzo(b)fluoranthene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Benzo(k)fluoranthene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Benzo(g,h,i)perylene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Benzo(a)pyrene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Bis(2-chlorethoxy)methane	ND		0.0100	1	10/16/2018 19:30	WG1180434
Bis(2-chloroethyl)ether	ND		0.0100	1	10/16/2018 19:30	WG1180434
Bis(2-chloroisopropyl)ether	ND		0.0100	1	10/16/2018 19:30	WG1180434
4-Bromophenyl-phenylether	ND		0.0100	1	10/16/2018 19:30	WG1180434
2-Chloronaphthalene	ND		0.00100	1	10/16/2018 19:30	WG1180434
4-Chlorophenyl-phenylether	ND		0.0100	1	10/16/2018 19:30	WG1180434
Chrysene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Dibenz(a,h)anthracene	ND		0.00100	1	10/16/2018 19:30	WG1180434
3,3-Dichlorobenzidine	ND		0.0100	1	10/16/2018 19:30	WG1180434
2,4-Dinitrotoluene	ND		0.0100	1	10/16/2018 19:30	WG1180434
2,6-Dinitrotoluene	ND		0.0100	1	10/16/2018 19:30	WG1180434
Fluoranthene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Fluorene	ND		0.00100	1	10/16/2018 19:30	WG1180434

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexachlorobenzene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Hexachloro-1,3-butadiene	ND		0.0100	1	10/16/2018 19:30	WG1180434
Hexachlorocyclopentadiene	ND		0.0100	1	10/16/2018 19:30	WG1180434
Hexachloroethane	ND		0.0100	1	10/16/2018 19:30	WG1180434
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Isophorone	ND		0.0100	1	10/16/2018 19:30	WG1180434
Naphthalene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Nitrobenzene	ND		0.0100	1	10/16/2018 19:30	WG1180434
n-Nitrosodimethylamine	ND		0.0100	1	10/16/2018 19:30	WG1180434
n-Nitrosodiphenylamine	ND		0.0100	1	10/16/2018 19:30	WG1180434
n-Nitrosodi-n-propylamine	ND		0.0100	1	10/16/2018 19:30	WG1180434
Phenanthrene	ND		0.00100	1	10/16/2018 19:30	WG1180434
Benzylbutyl phthalate	ND		0.00300	1	10/16/2018 19:30	WG1180434
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	10/16/2018 19:30	WG1180434
Di-n-butyl phthalate	ND		0.00300	1	10/16/2018 19:30	WG1180434
Diethyl phthalate	ND		0.00300	1	10/16/2018 19:30	WG1180434
Dimethyl phthalate	ND		0.00300	1	10/16/2018 19:30	WG1180434
Di-n-octyl phthalate	ND		0.00300	1	10/16/2018 19:30	WG1180434
Pyrene	ND		0.00100	1	10/16/2018 19:30	WG1180434
1,2,4-Trichlorobenzene	ND		0.0100	1	10/16/2018 19:30	WG1180434
4-Chloro-3-methylphenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
2-Chlorophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
2,4-Dichlorophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
2,4-Dimethylphenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
4,6-Dinitro-2-methylphenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
2,4-Dinitrophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
2-Nitrophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
4-Nitrophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
Pentachlorophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
Phenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
2,4,6-Trichlorophenol	ND		0.0100	1	10/16/2018 19:30	WG1180434
(S) 2-Fluorophenol	*49.8*		*10.0-120*		*10/16/2018 19:30*	WG1180434
(S) Phenol-d5	*31.4*		*10.0-120*		*10/16/2018 19:30*	WG1180434
(S) Nitrobenzene-d5	*78.1*		*10.0-127*		*10/16/2018 19:30*	WG1180434
(S) 2-Fluorobiphenyl	*81.0*		*10.0-130*		*10/16/2018 19:30*	WG1180434
(S) 2,4,6-Tribromophenol	*75.3*		*10.0-155*		*10/16/2018 19:30*	WG1180434
(S) p-Terphenyl-d14	*90.4*		*10.0-128*		*10/16/2018 19:30*	WG1180434

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury,Dissolved	ND		0.000200	1	10/14/2018 13:07	WG1179616

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Arsenic,Dissolved	ND		0.0100	1	10/14/2018 15:47	WG1179481
Barium,Dissolved	0.0469		0.00500	1	10/14/2018 15:47	WG1179481
Cadmium,Dissolved	ND		0.00200	1	10/14/2018 15:47	WG1179481
Chromium,Dissolved	ND		0.0100	1	10/14/2018 15:47	WG1179481
Lead,Dissolved	ND		0.00500	1	10/14/2018 15:47	WG1179481
Selenium,Dissolved	ND		0.0100	1	10/14/2018 15:47	WG1179481
Silver,Dissolved	ND		0.00500	1	10/14/2018 15:47	WG1179481

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	10/13/2018 06:10	WG1180297
Acrolein	ND		0.0500	1	10/13/2018 06:10	WG1180297
Acrylonitrile	ND		0.0100	1	10/13/2018 06:10	WG1180297
Benzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Bromobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Bromodichloromethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
Bromoform	ND		0.00100	1	10/13/2018 06:10	WG1180297
Bromomethane	ND		0.00500	1	10/13/2018 06:10	WG1180297
n-Butylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
sec-Butylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
tert-Butylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Carbon tetrachloride	ND		0.00100	1	10/13/2018 06:10	WG1180297
Chlorobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Chlorodibromomethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
Chloroethane	ND		0.00500	1	10/13/2018 06:10	WG1180297
Chloroform	ND		0.00500	1	10/13/2018 06:10	WG1180297
Chloromethane	ND		0.00250	1	10/13/2018 06:10	WG1180297
2-Chlorotoluene	ND		0.00100	1	10/13/2018 06:10	WG1180297
4-Chlorotoluene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/13/2018 06:10	WG1180297
1,2-Dibromoethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
Dibromomethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2-Dichlorobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,3-Dichlorobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,4-Dichlorobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Dichlorodifluoromethane	ND		0.00500	1	10/13/2018 06:10	WG1180297
1,1-Dichloroethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2-Dichloroethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1-Dichloroethene	ND		0.00100	1	10/13/2018 06:10	WG1180297
cis-1,2-Dichloroethene	ND		0.00100	1	10/13/2018 06:10	WG1180297
trans-1,2-Dichloroethene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2-Dichloropropane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1-Dichloropropene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,3-Dichloropropane	ND		0.00100	1	10/13/2018 06:10	WG1180297
cis-1,3-Dichloropropene	ND		0.00100	1	10/13/2018 06:10	WG1180297
trans-1,3-Dichloropropene	ND		0.00100	1	10/13/2018 06:10	WG1180297
2,2-Dichloropropane	ND		0.00100	1	10/13/2018 06:10	WG1180297
Di-isopropyl ether	ND		0.00100	1	10/13/2018 06:10	WG1180297
Ethylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexachloro-1,3-butadiene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Isopropylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
p-Isopropyltoluene	ND		0.00100	1	10/13/2018 06:10	WG1180297
2-Butanone (MEK)	ND		0.0100	1	10/13/2018 06:10	WG1180297
Methylene Chloride	ND		0.00500	1	10/13/2018 06:10	WG1180297
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/13/2018 06:10	WG1180297
Methyl tert-butyl ether	ND		0.00100	1	10/13/2018 06:10	WG1180297
Naphthalene	ND		0.00500	1	10/13/2018 06:10	WG1180297
n-Propylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Styrene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1,2-Trichlorotrifluoroethane	ND	J4	0.00100	1	10/13/2018 06:10	WG1180297
Tetrachloroethene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Toluene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2,3-Trichlorobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2,4-Trichlorobenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1,1-Trichloroethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,1,2-Trichloroethane	ND		0.00100	1	10/13/2018 06:10	WG1180297
Trichloroethene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Trichlorofluoromethane	ND		0.00500	1	10/13/2018 06:10	WG1180297
1,2,3-Trichloropropane	ND		0.00250	1	10/13/2018 06:10	WG1180297
1,2,4-Trimethylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,2,3-Trimethylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
1,3,5-Trimethylbenzene	ND		0.00100	1	10/13/2018 06:10	WG1180297
Vinyl chloride	ND		0.00100	1	10/13/2018 06:10	WG1180297
Xylenes, Total	ND		0.00300	1	10/13/2018 06:10	WG1180297
(S) Toluene-d8	*102*		*80.0-120*		*10/13/2018 06:10*	WG1180297
(S) Dibromofluoromethane	*98.4*		*75.0-120*		*10/13/2018 06:10*	WG1180297
(S) 4-Bromofluorobenzene	*98.3*		*77.0-126*		*10/13/2018 06:10*	WG1180297

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Acenaphthylene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Anthracene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Benzidine	ND	J4	0.0100	1	10/15/2018 22:55	WG1180434
Benzo(a)anthracene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Benzo(b)fluoranthene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Benzo(k)fluoranthene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Benzo(g,h,i)perylene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Benzo(a)pyrene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Bis(2-chlorethoxy)methane	ND		0.0100	1	10/15/2018 22:55	WG1180434
Bis(2-chloroethyl)ether	ND		0.0100	1	10/15/2018 22:55	WG1180434
Bis(2-chloroisopropyl)ether	ND		0.0100	1	10/15/2018 22:55	WG1180434
4-Bromophenyl-phenylether	ND		0.0100	1	10/15/2018 22:55	WG1180434
2-Chloronaphthalene	ND		0.00100	1	10/15/2018 22:55	WG1180434
4-Chlorophenyl-phenylether	ND		0.0100	1	10/15/2018 22:55	WG1180434
Chrysene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Dibenz(a,h)anthracene	ND		0.00100	1	10/15/2018 22:55	WG1180434
3,3-Dichlorobenzidine	ND		0.0100	1	10/15/2018 22:55	WG1180434
2,4-Dinitrotoluene	ND		0.0100	1	10/15/2018 22:55	WG1180434
2,6-Dinitrotoluene	ND		0.0100	1	10/15/2018 22:55	WG1180434
Fluoranthene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Fluorene	ND		0.00100	1	10/15/2018 22:55	WG1180434

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hexachlorobenzene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Hexachloro-1,3-butadiene	ND		0.0100	1	10/15/2018 22:55	WG1180434
Hexachlorocyclopentadiene	ND		0.0100	1	10/15/2018 22:55	WG1180434
Hexachloroethane	ND		0.0100	1	10/15/2018 22:55	WG1180434
Indeno(1,2,3-cd)pyrene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Isophorone	ND		0.0100	1	10/15/2018 22:55	WG1180434
Naphthalene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Nitrobenzene	ND		0.0100	1	10/15/2018 22:55	WG1180434
n-Nitrosodimethylamine	ND		0.0100	1	10/15/2018 22:55	WG1180434
n-Nitrosodiphenylamine	ND		0.0100	1	10/15/2018 22:55	WG1180434
n-Nitrosodi-n-propylamine	ND		0.0100	1	10/15/2018 22:55	WG1180434
Phenanthrene	ND		0.00100	1	10/15/2018 22:55	WG1180434
Benzylbutyl phthalate	ND		0.00300	1	10/15/2018 22:55	WG1180434
Bis(2-ethylhexyl)phthalate	ND		0.00300	1	10/15/2018 22:55	WG1180434
Di-n-butyl phthalate	ND		0.00300	1	10/15/2018 22:55	WG1180434
Diethyl phthalate	ND		0.00300	1	10/15/2018 22:55	WG1180434
Dimethyl phthalate	ND		0.00300	1	10/15/2018 22:55	WG1180434
Di-n-octyl phthalate	ND		0.00300	1	10/15/2018 22:55	WG1180434
Pyrene	ND		0.00100	1	10/15/2018 22:55	WG1180434
1,2,4-Trichlorobenzene	ND		0.0100	1	10/15/2018 22:55	WG1180434
4-Chloro-3-methylphenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
2-Chlorophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
2,4-Dichlorophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
2,4-Dimethylphenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
4,6-Dinitro-2-methylphenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
2,4-Dinitrophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
2-Nitrophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
4-Nitrophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
Pentachlorophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
Phenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
2,4,6-Trichlorophenol	ND		0.0100	1	10/15/2018 22:55	WG1180434
(S) 2-Fluorophenol	*37.7*		*10.0-120*		*10/15/2018 22:55*	WG1180434
(S) Phenol-d5	*28.6*		*10.0-120*		*10/15/2018 22:55*	WG1180434
(S) Nitrobenzene-d5	*55.1*		*10.0-127*		*10/15/2018 22:55*	WG1180434
(S) 2-Fluorobiphenyl	*70.2*		*10.0-130*		*10/15/2018 22:55*	WG1180434
(S) 2,4,6-Tribromophenol	*83.0*		*10.0-155*		*10/15/2018 22:55*	WG1180434
(S) p-Terphenyl-d14	*83.5*		*10.0-128*		*10/15/2018 22:55*	WG1180434

Method Blank (MB)

(MB) R3350507-1 10/14/18 12:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350507-2 10/14/18 12:40 • (LCSD) R3350507-3 10/14/18 12:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	0.00289	0.00289	96.5	96.3	80.0-120			0.214	20

L1033794-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033794-04 10/14/18 12:50 • (MS) R3350507-4 10/14/18 12:52 • (MSD) R3350507-5 10/14/18 12:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	U	0.00281	0.00277	93.5	92.5	1	75.0-125			1.13	20

Method Blank (MB)

(MB) R3350531-1 10/14/18 14:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic,Dissolved	U		0.00650	0.0100
Barium,Dissolved	U		0.00170	0.00500
Cadmium,Dissolved	U		0.000700	0.00200
Chromium,Dissolved	U		0.00140	0.0100
Lead,Dissolved	U		0.00190	0.00500
Selenium,Dissolved	U		0.00740	0.0100
Silver,Dissolved	U		0.00280	0.00500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350531-2 10/14/18 14:55 • (LCSD) R3350531-3 10/14/18 14:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic,Dissolved	1.00	1.00	1.01	100	101	80.0-120			0.460	20
Barium,Dissolved	1.00	1.07	1.07	107	107	80.0-120			0.0463	20
Cadmium,Dissolved	1.00	1.02	1.02	102	102	80.0-120			0.188	20
Chromium,Dissolved	1.00	1.00	1.01	100	101	80.0-120			0.618	20
Lead,Dissolved	1.00	1.01	1.01	101	101	80.0-120			0.216	20
Selenium,Dissolved	1.00	1.01	1.01	101	101	80.0-120			0.105	20
Silver,Dissolved	0.200	0.196	0.195	98.0	97.6	80.0-120			0.410	20

L1032857-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1032857-02 10/14/18 15:01 • (MS) R3350531-5 10/14/18 15:06 • (MSD) R3350531-6 10/14/18 15:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic,Dissolved	1.00	U	1.02	1.00	102	100	1	75.0-125			1.59	20
Barium,Dissolved	1.00	0.0787	1.14	1.13	106	105	1	75.0-125			0.883	20
Cadmium,Dissolved	1.00	U	1.02	1.01	102	101	1	75.0-125			0.806	20
Chromium,Dissolved	1.00	0.564	1.54	1.53	97.3	96.2	1	75.0-125			0.759	20
Lead,Dissolved	1.00	U	1.00	1.00	100	100	1	75.0-125			0.177	20
Selenium,Dissolved	1.00	U	1.01	0.999	101	99.9	1	75.0-125			1.23	20
Silver,Dissolved	0.200	U	0.193	0.193	96.7	96.5	1	75.0-125			0.258	20

Method Blank (MB)

(MB) R3350403-2 10/13/18 02:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrolein	U		0.00887	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
Di-isopropyl ether	U		0.000320	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	U		0.000256	0.00100

Method Blank (MB)

(MB) R3350403-2 10/13/18 02:52

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Isopropylbenzene	U		0.000326	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100
1,2,3-Trichlorobenzene	U		0.000230	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
1,2,3-Trimethylbenzene	U		0.000321	0.00100
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*102*			*80.0-120*
(S) Dibromofluoromethane	*102*			*75.0-120*
(S) 4-Bromofluorobenzene	*101*			*77.0-126*

Laboratory Control Sample (LCS)

(LCS) R3350403-1 10/13/18 02:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.125	0.106	85.0	19.0-160	
Acrolein	0.125	0.146	117	10.0-160	
Acrylonitrile	0.125	0.129	104	55.0-149	
Benzene	0.0250	0.0266	107	70.0-123	

Laboratory Control Sample (LCS)

(LCS) R3350403-1 10/13/18 02:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromobenzene	0.0250	0.0260	104	73.0-121	
Bromodichloromethane	0.0250	0.0257	103	75.0-120	
Bromoform	0.0250	0.0256	102	68.0-132	
Bromomethane	0.0250	0.0279	112	10.0-160	
n-Butylbenzene	0.0250	0.0270	108	73.0-125	
sec-Butylbenzene	0.0250	0.0257	103	75.0-125	
tert-Butylbenzene	0.0250	0.0251	101	76.0-124	
Carbon tetrachloride	0.0250	0.0255	102	68.0-126	
Chlorobenzene	0.0250	0.0241	96.5	80.0-121	
Chlorodibromomethane	0.0250	0.0245	98.0	77.0-125	
Chloroethane	0.0250	0.0256	103	47.0-150	
Chloroform	0.0250	0.0263	105	73.0-120	
Chloromethane	0.0250	0.0257	103	41.0-142	
2-Chlorotoluene	0.0250	0.0251	100	76.0-123	
4-Chlorotoluene	0.0250	0.0260	104	75.0-122	
1,2-Dibromo-3-Chloropropane	0.0250	0.0234	93.5	58.0-134	
1,2-Dibromoethane	0.0250	0.0237	94.9	80.0-122	
Dibromomethane	0.0250	0.0263	105	80.0-120	
1,2-Dichlorobenzene	0.0250	0.0259	104	79.0-121	
1,3-Dichlorobenzene	0.0250	0.0267	107	79.0-120	
1,4-Dichlorobenzene	0.0250	0.0247	98.7	79.0-120	
Dichlorodifluoromethane	0.0250	0.0296	119	51.0-149	
1,1-Dichloroethane	0.0250	0.0278	111	70.0-126	
1,2-Dichloroethane	0.0250	0.0274	110	70.0-128	
1,1-Dichloroethene	0.0250	0.0282	113	71.0-124	
cis-1,2-Dichloroethene	0.0250	0.0260	104	73.0-120	
trans-1,2-Dichloroethene	0.0250	0.0266	107	73.0-120	
1,2-Dichloropropane	0.0250	0.0262	105	77.0-125	
1,1-Dichloropropene	0.0250	0.0286	115	74.0-126	
1,3-Dichloropropane	0.0250	0.0248	99.1	80.0-120	
cis-1,3-Dichloropropene	0.0250	0.0255	102	80.0-123	
trans-1,3-Dichloropropene	0.0250	0.0255	102	78.0-124	
2,2-Dichloropropane	0.0250	0.0295	118	58.0-130	
Di-isopropyl ether	0.0250	0.0267	107	58.0-138	
Ethylbenzene	0.0250	0.0247	98.6	79.0-123	
Hexachloro-1,3-butadiene	0.0250	0.0263	105	54.0-138	
Isopropylbenzene	0.0250	0.0258	103	76.0-127	
p-Isopropyltoluene	0.0250	0.0256	102	76.0-125	
2-Butanone (MEK)	0.125	0.128	102	44.0-160	
Methylene Chloride	0.0250	0.0261	105	67.0-120	

Laboratory Control Sample (LCS)

(LCS) R3350403-1 10/13/18 02:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
4-Methyl-2-pentanone (MIBK)	0.125	0.121	96.6	68.0-142	
Methyl tert-butyl ether	0.0250	0.0281	112	68.0-125	
Naphthalene	0.0250	0.0259	104	54.0-135	
n-Propylbenzene	0.0250	0.0259	104	77.0-124	
Styrene	0.0250	0.0256	102	73.0-130	
1,1,1,2-Tetrachloroethane	0.0250	0.0242	96.7	75.0-125	
1,1,2,2-Tetrachloroethane	0.0250	0.0252	101	65.0-130	
Tetrachloroethene	0.0250	0.0260	104	72.0-132	
Toluene	0.0250	0.0247	98.7	79.0-120	
1,1,2-Trichlorotrifluoroethane	0.0250	0.0154	61.7	69.0-132	J4
1,2,3-Trichlorobenzene	0.0250	0.0255	102	50.0-138	
1,2,4-Trichlorobenzene	0.0250	0.0265	106	57.0-137	
1,1,1-Trichloroethane	0.0250	0.0267	107	73.0-124	
1,1,2-Trichloroethane	0.0250	0.0231	92.6	80.0-120	
Trichloroethene	0.0250	0.0255	102	78.0-124	
Trichlorofluoromethane	0.0250	0.0246	98.4	59.0-147	
1,2,3-Trichloropropane	0.0250	0.0250	99.8	73.0-130	
1,2,3-Trimethylbenzene	0.0250	0.0251	100	77.0-120	
1,2,4-Trimethylbenzene	0.0250	0.0257	103	76.0-121	
1,3,5-Trimethylbenzene	0.0250	0.0253	101	76.0-122	
Vinyl chloride	0.0250	0.0280	112	67.0-131	
Xylenes, Total	0.0750	0.0741	98.8	79.0-123	
(S) Toluene-d8			*95.8*	*80.0-120*	
(S) Dibromofluoromethane			*103*	*75.0-120*	
(S) 4-Bromofluorobenzene			*99.2*	*77.0-126*	

Method Blank (MB)

(MB) R3350698-3 10/14/18 10:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Trichloroethene	U		0.000398	0.00100
(S) Toluene-d8	*107*			*80.0-120*
(S) Dibromofluoromethane	*97.3*			*75.0-120*
(S) 4-Bromofluorobenzene	*97.4*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350698-1 10/14/18 09:55 • (LCSD) R3350698-2 10/14/18 10:14

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Trichloroethene	0.0250	0.0255	0.0247	102	98.6	78.0-124			3.24	20
(S) Toluene-d8				*102*	*99.5*	*80.0-120*				
(S) Dibromofluoromethane				*96.9*	*95.1*	*75.0-120*				
(S) 4-Bromofluorobenzene				*97.8*	*96.8*	*77.0-126*				

Method Blank (MB)

(MB) R3350717-3 10/15/18 02:49

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acenaphthene	U		0.000316	0.00100
Acenaphthylene	U		0.000309	0.00100
Anthracene	U		0.000291	0.00100
Benzidine	U		0.00432	0.0100
Benzo(a)anthracene	U		0.0000975	0.00100
Benzo(b)fluoranthene	U		0.0000896	0.00100
Benzo(k)fluoranthene	U		0.000355	0.00100
Benzo(g,h,i)perylene	U		0.000161	0.00100
Benzo(a)pyrene	U		0.000340	0.00100
Bis(2-chlorethoxy)methane	U		0.000329	0.0100
Bis(2-chloroethyl)ether	U		0.00162	0.0100
Bis(2-chloroisopropyl)ether	U		0.000445	0.0100
4-Bromophenyl-phenylether	U		0.000335	0.0100
2-Chloronaphthalene	U		0.000330	0.00100
4-Chlorophenyl-phenylether	U		0.000303	0.0100
Chrysene	U		0.000332	0.00100
Dibenz(a,h)anthracene	U		0.000279	0.00100
3,3-Dichlorobenzidine	U		0.00202	0.0100
2,4-Dinitrotoluene	U		0.00165	0.0100
2,6-Dinitrotoluene	U		0.000279	0.0100
Fluoranthene	U		0.000310	0.00100
Fluorene	U		0.000323	0.00100
Hexachlorobenzene	U		0.000341	0.00100
Hexachloro-1,3-butadiene	U		0.000329	0.0100
Hexachlorocyclopentadiene	U		0.00233	0.0100
Hexachloroethane	U		0.000365	0.0100
Indeno(1,2,3-cd)pyrene	U		0.000279	0.00100
Isophorone	U		0.000272	0.0100
Naphthalene	U		0.000372	0.00100
Nitrobenzene	U		0.000367	0.0100
n-Nitrosodimethylamine	U		0.00126	0.0100
n-Nitrosodiphenylamine	U		0.00119	0.0100
n-Nitrosodi-n-propylamine	U		0.000403	0.0100
Phenanthrene	U		0.000366	0.00100
Benzylbutyl phthalate	U		0.000275	0.00300
Bis(2-ethylhexyl)phthalate	U		0.000709	0.00300
Di-n-butyl phthalate	U		0.000266	0.00300
Diethyl phthalate	U		0.000282	0.00300
Dimethyl phthalate	U		0.000283	0.00300
Di-n-octyl phthalate	U		0.000278	0.00300

Method Blank (MB)

(MB) R3350717-3 10/15/18 02:49

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Pyrene	U		0.000330	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.0100
4-Chloro-3-methylphenol	U		0.000263	0.0100
2-Chlorophenol	U		0.000283	0.0100
2-Nitrophenol	U		0.000320	0.0100
4-Nitrophenol	U		0.00201	0.0100
Pentachlorophenol	U		0.000313	0.0100
Phenol	U		0.000334	0.0100
2,4,6-Trichlorophenol	U		0.000297	0.0100
2,4-Dichlorophenol	U		0.000284	0.0100
2,4-Dimethylphenol	U		0.000624	0.0100
4,6-Dinitro-2-methylphenol	U		0.00262	0.0100
2,4-Dinitrophenol	U		0.00325	0.0100
(S) Nitrobenzene-d5	*68.8*			*10.0-127*
(S) 2-Fluorobiphenyl	*82.7*			*10.0-130*
(S) p-Terphenyl-d14	*92.7*			*10.0-128*
(S) Phenol-d5	*28.5*			*10.0-120*
(S) 2-Fluorophenol	*48.6*			*10.0-120*
(S) 2,4,6-Tribromophenol	*77.5*			*10.0-155*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350717-1 10/15/18 02:01 • (LCSD) R3350717-2 10/15/18 02:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	0.0464	0.0404	92.8	80.8	41.0-120			13.8	22
Acenaphthylene	0.0500	0.0469	0.0404	93.8	80.8	43.0-120			14.9	22
Anthracene	0.0500	0.0437	0.0400	87.4	80.0	45.0-120			8.84	20
Benzidine	0.0500	ND	ND	0.000	0.000	1.00-120	J4	J4	0.000	36
Benzo(a)anthracene	0.0500	0.0505	0.0486	101	97.2	47.0-120			3.83	20
Benzo(b)fluoranthene	0.0500	0.0476	0.0464	95.2	92.8	46.0-120			2.55	20
Benzo(k)fluoranthene	0.0500	0.0500	0.0457	100	91.4	46.0-120			8.99	21
Benzo(g,h,i)perylene	0.0500	0.0513	0.0497	103	99.4	48.0-121			3.17	20
Benzo(a)pyrene	0.0500	0.0467	0.0440	93.4	88.0	47.0-120			5.95	20
Bis(2-chlorethoxy)methane	0.0500	0.0359	0.0317	71.8	63.4	33.0-120			12.4	24
Bis(2-chloroethyl)ether	0.0500	0.0405	0.0349	81.0	69.8	23.0-120			14.9	33
Bis(2-chloroisopropyl)ether	0.0500	0.0417	0.0355	83.4	71.0	28.0-120			16.1	31
4-Bromophenyl-phenylether	0.0500	0.0504	0.0442	101	88.4	45.0-120			13.1	20
2-Chloronaphthalene	0.0500	0.0446	0.0385	89.2	77.0	37.0-120			14.7	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350717-1 10/15/18 02:01 • (LCSD) R3350717-2 10/15/18 02:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.0500	0.0522	0.0450	104	90.0	44.0-120			14.8	20
Chrysene	0.0500	0.0478	0.0462	95.6	92.4	48.0-120			3.40	20
Dibenz(a,h)anthracene	0.0500	0.0484	0.0470	96.8	94.0	47.0-120			2.94	20
3,3-Dichlorobenzidine	0.0500	0.0465	0.0449	93.0	89.8	44.0-120			3.50	20
2,4-Dinitrotoluene	0.0500	0.0534	0.0475	107	95.0	49.0-124			11.7	20
2,6-Dinitrotoluene	0.0500	0.0490	0.0427	98.0	85.4	46.0-120			13.7	21
Fluoranthene	0.0500	0.0525	0.0484	105	96.8	51.0-120			8.13	20
Fluorene	0.0500	0.0493	0.0428	98.6	85.6	47.0-120			14.1	20
Hexachlorobenzene	0.0500	0.0540	0.0484	108	96.8	44.0-120			10.9	20
Hexachloro-1,3-butadiene	0.0500	0.0437	0.0388	87.4	77.6	19.0-120			11.9	32
Hexachlorocyclopentadiene	0.0500	0.0356	0.0302	71.2	60.4	15.0-120			16.4	31
Hexachloroethane	0.0500	0.0387	0.0341	77.4	68.2	15.0-120			12.6	37
Indeno(1,2,3-cd)pyrene	0.0500	0.0502	0.0486	100	97.2	49.0-122			3.24	20
Isophorone	0.0500	0.0366	0.0323	73.2	64.6	36.0-120			12.5	23
Naphthalene	0.0500	0.0391	0.0344	78.2	68.8	27.0-120			12.8	27
Nitrobenzene	0.0500	0.0368	0.0318	73.6	63.6	27.0-120			14.6	29
n-Nitrosodimethylamine	0.0500	0.0236	0.0203	47.2	40.6	10.0-120			15.0	40
n-Nitrosodiphenylamine	0.0500	0.0462	0.0411	92.4	82.2	47.0-120			11.7	20
n-Nitrosodi-n-propylamine	0.0500	0.0392	0.0334	78.4	66.8	31.0-120			16.0	28
Phenanthrene	0.0500	0.0458	0.0412	91.6	82.4	46.0-120			10.6	20
Benzylbutyl phthalate	0.0500	0.0444	0.0427	88.8	85.4	43.0-121			3.90	20
Bis(2-ethylhexyl)phthalate	0.0500	0.0415	0.0395	83.0	79.0	43.0-122			4.94	20
Di-n-butyl phthalate	0.0500	0.0493	0.0462	98.6	92.4	49.0-121			6.49	20
Diethyl phthalate	0.0500	0.0505	0.0458	101	91.6	48.0-122			9.76	20
Dimethyl phthalate	0.0500	0.0489	0.0442	97.8	88.4	48.0-120			10.1	20
Di-n-octyl phthalate	0.0500	0.0479	0.0460	95.8	92.0	42.0-125			4.05	20
Pyrene	0.0500	0.0473	0.0438	94.6	87.6	47.0-120			7.68	20
1,2,4-Trichlorobenzene	0.0500	0.0423	0.0374	84.6	74.8	24.0-120			12.3	29
4-Chloro-3-methylphenol	0.0500	0.0418	0.0373	83.6	74.6	40.0-120			11.4	21
2-Chlorophenol	0.0500	0.0428	0.0369	85.6	73.8	25.0-120			14.8	35
2,4-Dichlorophenol	0.0500	0.0454	0.0395	90.8	79.0	36.0-120			13.9	26
2,4-Dimethylphenol	0.0500	0.0374	0.0342	74.8	68.4	33.0-120			8.94	26
4,6-Dinitro-2-methylphenol	0.0500	0.0576	0.0516	115	103	38.0-138			11.0	25
2,4-Dinitrophenol	0.0500	0.0531	0.0442	106	88.4	10.0-120			18.3	39
2-Nitrophenol	0.0500	0.0472	0.0409	94.4	81.8	31.0-120			14.3	29
4-Nitrophenol	0.0500	0.0213	0.0187	42.6	37.4	10.0-120			13.0	33
Pentachlorophenol	0.0500	0.0526	0.0502	105	100	23.0-120			4.67	25
Phenol	0.0500	0.0176	0.0152	35.2	30.4	10.0-120			14.6	36
2,4,6-Trichlorophenol	0.0500	0.0519	0.0445	104	89.0	42.0-120			15.4	23
(S) Nitrobenzene-d5				*73.3*	*63.7*	*10.0-127*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3350717-1 10/15/18 02:01 • (LCSD) R3350717-2 10/15/18 02:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*93.2*	*81.2*	*10.0-130*				
(S) p-Terphenyl-d14				*99.5*	*94.8*	*10.0-128*				
(S) Phenol-d5				*32.5*	*28.2*	*10.0-120*				
(S) 2-Fluorophenol				*55.5*	*48.8*	*10.0-120*				
(S) 2,4,6-Tribromophenol				*107*	*95.0*	*10.0-155*				

L1033389-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033389-16 10/16/18 00:30 • (MS) R3350717-5 10/16/18 00:54 • (MSD) R3350717-6 10/16/18 01:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0500	U	0.0376	0.0442	75.2	88.4	1	28.0-120			16.1	25
Acenaphthylene	0.0500	U	0.0378	0.0442	75.6	88.4	1	31.0-121			15.6	25
Anthracene	0.0500	U	0.0381	0.0413	76.2	82.6	1	36.0-120			8.06	23
Benzidine	0.0500	U	ND	ND	0.000	0.000	1	1.00-120	J6	J6	0.000	37
Benzo(a)anthracene	0.0500	U	0.0464	0.0493	92.8	98.6	1	39.0-120			6.06	23
Benzo(b)fluoranthene	0.0500	U	0.0445	0.0466	89.0	93.2	1	37.0-120			4.61	23
Benzo(k)fluoranthene	0.0500	U	0.0439	0.0471	87.8	94.2	1	37.0-120			7.03	26
Benzo(g,h,i)perylene	0.0500	U	0.0453	0.0472	90.6	94.4	1	37.0-123			4.11	25
Benzo(a)pyrene	0.0500	U	0.0433	0.0450	86.6	90.0	1	37.0-120			3.85	24
Bis(2-chlorethoxy)methane	0.0500	U	0.0297	0.0351	59.4	70.2	1	17.0-120			16.7	31
Bis(2-chloroethyl)ether	0.0500	U	0.0343	0.0383	68.6	76.6	1	14.0-120			11.0	33
Bis(2-chloroisopropyl)ether	0.0500	U	0.0341	0.0398	68.2	79.6	1	18.0-120			15.4	34
4-Bromophenyl-phenylether	0.0500	U	0.0430	0.0485	86.0	97.0	1	37.0-120			12.0	24
2-Chloronaphthalene	0.0500	U	0.0358	0.0422	71.6	84.4	1	29.0-120			16.4	28
4-Chlorophenyl-phenylether	0.0500	U	0.0432	0.0495	86.4	99.0	1	36.0-120			13.6	23
Chrysene	0.0500	U	0.0441	0.0462	88.2	92.4	1	38.0-120			4.65	23
Dibenz(a,h)anthracene	0.0500	U	0.0417	0.0445	83.4	89.0	1	36.0-121			6.50	24
3,3-Dichlorobenzidine	0.0500	U	0.0373	0.0371	74.6	74.2	1	10.0-134			0.538	30
2,4-Dinitrotoluene	0.0500	U	0.0445	0.0500	89.0	100	1	39.0-125			11.6	25
2,6-Dinitrotoluene	0.0500	U	0.0407	0.0464	81.4	92.8	1	36.0-120			13.1	27
Fluoranthene	0.0500	U	0.0469	0.0497	93.8	99.4	1	41.0-121			5.80	22
Fluorene	0.0500	U	0.0407	0.0460	81.4	92.0	1	37.0-120			12.2	24
Hexachlorobenzene	0.0500	U	0.0475	0.0525	95.0	105	1	35.0-122			10.0	24
Hexachloro-1,3-butadiene	0.0500	U	0.0330	0.0385	66.0	77.0	1	12.0-120			15.4	34
Hexachlorocyclopentadiene	0.0500	U	0.0300	0.0354	60.0	70.8	1	10.0-120			16.5	33
Hexachloroethane	0.0500	U	0.0329	0.0383	65.8	76.6	1	10.0-120			15.2	40
Indeno(1,2,3-cd)pyrene	0.0500	U	0.0436	0.0462	87.2	92.4	1	38.0-125			5.79	24
Isophorone	0.0500	U	0.0320	0.0365	64.0	73.0	1	21.0-120			13.1	27

L1033389-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1033389-16 10/16/18 00:30 • (MS) R3350717-5 10/16/18 00:54 • (MSD) R3350717-6 10/16/18 01:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0500	U	0.0320	0.0369	64.0	73.8	1	10.0-120			14.2	31
Nitrobenzene	0.0500	U	0.0315	0.0353	63.0	70.6	1	12.0-120			11.4	30
n-Nitrosodimethylamine	0.0500	U	0.0220	0.0245	44.0	49.0	1	10.0-120			10.8	40
n-Nitrosodiphenylamine	0.0500	U	0.0384	0.0428	76.8	85.6	1	37.0-120			10.8	24
n-Nitrosodi-n-propylamine	0.0500	U	0.0353	0.0391	70.6	78.2	1	16.0-120			10.2	30
Phenanthrene	0.0500	U	0.0391	0.0431	78.2	86.2	1	33.0-120			9.73	22
Benzylbutyl phthalate	0.0500	U	0.0400	0.0429	80.0	85.8	1	34.0-126			7.00	24
Bis(2-ethylhexyl)phthalate	0.0500	U	0.0371	0.0398	74.2	79.6	1	33.0-126			7.02	25
Di-n-butyl phthalate	0.0500	0.000418	0.0438	0.0469	86.8	93.0	1	35.0-128			6.84	23
Diethyl phthalate	0.0500	0.000348	0.0432	0.0489	85.7	97.1	1	39.0-125			12.4	24
Dimethyl phthalate	0.0500	U	0.0403	0.0467	80.6	93.4	1	37.0-120			14.7	24
Di-n-octyl phthalate	0.0500	U	0.0427	0.0456	85.4	91.2	1	25.0-135			6.57	26
Pyrene	0.0500	U	0.0434	0.0459	86.8	91.8	1	39.0-120			5.60	22
1,2,4-Trichlorobenzene	0.0500	U	0.0328	0.0378	65.6	75.6	1	15.0-120			14.2	31
4-Chloro-3-methylphenol	0.0500	U	0.0343	0.0389	68.6	77.8	1	26.0-120			12.6	27
2-Chlorophenol	0.0500	U	0.0351	0.0402	70.2	80.4	1	18.0-120			13.5	34
2,4-Dichlorophenol	0.0500	U	0.0359	0.0408	71.8	81.6	1	19.0-120			12.8	27
2,4-Dimethylphenol	0.0500	U	0.0297	0.0342	59.4	68.4	1	15.0-120			14.1	28
4,6-Dinitro-2-methylphenol	0.0500	U	0.0489	0.0546	97.8	109	1	10.0-144			11.0	39
2,4-Dinitrophenol	0.0500	U	0.0455	0.0540	91.0	108	1	10.0-120			17.1	40
2-Nitrophenol	0.0500	U	0.0372	0.0436	74.4	87.2	1	20.0-120			15.8	30
4-Nitrophenol	0.0500	U	0.0184	0.0200	36.8	40.0	1	10.0-120			8.33	40
Pentachlorophenol	0.0500	U	0.0523	0.0589	105	118	1	10.0-128			11.9	37
Phenol	0.0500	0.00124	0.0154	0.0203	28.3	38.1	1	10.0-120			27.5	40
2,4,6-Trichlorophenol	0.0500	U	0.0436	0.0490	87.2	98.0	1	26.0-120			11.7	31
(S) Nitrobenzene-d5					*61.0*	*70.9*		*10.0-127*				
(S) 2-Fluorobiphenyl					*78.8*	*89.6*		*10.0-130*				
(S) p-Terphenyl-d14					*93.1*	*95.2*		*10.0-128*				
(S) Phenol-d5					*28.1*	*31.2*		*10.0-120*				
(S) 2-Fluorophenol					*47.4*	*52.5*		*10.0-120*				
(S) 2,4,6-Tribromophenol					*96.5*	*111*		*10.0-155*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

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Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
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Illinois	200008	Oklahoma	9915
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Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
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Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.

Terracon - Longmont
12831 Lefthand Circle, Suite C
Longmont, CO 80501

Billing Information:
Same as Address

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: Mike Skridulis

Email To: mike.skridulis@terracon.com

Project Description: **Greeley Pond**

City/State Collected: Greeley, Colorado

Phone: **303-454-5249**
Fax: **970-484-0454**

Client Project # **22187023**

Lab Project #

L# L1033889

C118

Collected by (print): Charles Covington

Site/Facility ID #

P.O. #

Collected by (signature): [signature]

Immediately Packed on Ice N___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed
STANDARD

Template:
Prelogin:
TSR: **Daphne Richards**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOC8260 (2) 40ml Amber w/HCl	SVOC (2) 100ml Amber No Pres	Diss. Metals - 250ml HDPe No Pres (RCRA8)	Remarks	Sample # (lab only)
MW-02	Grab	GW	10.7	10/9/18	1145	5	X	X	X		-01
MW-05	Grab	GW	10.51	10-9-18	1330	5	X	X	X		-02
MW-08	Grab	GW	10.60	10-9-18	1535	5	X	X	X		-03

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks: Fed-Ex: 4510 1654 8146

RAD SCREEN: <0.5 mR/hr

pH ______ Temp ______
Flow ______ Other ______

Samples returned via:
__ UPS ✓ FedEx __ Courier ______

Tracking # 4510 1654 8146

Sample Receipt Checklist
COC Seal Present/Intact: _NP ✓Y _N
COC Signed/Accurate: ✓Y _N
Bottles arrive intact: ✓Y _N
Correct bottles used: ✓Y _N
Sufficient volume sent: ✓Y _N
If Applicable
VOA Zero Headspace: ✓Y _N
Preservation Correct/Checked: _Y _N

Relinquished by : (Signature) [signature] Date: 10/10/18 Time: Received by: (Signature)

Trip Blank Received: Yes / (No)
HCL / MeoH
TBR

Relinquished by : (Signature) Date: Time: Received by: (Signature)

Temp: +.1 °C 2.3 2.4 Bottles Received: 15

If preservation required by Login: Date/Time

Relinquished by : (Signature) Date: Time: Received for lab by: (Signature) [signature]

Date: 10/11/18 Time: 845

Hold:

Condition: NCF / (OK)

APPENDIX E
(On External Drive)

MATERIALS MANAGEMENT PLAN

Greeley Fishing Pond

East of 31st Street at 1st Avenue

Greeley, Weld County, Colorado

October 16, 2018

Terracon Project No. 21187023

Prepared for:
City of Greeley
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

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MATERIALS MANAGEMENT PLAN
GREELEY FISHING POND
EAST OF 31ST STREET AT 1ST AVENUE
GREELEY, WELD COUNTY, COLORADO
October 16, 2016
Terracon Project No. 21187023

1.0 GENERAL INFORMATION

As part of the State of Colorado Voluntary Cleanup Program (VCP), the City of Greeley is proposing to redevelop the southeast portion of the Greeley Fishing Pond site consisting of an area of approximately 5 acres with a permanent engineered vegetative cover. Prior investigative environmental field work has determined soil and soil gas in the southeast portion of the site to be impacted by asbestos, solid waste, metals, asbestos containing material (ACM), regulated asbestos containing soil (RACS), and semi-volatile organic compounds (SVOCs). Terracon Consultant's Inc. (Terracon) has prepared this Materials Management Plan (MMP) for the management of potentially environmentally impacted media encountered during the proposed redevelopment and any future construction activities.

Implementation of the procedures outlined in this document will result in the protection of public health and the environment during the redevelopment activities.

ITEM	DESCRIPTION
Site Address	East of 31st Street at 1st Avenue Greeley, Weld County, Colorado
Site Area	Western Parcel- 16.1375 acres Central Parcel- 18.7185 acres Eastern Parcel- 3.7943 acres Total area – 38.6503 acres
Parcel Number(s)	Western Parcel- 096121217001 Central Parcel- 096121201023 Eastern Parcel- 096121100029
Current Land Use	The project area is currently vacant and unused
Current Zoning	The project area is owned by the City of Greeley and is zoned as Medium Density Industrial (I-M) and Agricultural (A)
Current Ground Cover	Western Parcel- Single dirt access road adjacent to a pond Central Parcel- Open grass area with isolated tree cover Eastern Parcel- Open grass area with limited tree cover

ITEM	DESCRIPTION
Topography	The property is located at an approximate elevation of 4,635 feet above sea level. Surface geology in the area is characterized by alluvial deposits of sand and gravel underlain by claystone, shale, sandy shale, and sandstone of the Cretaceous-era Laramie formation (Colton 1978). According to the U.S. Geological Survey (USGS), depth to the uppermost ground water beneath the property and vicinity is less than 5 feet below ground surface (bgs) (Hillier et al. 1979). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the east-northeast, toward the South Platte River (USGS 2013). Based on the topography and field observations, the expected flow direction of the uppermost ground water is to the east-northeast, toward the South Platte River.
Proposed Construction	The City plans to convert the property to be used as a public park and natural open space with access to the Greeley Fishing Pond and inclusion of newly developed public walking trails. The City of Greeley plans to redevelop the historical solid waste disposal portion of the site with a permanent vegetative cover to allow for future use of the site as public space.
Property Owner	City of Greeley Public Works Department 1001 9th Ave, Greeley, CO 80631
Owner Representative	Mr. Brian Ward, P.E, P.M.P Public Works Project Manager 1001 9th Ave Greeley, Colorado 80631 P: (970) 350-9357 E: Brian.Ward@Greeleygov.com
Prepared For	City of Greeley 1001 9th Ave, Greeley, CO 80631 And Colorado Department of Public Health and Environment HMWMD-RP-B2 Attn: Mr. Fonda Apostolopoulos 4300 Cherry Creek Drive South Denver, Colorado 80246-1530 P: (303) 692-3411
Contact Person	Terracon Consultants, Inc. Michael J. Skridulis 1831 Lefthand Circle Suite C Longmont, CO 80501 (303) 776-3921

The following sections of the MMP discuss the scope of activities to manage the site soils, solid waste, and groundwater during development:

- Materials of Concern;
- Soil, Solid Waste, ACM and RACS Management; and,
- Plan Implementation.

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. This document was prepared in accordance with the scope of work agreed with you, our client, as reflected in our proposal.

Any approaches, plans, findings, conclusions, and recommendations presented in this MMP are based upon information derived from assessment and survey activities conducted by Terracon and other environmental consultants. Such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during previous assessments conducted for the site by Terracon or others. The data, interpretations, approaches, plans, findings, and any recommendations are based solely upon data obtained at the time and within the scope of those services.

2.0 PURPOSE

The purpose of this MMP is to provide a guidance document to manage contaminated materials, if encountered, during site redevelopment. Through implementation of this MMP, the Owner/Owner's Representative will be notified of potential environmental-related incidents pertaining to construction activities at the site. Terracon is not responsible for fulfilling current and/or future Owner's obligations (as Owner of the site) described in any environmental covenants, responsibilities, agreements, or contracts associated with the site, if they exist.

For purposes of this MMP, the site is defined as any area associated with the historical solid waste disposal area of the property defined above and includes surrounding land that requires construction activity related to support of the redevelopment plan. This would include those areas where underground utility installation and connection is required to existing utilities that may not be physically located on the site.

The Plan outlines procedures to protect workers, public health, and the environment during development activities. This MMP also addresses decontamination procedures for equipment and

materials. Earthwork operations and decontamination issues are discussed in the context of the procedures to be followed when regulated soil is encountered during construction activities.

3.0 MATERIALS OF CONCERN

Materials of concern were identified based on environmental assessments conducted at the Greeley Fishing Pond site during multiple visits conducted as part of a Limited Site Investigation (LSI). Identified materials of concern include soil, groundwater, solid waste, and asbestos containing material.

3.1 Soil

Terracon collected a total of 24 soil and sediment samples at the Greeley Fishing Pond site and analyzed for or a combination of metals, SVOCs, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), pesticides, and herbicides during the Site Investigations. Laboratory values were compared to the US Environmental Protection Agency (EPA) Residential and Industrial Regional Screening Levels (RSLs), (May 2016) and the Colorado Department of Public Health and Environment (CDPHE) Groundwater Protection Values (GPV) (March 2014). The following chemicals were detected at the site:

- Arsenic was detected in 10 of the 24 samples. Of the 10 samples with Arsenic detected, 8 exceeded the Industrial RSL (3.0 mg/kg) and 2 were below the Industrial RSL but above the Residential RSL (0.68 mg/kg).
- Five SVOCs were detected above either the EPA Residential RSL or Industrial RSL. Benzo(a)anthracene and benzo(b)fluoranthene were detected above the Residential RSL (0.16mg/kg) in SB-01(4-8), SB-02(4-8), and SB-04(4-8). Benzo(a)pyrene was detected above the Industrial RSL (0.29 mg/kg) in SB-01(4-8) and below the Industrial RSL but above the Residential RSL (0.016 mg/kg) in SB-02(4-8), SB-02(8-12), SB-04(4-8), and SB-05. Dibenz(a,h)anthracene was detected above the Industrial RSL (0.29 mg/kg) in SB-01(4-8), SB-02(4-8), SB-04(4-8) and below the Industrial RSL but above the Residential RSL in SB-02(8-12) and SB-05. Indeno(1,2,3-cd)pyrene was detected above the Industrial RSL (2.9 mg/kg) in SB-01(4-8), SB-02(4-8) and below the Industrial RSL but above the Residential RSL (0.16 mg/kg) in SB-01(8-12), SB-02(8-12), SB-04(4-8), SB-04(8-12), and SB-05.
- Investigation results have also shown the presence of surficial and buried solid waste from historical dumping activities. Solid waste encountered will remain onsite and be covered during implementation of remedial activities.

Remaining constituents analyzed in the soil samples collected at the Greeley Fishing Pond site were either not detected above laboratory method detection limits or were detected below the CDPHE GPV or EPA Residential RSLs. Site redevelopment may require intrusive activities for site grading, soil placement, compaction, and other ancillary construction activities. As a result,

workers may be exposed to Arsenic or SVOC impacted soils. Soil analytical results are summarized in Table 2.

3.2 Soil Vapor

Based on the LSIs, depth to groundwater ranged from approximately 8.0 feet below ground surface (bgs) to 11.30 feet bgs across the site. Five soil vapor samples were collected from soil vapor points the installed next to the monitoring well locations MW-01 through MW-04 and MW-07 (SVP-01 through SVP-04, and SVP-07). The soil vapor points were installed to confirm previously completed soil vapor sampling results from Quantum and to facilitate additional soil vapor sampling for delineation of potential soil vapor concerns. An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory. Laboratory analysis detected the presence of the following VOCs:

- Chloroform was reported from the soil vapor samples collected from SVP-03 (33 µg/m^3) and SVP-02R (6.13) exceeding the EPA vapor intrusion screening level (VISL) of 4 µg/m^3.
- Tetrachloroethene ([PCE] 652 µg/m^3) was reported at concentrations exceeding EPA VISL of 367 µg/m^3 for the soil vapor sample collected from SVP-02R.
- Trichloroethene (TCE) was reported from the soil vapor samples collected from SVP-02 (32.4 µg/m^3) and SVP-02R (47.8 µg/m^3) exceeding the EPA VISL of 16 µg/m^3.

3.3 Asbestos-Containing Materials

ACM surveys were conducted from March 7 through 9, 2018 by a Certified Asbestos Building Inspector (CABI). 69 bulk material samples were collected from suspect materials within the 5-acre historical solid waste disposal area on the southeast portion of the site. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in other concealed areas.

- Laboratory analysis detected greater than 1% asbestos in 21 of the bulk samples (asbestos-containing material [ACM]). Of the 21 samples, 8 were determined to be “friable” based upon the judgement of the CABI. Friable ACM and non-friable ACM with a high probability of fiber release during soil disturbing activities or through weathering is referred to as RACS by the CDPHE.

Additionally, an Interim Stabilization Plan (ISP), Plan dated June 5, 2018 for the ACM identified during the initial site surveys was prepared for the property. Terracon conducted additional ACM sampling within the designated ISP area of the site on July 3, 2018. The purpose of the inspection was to further delineate the extent of the previously identified friable ACM within the approximate 55-foot by 45-foot area outlined in the ISP. Terracon confirmed the two general locations of the

friable ACM roofing outlined in the ISP and determined the size of the areas to be covered during the implementation of the ISP could be diminished. Terracon verified the exact locations for implementation of the ISP and submitted the addendum to CDPHE.

On July 25 and 27, 2018, Terracon conducted oversight of the implementation of the ISP by Region 8 Environmental (R8). Terracon was responsible for oversight of the stabilization and/or removal of RACS identified in the ISP and Addendum #01 to the ISP. Stabilization activities were conducted by R8 Enviro and included:

- Warning fence and signage.
- Silt fences.
- Removal of RACS Friable ACM Areas outlined in the ISP.
- Install geotextile over Friable ACM Areas outlined in the ISP.
- Fill/cover installed geotextile with six inches of soil Friable ACM Areas outlined in the ISP.

Based on Terracon's final visual inspection performed on July 27, 2018, fill dirt was placed over the geotextile in RACS locations I15-1, J17-2 & J17-3, H10-5 and O28-2 in accordance with the ISP. Terracon confirmed that at least six inches of fill soil was placed over the geotextile in each location.

Terracon conducted a supplemental limited asbestos assessment at the property on July 24, 25, and August 6, 2018. The purpose of the investigation was to confirm the findings of previous ACM surveys performed on the property. The results are summarized below:

- Survey activities were initiated with visual observation of the property (within the property line boundary but excluding the previously identified areas surveyed by Quantum/Spirit in the ISP). A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.
- Terracon inspectors walked all accessible areas of the property and visually assessed and documented any suspect asbestos-containing building material (ACBM) debris on the property and obtained bulk samples for analysis.
- Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM. Laboratory analysis confirmed the following asbestos-containing non-friable materials: Red Flooring Material, Gray Mastic, Black Roofing Tar and Felt associated with Gray Mastic, Black Mastic with Silver Coating and Paint, Black Roofing Tar and Felt associated with Black Mastic.
- Based on observations, Terracon considers the ACM debris to be non-RACS. According to CDPHE Solid Waste Regulations, non-friable ACM debris that has not been rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage is considered non-RACS and is therefore exempt from Section 5.5 of the Solid Waste regulations but is subject to the requirement for proper disposal as non-friable asbestos waste.

4.0 MATERIALS OF CONCERN MANAGEMENT

If environmentally-impacted soil, solid waste, or ACM are encountered during redevelopment or remedial activities, then that material will be managed in accordance to the following criteria.

4.1 Soils Management

Environmentally-impacted soil may or may not be readily distinguishable using visual methods. A qualified environmental professional shall be present, as appropriate, for subsurface excavation or other intrusive activities to evaluate and mitigate potential worker exposure impacts. Excavated soil will be evaluated for impacts using visual and olfactory senses and through the use of environmental monitoring equipment such as a photo-ionization detector. Soil is not currently planned to be removed from the site. Impacted soil encountered during remedial efforts will be removed or relocated to assist in grading areas to be contained under the vegetative soil cover. Workers and nearby residents may be exposed to impacted soil through inhalation of fugitive dust. The use of water and/or reduced construction vehicle speeds to control dust during construction will be used to suppress any airborne dust. If the removal of impacted soil is required, excavated soil that is found to be impacted will be direct loaded into haul trucks when possible to reduce the handling and dust generation. Environmentally-impacted soil within the beds of the haul trucks will be covered during transportation of impacted soil to the appropriate disposal facility, if required.

If environmentally-impacted soil is encountered that requires offsite disposal, and if the landfill determines that the soil does not meet the facility's requirements for characterization as non-hazardous waste, hazardous waste generator identification will be obtained and the non-conforming material will be transported to an appropriately permitted disposal facility.

Documentation regarding the quantities and disposition of soil will be summarized and reported as part of the Completion Report prepared for the CDPHE at the conclusion of the on-site soil disturbance activities, if applicable.

In the event that Regulated Asbestos Containing Soil (RACS) as defined in the CDPHE 6 CCR 1007-2 Part 1 – Regulations Pertaining To Solid Waste Sites and Facilities, Section 1.2 Definitions, effective January 14, 2015; are encountered during redevelopment activities, it will be relocated to areas to be contained under the vegetative soil cover. If RACS is required to be removed from the site, it will be removed in compliance with the CDPHE 6 CCR 1007-2 Part 1 – Regulations Pertaining To Solid Waste Sites and Facilities and Section 5.5 (Management of RACS), effective January 14, 2015.

4.1.1 Excavation

The site redevelopment activities will generally involve the use of earthmoving machinery that may engage in soil excavation, relocation, or other potentially intrusive activities. Any soil and debris generated during site redevelopment will either be reused on-site, or characterized and managed as waste for disposal.

4.1.2 Dust Mitigation

The purpose of implementing dust mitigation activities are to minimize:

- Generation of visible dust;
- Off-site migration of fugitive dust; and,
- Worker and public exposure.

The Owner/Owner's Representative/General Contractor and/or excavation subcontractor will conduct dust mitigation activities as a part of the best management practices (BMP). Periodic water spraying will be the primary method used for controlling fugitive dust during excavation, re-grading, and any other intrusive activities at the site. Water used for dust control will be free from salts, oil, and other deleterious materials. Dust control water will be obtained from fire hydrants or spigots within close proximity to the work area or trucked onto site from an approved source.

Areas to be excavated and re-graded will be wetted using various techniques. The work areas will also be lightly sprinkled during excavation activities (as necessary) to minimize airborne dust. Dust control measures will be increased (more frequently wetting and sprinkling) during the excavation/stockpiling of dry materials and/or observation of visible dust from site activities.

If soil is excavated, and determined to require removal from the site for offsite disposal, the soil will be direct loaded into haul trucks when possible to reduce the handling and dust generation. Soil within the beds of haul trucks will be covered during transportation of soil to the appropriate disposal and/or beneficial reuse facility.

Trucks and equipment leaving the site will adhere to the City of Greeley's requirements to minimize soil that may inadvertently fall or be tracked onto adjoining street surfaces.

4.2 Groundwater Management

Groundwater is currently not anticipated to be encountered during site remedial activities. However, if groundwater is generated, groundwater samples will be analyzed for dissolved metals, VOCs, SVOCs, and any other additional parameters required by the City, County, or State construction dewatering guidance, and the laboratory results compared to the CDPHE's basic standards for groundwater (December 2016). If small quantities are encountered, the groundwater will be removed with a vacuum truck and transported to the appropriate disposal facility. If large quantities of impacted groundwater are encountered, construction site dewatering

will be implemented. The anticipated discharge point for produced groundwater has not been determined. A construction dewatering permit with site specific monitoring parameters is required before treatment, if needed, and discharge can occur.

4.3 Asbestos Management

Site redevelopment activities may require the movement, removal, or general disturbance of ACM and should be conducted in compliance with CDPHE Air Quality Control Commission's Regulation No. 8, Part B, 5 CCR 1001-10, Part B.

Intentionally running over Category I non-friable ACM with tracked vehicles as a means of segregation or compaction, is considered grinding the material making it friable RACM and subject to the asbestos NESHAP.

EPA states that waste consolidation efforts which involve the use of jack hammers or other mechanical devices such as grinders to break up asbestos-containing concrete or other materials covered or coated with Category I non-friable ACM, are subject to the regulation. Such materials adhering to the concrete if removed before such waste consolidation then the waste consolidation is not subject to NESHAP.

OSHA 29 CFR 1926.1101 requires that workers performing construction-related activities be protected from asbestos fibers in excess of the permissible exposure limit of 0.1 f/cc of air. Contractors must comply with applicable provisions of OSHA 29 CFR 1926.1101 during demolition activities. Terracon recommends that a state of Colorado-certified General Abatement Contractor (GAC) perform the removal of wallboard systems containing asbestos.

Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas.

Non-friable ACM located outside of the historical solid waste area of the site will be relocated to the assist in grading areas to be contained under the vegetative soil cover, or removed from the site.

5.0 MONITORING PLAN IMPLEMENTATION

This section outlines the activities that will be conducted to conform to the material management strategies described above.

5.1 Project Health and Safety Plan

The risks associated with the on-site activities consist primarily of worker protection during construction. Workers, superintendents and/or project managers associated with intrusive (excavation) site activity will be required to undergo a one-time health and safety orientation

meeting at the start of the project. A site-specific Health and Safety Plan (HASP) will be prepared for the planned construction work related to Terracon employees. The Owner/Owner's Representative/General Contractor should create a hazard communication program as part of the normal construction activity during site preparation, excavation and caisson drilling phases of construction.

5.2 Materials Management Plan Oversight

The oversight of construction activities at the site will be conducted by trained environmental professionals capable of executing the requirements of this MMP during the construction work. The Environmental Management Coordinator (EMC) shall have experience in the recognition, characterization, handling and disposition of the materials of concern previously identified at the site. The EMC shall be responsible for overseeing intrusive remedial activities at the site. This person shall document the types of soil materials encountered, the location, and the handling procedures used in proper relocation or disposal or groundwater management as may be necessary.

5.3 Contingency Plan for Unanticipated Materials

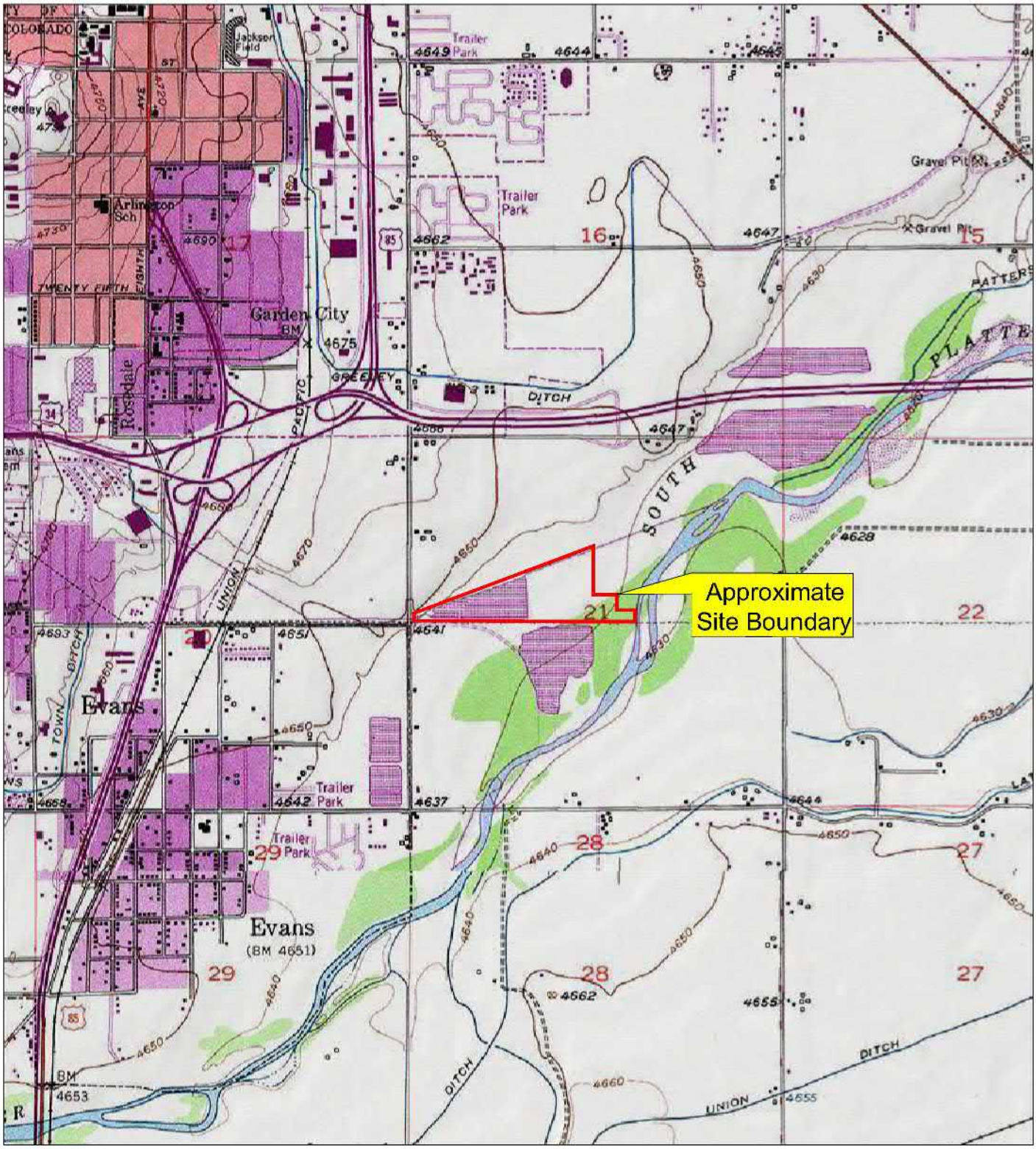
Due to the location and history of the site, the possibility exists that contaminated materials may be encountered other than those identified and specified for special management within this MMP. Therefore, the following contingency procedures will be enacted in the event such materials are encountered:

If other hazards are detected during excavation work, the EMC shall contact the Owner/Owner's Representative/General Contractor and the appropriate CDPHE personnel to discuss the nature and extent of the hazard. Following this consultation, additional characterization, excavation, and/or analyses may be required, which are beyond the scope of work of this plan.

If uncharacterized, potentially-impacted soil is encountered (based on appearance, odors, field screening, or other indications), the General Contractor and Owner/Owner's Representative will be notified immediately. The waste will be left in-place and sampled to evaluate the potential environmental impacts and determine the proper handling and management strategy for the material.

In the event that soils are characterized as environmentally-impacted, the soils will be managed in accordance with the criteria outlined in this plan. Any waste materials encountered during the project which are not specifically addressed within this MMP will be managed in accordance with local, state, and federal requirements.

EXHIBITS



0 .5 1 MILES

1000 0 1000 2000 3000 4000 5000 FEET

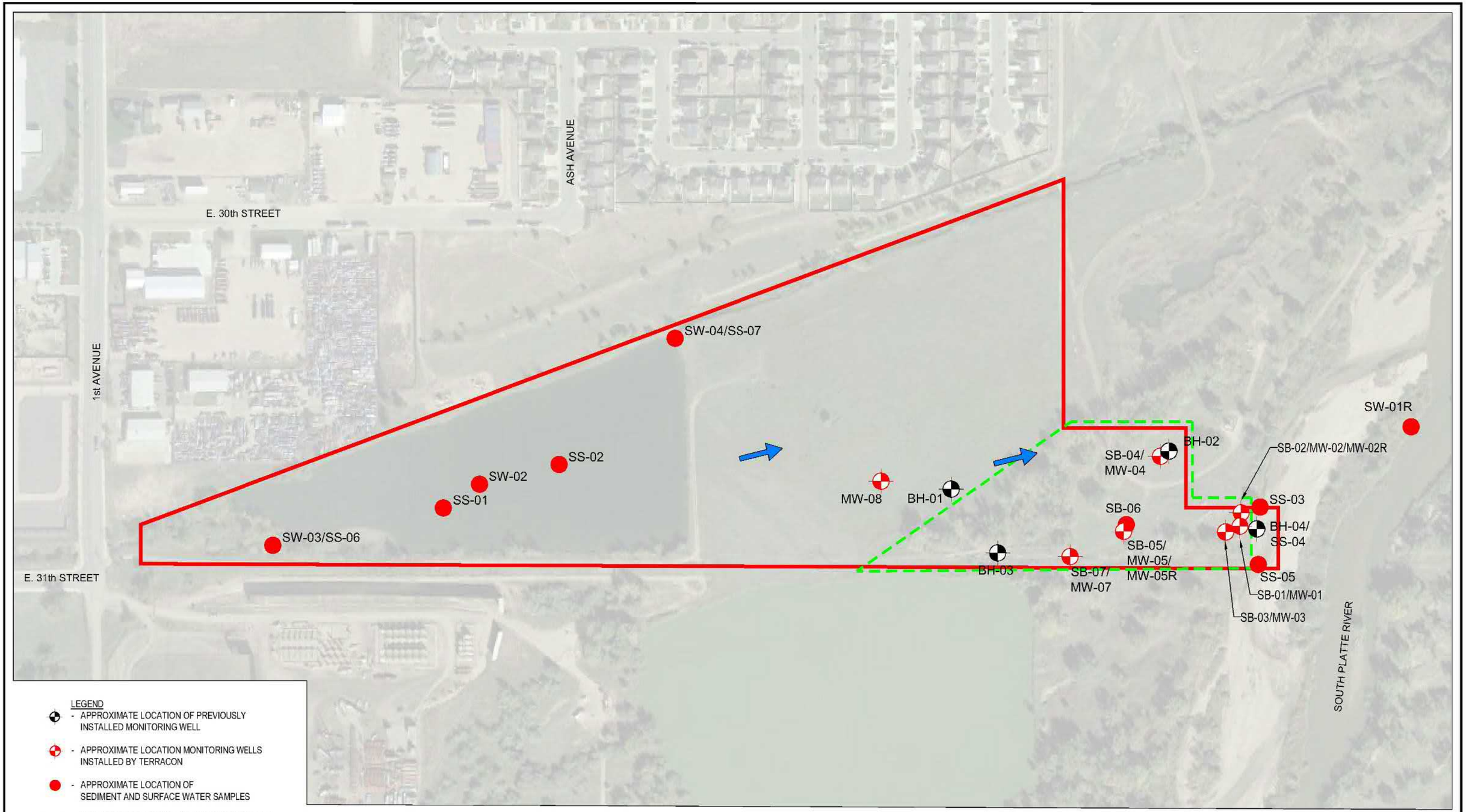
1 .5 0 KILOMETERS 1

1000 0 METERS 1000

APPROXIMATE SCALE

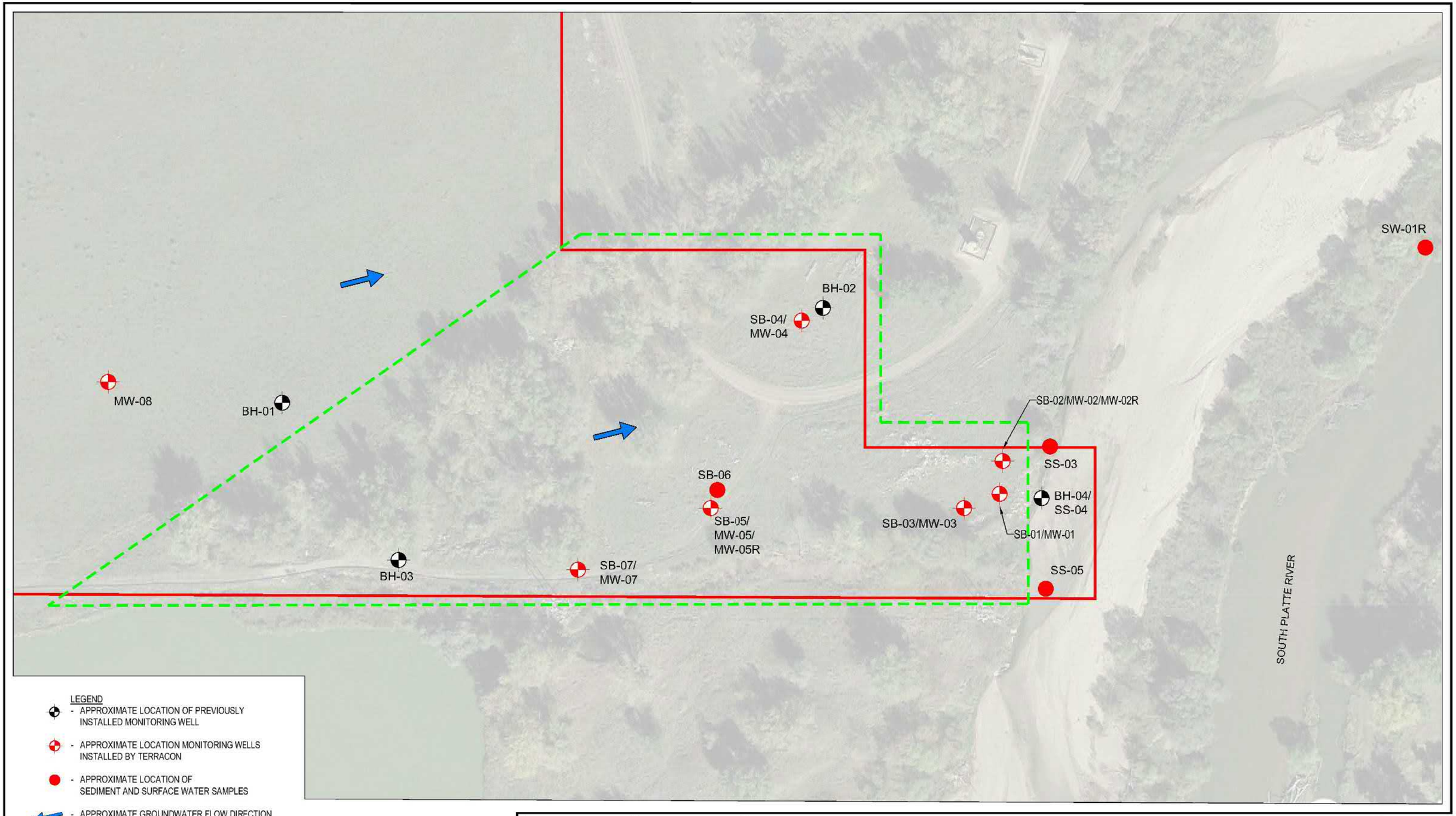
Topographic map image courtesy of the U.S. Geological Survey
Quadrangle includes Greeley, CO (1978)

Project Mngr: MJS	Project No.: 21187023	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP
Drawn By: JAS	Scale: AS-SHOWN	1289 1st Avenue Greeley, CO 80631	GREELEY FISHING POND CITY OF GREELEY 31st STREET AND 1st AVENUE GREELEY, COLORADO
Checked By: MJS	File No.: 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8539	FIG. No. 1
Approved By: JCG	Date: NOVEMBER_2018		



Project Mngr: MJS	Project No. 21187023	Terracon Consulting Engineers and Scientists	SITE DIAGRAM - A
Drawn By: JAS	Scale: AS-SHOWN	1289 1stAvenue Greeley, CO 80631	GREELEY FISHING POND
Checked By: MJS	File No. 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8639	CITY OF GREELEY
Approved By: JCG	Date: NOVEMBER_2018		31st STREET AND 1st AVENUE
			GREELEY, COLORADO

FIG. No. 2



LEGEND

- APPROXIMATE LOCATION OF PREVIOUSLY INSTALLED MONITORING WELL
- APPROXIMATE LOCATION MONITORING WELLS INSTALLED BY TERRACON
- APPROXIMATE LOCATION OF SEDIMENT AND SURFACE WATER SAMPLES
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BOUNDARY OF HISTORICAL SOLID WASTE AREA

N

0 100'

SCALE

Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

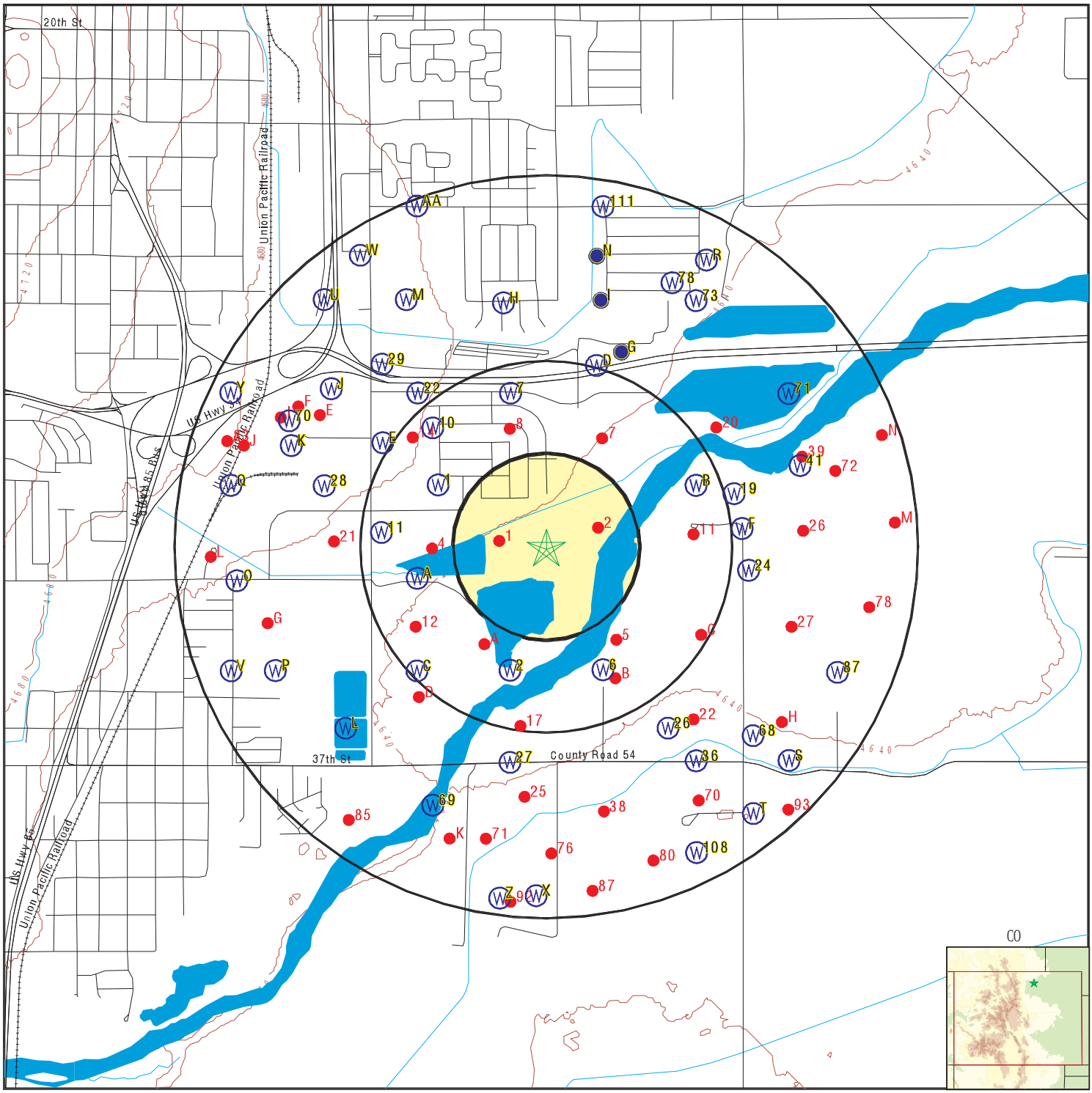
Terracon
Consulting Engineers and Scientists
1289 1stAvenue Greeley, CO 80631
PH. (970) 351-0460 FAX. (970) 353-8639

SITE DIAGRAM - B

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 3

PHYSICAL SETTING SOURCE MAP - 4242549.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Oil, gas or related wells

SITE NAME:	Ness Property	CLIENT:	ERO Resources
ADDRESS:	SE Greeley Greeley CO 80631	CONTACT:	Courtney Sockwell
LAT/LONG:	40.3859 / 104.6689	INQUIRY #:	4242549.2s
		DATE:	March 23, 2015 6:22 pm

TABLES

Table 1
Summary of Soil Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID and Depth				SB-01 (4-8)	SB-01 (8-12)	SB-02 (4-8)	SB-02 (8-12)	SB-03 (4-8)	SB-03 (8-12)	SB-04 (4-8)	SB-04 (8-12)	SB-05	SB-06	SB-07 (4-8)	SB-07 (8-12)	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SB-02R (0-4)	SB-02R (4-8)	SB-05R (0-4)	SB-05R (4-8)	SB-08 (0-4)
Collection Date				8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/23/18	8/23/18	8/30/18	8/30/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	10/5/18	10/5/18	10/5/18	10/5/18	10/5/18
Parameter	**Residential RSL**	**Industrial RSL**	**CDPHE GPV**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RCRA Metals (6010B / 7471)																											
Arsenic[1]	0.68	3.0	NE	**2.63**	<0.200	**6.74**	<0.200	<0.200	<0.200	**4.71**	**4.6**	**2.51**	**3.93**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**4.05**	**3.42**	**3.66**	**5.94**	<2.00
Barium	15,000	220,000	NE	**26.9**	**9.44**	**55.3**	**12**	**15.4**	**14.7**	**121**	**77.5**	<0.5	<0.5	**29.7**	**74.4**	**76.6**	**82.9**	**17.5**	**30**	**13.6**	**9.17**	**29.5**	**57.3**	**62.7**	**173**	**104**	**153**
Beryllium	16	230	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.398**	**0.415**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	980	NE	<0.5	<0.5	**0.675**	<0.5	<0.5	<0.5	**0.553**	**0.663**	<0.5	**0.635**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.676**	**0.803**	<0.5
Chromium	NE	NE	NE	**3.27**	**1.33**	**7.14**	**1.88**	**15.4**	**1.96**	**14.3**	**9.81**	**11.2**	**9.98**	**4.29**	**11.5**	**13.2**	**11.8**	**1.55**	**1.84**	<1.0	**1.71**	**4.58**	**6.32**	**7.68**	**11.3**	**9.69**	**20.7**
Lead	400	800	NE	**25.4**	**1.37**	**64.3**	**9.77**	**16**	**7.65**	**120**	**92**	**82.7**	**43.9**	**5.8**	**7.59**	**13.3**	**12.8**	**3.68**	**4.9**	**2.89**	**4.29**	**4.49**	**39.2**	**45.9**	**61.9**	**47.1**	**12.3**
Mercury	11	46	NE	**0.132**	**0.0208**	**0.0939**	**0.024**	**0.044**	**0.0223**	**0.0783**	**0.143**	**0.0339**	**0.165**	<0.02	**0.0763**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.146**	**0.121**	**0.152**	**0.106**	**0.152**
Silver	390	5,800	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**8.97**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	3,100	47,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**11.4**	**52.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	22,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.25**	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	350,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**85.3**	**132**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B) - Not Detected																											
Acetone	61,000	670,000	32	**0.0259**	<0.025	**0.0368**	**0.0539**	<0.025	**0.0334**	**0.0593**	**0.0865**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.0773**	<0.025
Chlorobenzene	280	1,300	5.3	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00922**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00389**	<0.0025
1,4-Dichlorobenzene	2.6	11	7.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0219**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	5.8	25	100	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00278**	<0.0025	**0.0109**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
2-Butanone (MEK)	27,000	190,000	18	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.306	<0.0025
Tetrachloroethene	24	100	1.9	<0.0025	<0.0025	**0.00283**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	4,900	47,000	50	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.00702**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	580	2,500	75	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	**0.00799**	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065
SVOCs (8270C)																											
Acenaphthene	3,600	45,000	1000	**0.0838**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	18,000	230,000	1000	**0.146**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	0.16	2.9	1000	**0.86**	<0.033	**0.189**	**0.0339**	<0.033	<0.033	**0.156**	<0.033	**0.0429**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	0.16	2.9	1000	**1.06**	<0.033	**0.247**	**0.0459**	<0.033	<0.033	**0.192**	<0.033	**0.08**	<0.033	<0.033	<0.033	<0.033	**0.0373**	<0.033	<0.033	<0.033	**0.0359**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(k)fluoranthene	1.6	29	1000	**0.3**	<0.033	**0.103**	<0.033	<0.033	<0.033	**0.0517**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(g,h,i)perylene	NE	NE	NE	**0.274**	<0.033	**0.154**	**0.0349**	<0.033	<0.033	**0.0935**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	0.016	0.29	1000	**0.796**	<0.033	**0.22**	**0.0394**	<0.033	<0.033	**0.149**	<0.033	**0.0522**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Chrysene	16	290	1000	**0.945**	<0.033	**0.231**	**0.0372**	<0.033	<0.033	**0.171**	<0.033	**0.0475**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenz(a,h)anthracene	0.016	0.29	1000	**2.74**	<0.33	**1.15**	**0.259**	<0.33	<0.33	**0.743**	<0.33	**0.207**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Fluoranthene	2,400	30,000	1000	**1.37**	<0.033	**0.331**	**0.0724**	<0.033	<0.033	**0.308**	<0.033	**0.0763**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0513**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Indeno(1,2,3-cd)pyrene	0.16	2.9	1000	**8.46**	**0.188**	**4.08**	**0.904**	<0.033	<0.033	**2.41**	**0.162**	**0.556**	<0.033	<0.033	**0.309**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenanthrene	NE	NE	NE	**0.586**	<0.033	**0.115**	**0.0574**	<0.033	<0.033	**0.131**	<0.033	**0.0472**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Pyrene	1,800	23,000	1000	**1.42**	<0.033	**0.346**	**0.0706**	<0.033	<0.033	**0.286**	**0.0364**	**0.0783**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0512**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenol	19,000	250,000	47	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.67	**1.25**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
Only detected analytes shown (detected concentrations are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
SVOC = Semivolatile Organic Compounds
PCB = Polychlorinated Biphenyl
NA = Not Analyzed

Table 2
Summary of Groundwater Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05	MW-07	SW-1R	SW-2P	SW-3P	SW-4P	MW-02R	MW-05R	MW-08
Collect Date		8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/23/18	8/24/18	8/24/18	8/24/18	10/9/18	10/9/18	10/9/18
Parameter	CDPHE Reg. 41 Groundwater Standard[1]	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dissolved RCRA Metals (6010B/7470A)														
Arsenic	**10**	<10	<10	<10	<10	**4.8**	<10	<10	<10	<10	<10	<10	<10	<10
Barium	**2,000**	**126**	**114**	**122**	**55.1**	NA	**198**	**65.4**	**52.3**	**57.4**	**53.5**	**112**	**92.9**	**46.9**
Cyanide	**200**	NA	NA	NA	NA	**12.8**	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**50**	**13.9**	<10	<10	<10	<10	**12.6**	<10	<10	<10	<10	<10	<10	<10
Zinc	**5,000**	NA	NA	NA	NA	**422**	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B)														
Chlorobenzene	**100**	<1.0	<1.0	<1.0	<1.0	**1.77**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	**140**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.99**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
PAHs (8270)														
Dibenz(a,h)anthracene	**0.0048**	<1.0	**5.29**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-cd)pyrene	**0.0048**	<1.0	**28.3**	<1.0	<1.0	**1.03**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Additional Parameters - mg/L														
Dissolved Solids	**400[2]**	NA	NA	NA	NA	NA	NA	**755**	**379**	**405**	**384**	NA	NA	NA
Suspended Solids	**NE**	NA	NA	NA	NA	NA	NA	**31**	**15.6**	**51.2**	**6.83**	NA	NA	NA
Hardness	**<180[3]**	NA	NA	NA	NA	NA	NA	**427**	**238**	**200**	**279**	NA	NA	NA
Alkalinity	**150**	NA	NA	NA	NA	NA	NA	**204**	**125**	**130**	**127**	NA	NA	NA
Nitrate-Nitrite	**100**	NA	NA	NA	NA	NA	NA	**3.42**	**0.265**	**0.647**	**0.28**	NA	NA	NA
Total Phosphorus	**NE**	NA	NA	NA	NA	NA	NA	**0.352**	<0.1	**0.16**	<0.1	NA	NA	NA

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (December 30, 2016)
2) 400 mg/L or 1.25 times background level, whichever is least restrictive
3) <180 mg/L is considered "very hard" water
Only detected analytes shown (detected concentrations are **bold**)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
NA = Not Analyzed

Table 3
Summary of Soil Gas Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID			BH-01	BH-02	BH-03	BH-04	SVP-01	SVP-02	SVP-03	SVP-04	SVP-07	SVP-02R	SVP-02RB
Collect Date			3/6/2018	3/6/2018	3/6/2018	3/6/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	10/9/2018	10/9/2018
Parameter	**Residential RSL**	**Residential VISL[1]**	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
VOC (TO-15)													
TPH (GC/MS) Low Fraction	**31**	**1,033**	<1.9	<1.9	<1.9	<1.9	**789**	**599**	**418**	**1,580**	<413	NA	NA
Acetone	**32,000**	**1,066,667**	<19	<20	**22**	**30**	**43.4**	**14.1**	**17.9**	**56**	**15.2**	**9.28**	**7.81**
Benzene	**0.36**	**12**	<1.9	<1.9	<1.9	<1.9	**1.86**	<1.28	<1.28	**7.16**	<1.28	<1.28	<1.28
Carbon disulfide	**73**	**2,433**	<1.9	<1.9	<1.9	<1.9	**2.8**	<1.24	**7.23**	**10.2**	<1.24	<1.24	<1.24
Chloroform	**0.12**	**4**	<1.9	2	<1.9	<1.9	<1.95	**3.78**	**33**	**3.4**	<1.95	**6.13**	<1.95
Chloromethane	**94**	**3,133**	<1.9	<1.9	<1.9	<1.9	<0.826	<0.826	<0.826	**2.66**	<0.826	<0.826	**0.916**
Cyclohexane	**630**	**21,000**	<1.9	<1.9	<1.9	<1.9	**3.23**	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
1,3-Dichlorobenzene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<2.40	<2.40	<2.40	**2.63**	<2.40	<2.40	<2.40
cis-1,2-Dichloroethene	**NE**	**NE**	<1.9	<2	<1.9	2	<1.59	**1.99**	<1.59	<1.59	<1.59	**3.04**	<1.59
trans-1,2-Dichloroethene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.59	**3.26**	<1.59	<1.59	<1.59	**5.39**	<1.59
1,4-Dioxane	**0.56**	**19**	<1.9	<1.9	<1.9	<1.9	<1.44	<1.44	<1.44	**3.46**	<1.44	<1.44	<1.44
Ethanol	**NE**	**NE**	<19	<20	**47**	**80**	**73.4**	**21.1**	**16.3**	**23.1**	**9.45**	**7.26**	**7.44**
Ethylbenzene	**1.1**	**37**	<1.9	<1.9	<1.9	<1.9	**3.12**	**1.87**	**12.9**	**29.1**	<1.73	<1.73	<1.73
4-Ethyltoluene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.96	<1.96	<1.96	**4.23**	<1.96	<1.96	<1.96
Trichlorofluoromethane	**NE**	**NE**	<1.9	**5.7**	<1.9	**2.7**	**6.49**	**6.92**	**9.68**	**4.6**	<2.25	**12.4**	<2.25
Dichlorodifluoromethane	**100**	**3,333**	**2.1**	**27**	<1.9	**7.4**	**7.73**	**32.9**	**6.01**	**9.43**	**12.9**	**19.6**	**2.06**
1,2-Dichlorotetrafluoroethane	**NE**	**NE**	<1.9	**8.3**	<1.9	**4.9**	**106**	**567**	**127**	**10.4**	<2.80	**110**	<2.80
Heptane	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	**4.65**	<1.64	<1.64	<1.64	<1.64	<1.64	<1.64
n-Hexane	**730**	**24,333**	<1.9	<1.9	<1.9	<1.9	**5.86**	**2.62**	**5.87**	**4.3**	<1.41	<1.41	**1.58**
Isopropylbenzene	**420**	**14,000**	<1.9	<1.9	<1.9	<1.9	<1.97	<1.97	**2.5**	**5.32**	<1.97	<1.97	<1.97
Methylene Chloride	**100**	**3,333**	**15**	<1.9	<1.9	<1.9	**28.1**	**25.3**	**17.2**	**16.6**	**2.47**	**1.54**	**4.65**
2-Butanone (MEK)	**5,200**	**173,333**	<1.9	<1.9	<1.9	<1.9	**7.65**	<10.2	<10.2	**11.9**	<10.2	<10.2	<10.2
2-Propanol	**210**	**7,000**	<19	<20	<19	**26**	**26.4**	**8.94**	<6.15	**23.4**	**8.4**	<6.15	<6.15
Propene	**3,100**	**103,333**	<1.9	<1.9	<1.9	<1.9	**3.7**	<1.38	**11.6**	**2.96**	<1.38	<1.38	<1.38
Styrene	**1,000**	**33,333**	<1.9	<1.9	<1.9	<1.9	**3.98**	**1.82**	**11**	**66.9**	<1.70	<1.70	<1.70
Tetrachloroethylene	**11**	**367**	<1.9	**45**	<1.9	**84**	**70.2**	**348**	**46.3**	**117**	<2.72	**652**	<2.72
Tetrahydrofuran	**2,100**	**70,000**	<1.9	<1.9	<1.9	<1.9	**5.1**	<1.18	<1.18	**3.63**	<1.18	<1.18	<1.18
Toluene	**5,200**	**173,333**	<1.9	<1.9	**2.2**	**6.7**	**20.7**	<1.51	**2.79**	**24.9**	<1.51	<1.51	<1.51
1,1,1-Trichloroethane	**5,200**	**173,333**	<1.9	**41**	<1.9	<1.9	<2.18	<2.18	<2.18	**6.23**	<2.18	<2.18	<2.18
Trichloroethylene	**0.48**	**16**	<1.9	<1.9	<1.9	**9.8**	<2.14	**32.4**	**3.08**	<2.14	<2.14	**47.8**	<2.14
1,2,4-Trimethylbenzene	**7.3**	**243**	<1.9	<1.9	<1.9	<1.9	**2.22**	<1.96	<1.96	**4.93**	<1.96	<1.96	<1.96
m&p-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<3.47	<3.47	**4.88**	**19.4**	<3.47	**6.34**	<3.47
o-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<1.73	<1.73	**1.84**	**8.2**	<1.73	**2.21**	<1.73
Fixed Gasses by D1946 (%)													
Methane	**NE**	**NE**	NA	NA	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Carbon Monoxide	**NE**	**NE**	NA	NA	NA	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Carbon Dioxide	**NE**	**NE**	**0.438**	**2.01**	**0.592**	**0.974**	<0.5	<0.5	<0.5	**0.972**	<0.5	<0.5	<0.5
Oxygen	**NE**	**NE**	**21.9**	**20.3**	**21.7**	**21.4**	**16.7**	**16.8**	**16.4**	**16.8**	**16.8**	NA	NA

1) VISL - Vapor Intrusion Screening Level (calculated by dividing the RSL for residential indoor air by the State approved 3% [0.03] attenuation factor).
RSL = USEPA Indoor Air Regional Screening Level (HQ=0.1 June 2017)
ASC = CDPHE Air Screening Concentrations, Remediation Goals (January 2016)
ND = Not Detected
NE = Not Established
NA = Not Applicable
Only detected analytes shown (detected concentrations are **bold**)

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
10	USGS40000220910	1/4 - 1/2 Mile NW
24	USGS40000220872	1/2 - 1 Mile East
G25	USGS40000220942	1/2 - 1 Mile NNE
I32	USGS40000220955	1/2 - 1 Mile NNE
69	USGS40000220778	1/2 - 1 Mile SSW
N72	USGS40000220966	1/2 - 1 Mile North
N83	USGS40000220981	1/2 - 1 Mile North

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	CO5000000422033	1/4 - 1/2 Mile SSW
A3	CO5000000422477	1/4 - 1/2 Mile WSW
A4	CO5000000422478	1/4 - 1/2 Mile WSW
A5	CO5000000422479	1/4 - 1/2 Mile WSW
6	CO5000000422035	1/4 - 1/2 Mile SSE
7	CO5000000423374	1/4 - 1/2 Mile NNW
B8	CO5000000422888	1/4 - 1/2 Mile ENE
B9	CO5000000422889	1/4 - 1/2 Mile ENE
11	CO5000000422706	1/4 - 1/2 Mile West
C12	CO5000000422019	1/4 - 1/2 Mile SW
C13	CO5000000422020	1/4 - 1/2 Mile SW
D14	CO5000000423610	1/4 - 1/2 Mile NNE
E15	CO5000000423146	1/2 - 1 Mile WNW
E16	CO5000000423147	1/2 - 1 Mile WNW
E17	CO5000000423148	1/2 - 1 Mile WNW
D18	CO5000000423633	1/2 - 1 Mile NNE
19	CO5000000422842	1/2 - 1 Mile ENE
F20	CO5000000422719	1/2 - 1 Mile East
F21	CO5000000422723	1/2 - 1 Mile East
22	CO5000000423376	1/2 - 1 Mile NW
G23	CO5000000423685	1/2 - 1 Mile NNE
26	CO5000000421819	1/2 - 1 Mile SE
27	CO5000000421649	1/2 - 1 Mile South
28	CO5000000422885	1/2 - 1 Mile WNW
29	CO5000000423626	1/2 - 1 Mile NW
H30	CO5000000423897	1/2 - 1 Mile NNW
H31	CO5000000423912	1/2 - 1 Mile North
I33	CO5000000423910	1/2 - 1 Mile NNE
I34	CO5000000423911	1/2 - 1 Mile NNE
J35	CO5000000423518	1/2 - 1 Mile NW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
36	CO5000000421664	1/2 - 1 Mile SE
K37	CO5000000423080	1/2 - 1 Mile WNW
K38	CO5000000423081	1/2 - 1 Mile WNW
K39	CO5000000423121	1/2 - 1 Mile WNW
K40	CO5000000423122	1/2 - 1 Mile WNW
41	CO5000000422999	1/2 - 1 Mile ENE
J42	CO5000000423377	1/2 - 1 Mile NW
J43	CO5000000423378	1/2 - 1 Mile NW
L44	CO5000000421817	1/2 - 1 Mile SW
L45	CO5000000421818	1/2 - 1 Mile SW
K46	CO5000000423036	1/2 - 1 Mile WNW
K47	CO5000000423141	1/2 - 1 Mile WNW
K48	CO5000000423142	1/2 - 1 Mile WNW
K49	CO5000000423099	1/2 - 1 Mile WNW
K50	CO5000000423100	1/2 - 1 Mile WNW
K51	CO5000000423112	1/2 - 1 Mile WNW
K52	CO5000000423124	1/2 - 1 Mile WNW
K53	CO5000000423113	1/2 - 1 Mile WNW
K54	CO5000000423114	1/2 - 1 Mile WNW
K55	CO5000000423102	1/2 - 1 Mile WNW
K56	CO5000000423101	1/2 - 1 Mile WNW
K57	CO5000000423072	1/2 - 1 Mile WNW
K58	CO5000000423129	1/2 - 1 Mile WNW
K59	CO5000000423130	1/2 - 1 Mile WNW
K60	CO5000000423108	1/2 - 1 Mile WNW
K61	CO5000000423109	1/2 - 1 Mile WNW
K62	CO5000000423144	1/2 - 1 Mile WNW
K63	CO5000000423145	1/2 - 1 Mile WNW
K64	CO5000000423116	1/2 - 1 Mile WNW
K65	CO5000000423117	1/2 - 1 Mile WNW
K66	CO5000000423140	1/2 - 1 Mile WNW
M67	CO5000000423914	1/2 - 1 Mile NNW
68	CO5000000421788	1/2 - 1 Mile SE
70	CO5000000423230	1/2 - 1 Mile WNW
71	CO5000000423372	1/2 - 1 Mile ENE
73	CO5000000423908	1/2 - 1 Mile NNE
K74	CO5000000423159	1/2 - 1 Mile WNW
K75	CO5000000423160	1/2 - 1 Mile WNW
K76	CO5000000423161	1/2 - 1 Mile WNW
M77	CO5000000423922	1/2 - 1 Mile NNW
78	CO5000000424031	1/2 - 1 Mile NNE
O79	CO5000000422448	1/2 - 1 Mile West
N80	CO5000000424204	1/2 - 1 Mile North
P81	CO5000000422036	1/2 - 1 Mile WSW
P82	CO5000000422016	1/2 - 1 Mile WSW
O84	CO5000000422480	1/2 - 1 Mile West
O85	CO5000000422481	1/2 - 1 Mile West
O86	CO5000000422482	1/2 - 1 Mile West
87	CO5000000422010	1/2 - 1 Mile ESE
Q88	CO5000000422886	1/2 - 1 Mile West
Q89	CO5000000422887	1/2 - 1 Mile West
R90	CO5000000424170	1/2 - 1 Mile NNE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
S91	CO5000000421671	1/2 - 1 Mile SE
S92	CO5000000421672	1/2 - 1 Mile SE
T93	CO5000000421507	1/2 - 1 Mile SE
R94	CO5000000424167	1/2 - 1 Mile NNE
R95	CO5000000424168	1/2 - 1 Mile NNE
R96	CO5000000424169	1/2 - 1 Mile NNE
T97	CO5000000421506	1/2 - 1 Mile SE
U98	CO5000000423919	1/2 - 1 Mile NW
U99	CO5000000423918	1/2 - 1 Mile NW
U100	CO5000000423921	1/2 - 1 Mile NW
U101	CO5000000423920	1/2 - 1 Mile NW
V102	CO5000000422022	1/2 - 1 Mile WSW
V103	CO5000000422021	1/2 - 1 Mile WSW
V104	CO5000000422023	1/2 - 1 Mile WSW
V105	CO5000000422025	1/2 - 1 Mile WSW
V106	CO5000000422024	1/2 - 1 Mile WSW
T107	CO5000000421473	1/2 - 1 Mile SE
108	CO5000000421341	1/2 - 1 Mile SSE
T109	CO5000000421469	1/2 - 1 Mile SE
T110	CO5000000421468	1/2 - 1 Mile SE
111	CO5000000424337	1/2 - 1 Mile North
W112	CO5000000424192	1/2 - 1 Mile NNW
W113	CO5000000424193	1/2 - 1 Mile NNW
X114	CO5000000421123	1/2 - 1 Mile South
X115	CO5000000421122	1/2 - 1 Mile South
Y116	CO5000000423382	1/2 - 1 Mile WNW
Y117	CO5000000423383	1/2 - 1 Mile WNW
Z118	CO5000000421098	1/2 - 1 Mile South
Z119	CO5000000421099	1/2 - 1 Mile South
Z120	CO5000000421100	1/2 - 1 Mile South
AA121	CO5000000424343	1/2 - 1 Mile NNW
AA122	CO5000000424344	1/2 - 1 Mile NNW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	COOG90000078838	1/8 - 1/4 Mile West
2	COOG90000078900	1/8 - 1/4 Mile ENE
A3	COOG90000078588	1/4 - 1/2 Mile SSW
4	COOG90000078817	1/4 - 1/2 Mile West
5	COOG90000078593	1/4 - 1/2 Mile SE
A6	COOG90000078572	1/4 - 1/2 Mile SSW
7	COOG90000079112	1/4 - 1/2 Mile NNE
8	COOG90000079180	1/4 - 1/2 Mile NNW
B9	COOG90000078532	1/4 - 1/2 Mile SSE
B10	COOG90000078524	1/4 - 1/2 Mile SSE
11	COOG90000078860	1/4 - 1/2 Mile East
12	COOG90000078637	1/4 - 1/2 Mile WSW
B13	COOG90000078499	1/4 - 1/2 Mile SSE
14	COOG90000079118	1/4 - 1/2 Mile NW
C15	COOG90000078615	1/4 - 1/2 Mile ESE

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
C16	COOG90000078602	1/4 - 1/2 Mile ESE
17	COOG90000078351	1/4 - 1/2 Mile South
D18	COOG90000078480	1/2 - 1 Mile SW
D19	COOG90000078466	1/2 - 1 Mile SW
20	COOG90000079187	1/2 - 1 Mile NE
21	COOG90000078835	1/2 - 1 Mile West
22	COOG90000078365	1/2 - 1 Mile SE
E23	COOG90000079184	1/2 - 1 Mile WNW
E24	COOG90000079202	1/2 - 1 Mile WNW
25	COOG90000078232	1/2 - 1 Mile South
26	COOG90000078882	1/2 - 1 Mile East
27	COOG90000078635	1/2 - 1 Mile ESE
E28	COOG90000079224	1/2 - 1 Mile WNW
E29	COOG90000079242	1/2 - 1 Mile WNW
E30	COOG90000079226	1/2 - 1 Mile WNW
E31	COOG90000079230	1/2 - 1 Mile WNW
E32	COOG90000079244	1/2 - 1 Mile WNW
E33	COOG90000079237	1/2 - 1 Mile WNW
E34	COOG90000079253	1/2 - 1 Mile WNW
E35	COOG90000079257	1/2 - 1 Mile WNW
E36	COOG90000079261	1/2 - 1 Mile WNW
E37	COOG90000079270	1/2 - 1 Mile WNW
38	COOG90000078162	1/2 - 1 Mile SSE
39	COOG90000079049	1/2 - 1 Mile ENE
F40	COOG90000079274	1/2 - 1 Mile WNW
F41	COOG90000079275	1/2 - 1 Mile WNW
F42	COOG90000079276	1/2 - 1 Mile WNW
F43	COOG90000079272	1/2 - 1 Mile WNW
F44	COOG90000079271	1/2 - 1 Mile WNW
F45	COOG90000079267	1/2 - 1 Mile WNW
F46	COOG90000079268	1/2 - 1 Mile WNW
F47	COOG90000079264	1/2 - 1 Mile WNW
G48	COOG90000078660	1/2 - 1 Mile WSW
G49	COOG90000078650	1/2 - 1 Mile WSW
F51	COOG90000079266	1/2 - 1 Mile WNW
F50	COOG90000079265	1/2 - 1 Mile WNW
F52	COOG90000079259	1/2 - 1 Mile WNW
F53	COOG90000079263	1/2 - 1 Mile WNW
F54	COOG90000079260	1/2 - 1 Mile WNW
H55	COOG90000078341	1/2 - 1 Mile SE
F56	COOG90000079258	1/2 - 1 Mile WNW
I57	COOG90000079227	1/2 - 1 Mile WNW
I58	COOG90000079217	1/2 - 1 Mile WNW
I59	COOG90000079211	1/2 - 1 Mile WNW
I60	COOG90000079225	1/2 - 1 Mile WNW
I61	COOG90000079222	1/2 - 1 Mile WNW
I62	COOG90000079236	1/2 - 1 Mile WNW
I63	COOG90000079232	1/2 - 1 Mile WNW
I64	COOG90000079229	1/2 - 1 Mile WNW
I65	COOG90000079241	1/2 - 1 Mile WNW
I66	COOG90000079243	1/2 - 1 Mile WNW
I67	COOG90000079246	1/2 - 1 Mile WNW
I68	COOG90000079254	1/2 - 1 Mile WNW
H69	COOG90000078380	1/2 - 1 Mile SE
70	COOG90000078212	1/2 - 1 Mile SSE
71	COOG90000078094	1/2 - 1 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
72	COOG90000079024	1/2 - 1 Mile ENE
I73	COOG90000079140	1/2 - 1 Mile WNW
J74	COOG90000079066	1/2 - 1 Mile WNW
K75	COOG90000078096	1/2 - 1 Mile SSW
76	COOG90000078056	1/2 - 1 Mile South
K77	COOG90000078092	1/2 - 1 Mile SSW
78	COOG90000078720	1/2 - 1 Mile East
L79	COOG90000078805	1/2 - 1 Mile West
80	COOG90000078043	1/2 - 1 Mile SSE
J81	COOG90000079096	1/2 - 1 Mile WNW
L82	COOG90000078807	1/2 - 1 Mile West
83	COOG90000079097	1/2 - 1 Mile WNW
L84	COOG90000078803	1/2 - 1 Mile West
85	COOG90000078130	1/2 - 1 Mile SW
L86	COOG90000078798	1/2 - 1 Mile West
87	COOG90000077974	1/2 - 1 Mile South
M89	COOG90000078928	1/2 - 1 Mile East
M88	COOG90000078927	1/2 - 1 Mile East
N90	COOG90000079141	1/2 - 1 Mile ENE
N91	COOG90000079143	1/2 - 1 Mile ENE
92	COOG90000077932	1/2 - 1 Mile South
93	COOG90000078171	1/2 - 1 Mile SE

APPENDIX F
(On External Drive)

JOHN C. GRAVES, P.E.

OFFICE MANAGER / PRINCIPAL

PROFESSIONAL EXPERIENCE

Mr. Graves has over 17 years of experience as a geologist and 14 years of experience performing environmental, geotechnical, and materials engineering services. Mr. Graves is responsible for the management of Terracon's offices in Fort Collins and Greeley, Colorado, including attending to business development, resource allocation, and client services throughout northern Colorado and Wyoming. As an Environmental Geologist, Mr. Graves provides senior project management, technical review, and quality assurance for an array of environmental compliance services as well as assisting with the project management and completion of geotechnical and materials engineering projects.

Mr. Graves' primary experience includes the management of leaking underground storage tank (LUST) remedial sites, developing groundwater sampling programs, preparation of Phase I and II environmental site assessments (ESAs), geotechnical investigations, construction materials testing oversight, managing subsurface soil and groundwater investigations, performing environmental risk assessments, environmental compliance services, geologic and hydrogeologic site characterization, and mineral assessments for potential conservation easements. Mr. Graves also has experience in solid waste engineering for solid waste landfill facilities. His solid waste engineering experience includes regulatory compliance, siting, permitting, geologic and hydrogeologic site characterization, environmental monitoring, and construction quality assurance. Additionally, his experience includes lined cells; lateral expansions; and cell closure.

PROJECT EXPERIENCE

Wyoming Department Of Environmental Quality

Mr. Graves is currently managing and performing environmental field work and project oversight and reporting for numerous active LUST site remediation systems, which include groundwater extraction, enhanced bioremediation, ozone sparging, air sparging, soil vapor extraction and dual phase vapor extraction. Ongoing projects include remediation systems and/or ongoing site investigations/corrective actions in Casper, Cody, Douglas, Glenrock, Green River, Greybull, Jeffrey City, Lusk, Meeteetse, Rawlins, Worland, and Yellowstone National Park. In addition, Mr. Graves is currently managing and/or providing oversight for three Voluntary Cleanup Program projects in Rawlins and Cheyenne.

Other previous remediation projects include work being performed for the Indiana Department of Environmental Management, the Nebraska Department of Environmental Quality, and the Colorado Department of Labor and Employment.

EDUCATION

Bachelor of Science, Environmental Geology, 1997, Purdue University

REGISTRATIONS

Professional Geologist: Wyoming, No. 3521

CERTIFICATIONS

40-Hour OSHA Hazardous Waste Operations Training
Nuclear Density Gauge Safety Training
American Red Cross First Aid and CPR
U.S. EPA Accredited AHERA – Asbestos Inspector Training

AFFILIATIONS

ASFE/The Geoprofessional Business Association
Northern Colorado Geologists Association
Fort Collins Area Chamber of Commerce
Wyoming Solid Waste and Recycling Association
Association of Environmental and Engineering Geologists

WORK HISTORY

Terracon – Fort Collins/Greeley, CO
Office Manager and Environmental Department Manager
August 2009 to Present
Terracon – Rock Springs, WY Office Manager, March 2005 to August 2009
Terracon – Cheyenne, WY
Environmental Department Manager
April 2004 to March 2005 Environmental Professional February 2001 to April 2004
Creek Run Environmental Engineering L.L.C., Project Geologist, 2000-2001
Schlumberger - Geco-Prakla Division, Acquisition Engineer, 1997-2000

SCHOOL FACILITIES

Mr. Graves has been the Project Manager for numerous environmental investigations, geotechnical explorations and has managed materials testing services at various school facilities. Recent examples include geotechnical investigations for a new parking lot and new classrooms at Front Range Community College in Fort Collins, Colorado; geotechnical investigations for student housing and expansion of the student center at Western Wyoming Community College in Rock Springs, Wyoming; environmental compliance services provided during construction for Moby Arena and the Behavioral Sciences Building at Colorado State University in Fort Collins; geotechnical investigations for new classrooms at Morgan Community College in Fort Morgan, Colorado; and environmental site assessments performed during the site selection stage for a new elementary school in Cheyenne, Wyoming for Laramie County School District Number One.

LANDFILL FACILITIES

Kemmerer Landfill – Lincoln County, WY

Project Manager for landfill design and permit application project for a lateral and vertical expansion to the existing landfill. Client is Lincoln County Commissioner's Office. This project included preparation of a revised permit application, slope stability analysis, location standard assessment for lateral expansion of the landfill, design of the first engineered containment system (lined cell) at the facility, preparation of revised Environmental Monitoring Plan, and preparation of Construction Quality Assurance (CQA) Plan.

Cheley Camps Landfill – Estes Park, CO

Mr. Graves is the Project Manager for a landfill closure design for a private landfill under Colorado Department of Public Health and Environment rules and regulations. Completed services include the installation of groundwater monitoring network, a landfill gas monitoring network, the preparation of a Landfill Closure Plan including technical specifications and a slope stability analysis, and Construction Quality Assurance Plan. Mr. Graves also oversaw the implementation of the plan. The landfill was granted closure from the State in 2012 and Mr. Graves is currently performing long-term closure activities including groundwater sampling, vapor monitoring, and semi-annual visual inspection of the capped landfill and implemented stormwater control system.

MUNICIPALITIES

Mr. Graves has been the project manager and/or performed project oversight on numerous environmental and geotechnical projects being performed for local municipalities. Recent example projects include environmental assessment services for a new park for the Berthoud Regional Recreation District in Berthoud, Colorado; environmental assessment services for a new office building for Teton County Weed & Pest in Jackson, Wyoming; numerous environmental and geotechnical investigations for the City of Loveland, Colorado; environmental assessment and compliance services for the procurement of new property for the Estes Park Sanitation District, and environmental compliance services for Larimer County Fleet Management.

RESIDENTIAL

Mr. Graves has been the project manager and/or performed project oversight on numerous geotechnical, environmental and materials testing projects being performed for new housing complexes in the past year, including multiple geotechnical investigations for off-campus student housing at Colorado State University and another environmental and geotechnical investigation for off-campus student housing at the University of Northern Colorado in Greeley. Another notable project is Legacy Senior Residences apartments in Fort Collins, Colorado. This project was proposed at a site within a known historic landfill utilized in the early 1900s by the original military fort. Mr. Graves coordinated a combined environmental and geotechnical field investigation for the property and assisted the owner with enrolling the site in the Colorado Voluntary Cleanup Program. To reduce the potential for environmental issues during construction, a helical pier foundation system was recommended and installed with Terracon oversight. In addition, Terracon designed a vapor mitigation system for the proposed structure, as well as the preparation and implementation of a soils management plan to deal with asbestos-contaminated soil uncovered during construction.

OIL & GAS

Mr. Graves has been the project manager and/or performed project oversight on numerous geotechnical, environmental and materials testing projects being performed for oil and gas-related projects. Projects/clients Mr. Graves has worked with in the last few years include a geotechnical investigation for a new Exterran facility in Rock Springs, Wyoming; numerous geotechnical investigations for Anadarko Petroleum in southwest Wyoming and northeast Colorado; environmental compliance services, geotechnical investigations, and construction materials testing services for multiple Select Energy frack-water disposal units in Weld County, Colorado; gas well environmental reclamation services in Sweetwater County, Wyoming for Apache Corporation; environmental compliance and assessment services for Baker Hughes' Centrilift facility in Casper, Wyoming; environmental assessment services in Fort Collins, Colorado, for Cameron oilfield services; geotechnical and materials testing services for DCP Midstream at their proposed LaSalle Natural Gas Processing Plant and associated booster stations across northeast Colorado; and numerous geotechnical investigations for proposed compressor stations in northeast Colorado for Williams Field Services.

MICHAEL J. SKRIDULIS

Project Manager

PROFESSIONAL EXPERIENCE

As a Project Manager in Terracon's Longmont, Colorado office, Mr. Skridulis has over 13 years in the management and implementation of environmental site assessment and remediation. Mr. Skridulis' primary responsibilities include proposal and cost estimating, project management of large scale remedial projects remediating chlorinated solvents, petroleum products, and PCBs, management and support of field crews, mentoring of junior employees, work plan and sampling plan development, and report preparation. He has been responsible for managing multiple State of Colorado Oil and Public Safety (OPS) state lead and reimbursable projects throughout Colorado, design and implementation of various remedial strategies, development of Economic Feasibility Summaries, scheduling and completing field work for soil and groundwater remediation projects, site investigations, and site closure.

PROJECT EXPERIENCE

Site Investigation Portfolio – Longmont, CO

Mr. Skridulis is the Project Manager for this portfolio of project sites established in 2015 to present, to investigate the potential presence of surficial/subsurface soil impacts, groundwater impacts, and presence of methane and other gasses in the subsurface near reported active and plugged & abandoned oil and gas well locations within Longmont city limits. Terracon is providing environmental engineering consulting, site investigation services, tabulated receptor surveys, and development of comprehensive report of findings and recommendations. Terracon is working with local government and State agencies, when necessary, if contaminants are identified. Estimated fees: $350,000

Underground Storage Tank Removal and Site Closure – Lafayette, CO

Mr. Skridulis was the Project Manager for a 2017 underground storage tank (UST) removal effort of petroleum and solvent based chemical tanks for a private party in Lafayette, Colorado. Mr. Skridulis provided environmental oversight and directive involved with the identification of tank contents, removal strategy, disposal, and coordination with applicable State and Local governmental entity involvement. Terracon was responsible for permitting, waste profiling, subcontractor management, confirmation soil sampling, site rehabilitation coordination, and reporting of project activities. Estimated fees: $45,000

We Holdings Civil Engineering – Commerce City, CO

Mr. Skridulis is the Project Manager for this 2013 to current project at a 20-acre site adjoining the Suncor Refinery. Terracon is providing civil and environmental engineering consulting, development of a Corrective Action Plan (CAP), along with grading plan review application package preparation and submittal. Other project tasks include stormwater management, erosion control and compliance monitoring. Successful submittal of a Voluntary Cleanup Program (VCP) application for the site to the Colorado Department of Public Health and Environment; contaminants identified included polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs) in the site's groundwater and soil. Mr. Skridulis' team oversaw the development of a CAP to meet the conditions of the CDPHE VCP application. That remediation solution consisted of the construction of an engineered evapo-transpirative (ET) cover. Estimated fees: $700,000

EDUCATION

Bachelor of Science, Geology, Eastern Illinois University, 2005

CERTIFICATIONS

OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training

OSHA 8-Hour Refresher Hazardous Waste Operations and Emergency Response (HAZWOPER) Training, current

Safeland USA Training

LNAPL & PVI Training

AFFILIATIONS

Geological Society of America

Association of Environmental and Engineering Geologists

Colorado Environmental Management Society (CEMS)

Rocky Mountain Association of Environmental Professionals (RMAEP)

Ivy Brownfields – Denver, CO

Mr. Skridulis was a project geologist for this 2014 – 2015 project at 5901 E. Colfax Avenue in Denver. This grant-funded Brownfields project involved a variety of environmental and industrial hygiene services to support site modifications for retail business expansion. The site housed residential dwellings, along with a former filling station and auto repair facility. Terracon performed a Phase I Environmental Site Assessment (ESA), property-specific Sampling and Analysis Plan (SAP), Health and Safety Plan (HASP), geophysical survey, asbestos-containing material and lead-based paint surveys, and a Phase II ESA with soil and groundwater analysis. Estimated fees: $425,000

Arapahoe Village Lsi and Remediation Services – Littleton, CO

Mr. Skridulis is involved in the project management of this 2015-2016 project, which consists of additional site investigation services at a drycleaner operating at a retail shopping center. The project involves a limited site assessment, along with soil, groundwater and vapor remedial design and installation. Additional tasks will include ongoing monitoring and reporting at the site. Estimated fees: $385,000.

Underground Storage Tank Investigation and Remediation – Various, CO

Mr. Skridulis is responsible for managing multiple underground storage tank (UST) related sites across Colorado including, work plan development and implementation, investigating the release of petroleum contaminants related to USTs, tank removal activities, and active remediation development and implementation. Mr. Skridulis is also responsible for coordination with the State of Colorado, budgeting, and project management practices related to these projects.

Limited Site Investigation – Various, CO

Mr. Skridulis has been responsible for the managing and implementation of all field related duties for multiple Limited Site Investigation (LSI) sites across the Denver, Colorado area totaling approximately 50 sites in various stages locations. Responsibilities included, proposal and work plan development, complete project oversight, and investigation services, including monitoring well installation, soil boring instillation, soil and groundwater sampling, and data review.

KEVIN R. SAYLOR, P.E.

SENIOR PROJECT ENGINEER

EDUCATION
Bachelor of Science, Civil/Environmental Engineering, University of Illinois at Urbana-Champaign, 1993

REGISTRATIONS
Professional Engineer: Colorado, Illinois, Indiana and Kentucky

CERTIFICATIONS
OSHA Hazardous Waste Operations and Emergency Response (40-hour)

AFFILIATIONS
National Society of Professional Engineers

PROFESSIONAL EXPERIENCE

Mr. Saylor is a Senior Project Engineer in Terracon's Denver, Colorado, office. His responsibilities and duties include project management, technical support, and senior review for various environmental projects and assessments. Mr. Saylor currently provides senior project review for approximately 150 of Terracon's Denver Office ASTM E 1527 Phase I Environmental Site Assessments (ESAs) and 30 Limited Site Investigations (LSIs) each year.

Mr. Saylor has more than 20 years of environmental experience. He has experience in Phase I ESAs, subsurface investigations, vapor intrusion assessment and modeling, leaking underground storage tanks (LUSTs), voluntary remediation, Resource Conservation and Recovery Act (RCRA) closure, corrective action, risk-based corrective action, management plans, Safe Drinking Water Act (SDWA) regulations, review of water system distribution plans / specifications, statistical analysis for landfill monitoring, mold investigations and remediation, and laboratory analysis of soil and groundwater samples.

PROJECT EXPERIENCE

Washington Street Brownfields Project – Denver, CO
City And County Of Denver On-Call Environmental Services Contract
Mr. Saylor was the project manager for this project, which consists of Brownfields Assessment Services at a 0.9-acre parcel with three commercial structures. Environmental concerns included former and current on-site automotive service, former off-site automotive service, former off-site dry cleaning, and proximity to the Vasquez Boulevard and I-70 CERCLA Site. This grant-funded project included a Phase I ESA, property-specific sampling analysis plan (SAP), health and safety plan (HASP), pre-demolition asbestos-containing material (ACM) and lead-based paint (LBP) surveys, and a Phase II ESA with soil and groundwater sampling / analysis and reporting. Estimated fees: $43,600

Federal Boulevard Brownfields Project – Denver, CO
City And County Of Denver On-Call Environmental Services Contract
Mr. Saylor was the project manager for this project, which consists of Brownfields Assessment Services at a 3-acre parcel, currently utilized as a parking lot. Environmental concerns include former on-site and off-site junkyards, a former off-site landfill, and nearby historical automotive service. This grant-funded project includes a Phase I ESA, property-specific SAP, HASP, and a Phase II ESA with soil, groundwater, and soil gas sampling / analysis and reporting. Estimated fees: $60,000

Multi-Family Housing Development – Denver, CO
Terracon performed a Phase I ESA and a Limited Site Investigation (LSI) for this 2.3-acre site near downtown Denver. The Phase I ESA identified a number of historical concerns, including on-site and off-site automotive service facilities and dry cleaners. The LSI did not identify soil or groundwater impact at the site. However, Terracon prepared a Materials Management Plan to be used during redevelopment activities due to the history of the site. Mr. Saylor was the project manager for construction oversight activities, which consisted of on-call removal of a buried waste drum, seven abandoned USTs, associated waste materials and impacted soil. Terracon worked with the Colorado Department of Labor and Employment - Division of Oil and Public Safety (OPS) throughout the project to assist the client in obtaining a No Further Action determination for the unregulated tanks. Estimated Fees: $110,000.

3811 Joliet Street Monitoring / Lsi – Denver, CO
Mr. Saylor was the project quality reviewer for this project, which consisted of a Limited Site Investigation (LSI) for approximately 14 acres of land developed with a 122,000 square foot industrial building. The site is currently occupied by R&S Steel, a company that receives, cuts, and ships steel beams. The LSI was designed to assess and evaluate for the presence of environmental impact in the soil and groundwater associated with volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAH), RCRA metals, and polychlorinated biphenyls (PCBs). Estimated fees: $42,000

Retreat At Louisville – Louisville, KY
Redevelopment project for the University of Louisville-affiliated student housing complex of former American Standard property. Due diligence activities included a Phase I ESA, a LSI, and a Soil Gas Investigation. Obtained Notice of Concurrence for a new property owner through the KY Brownfield Redevelopment Program. Terracon also prepares a Property Management Plan and provided construction support services (vapor mitigation system design and installation QA/QC, soil management support, etc.). Estimated Fees: $283,500

City Of Owensboro Brownfield Remediation – Owensboro, KY
Managed chlorinated solvent remediation funded by a USEPA brownfields cleanup grant. The property was a former dry cleaner with chlorinated solvent plumes in soil and groundwater. Work included Remedial Action Plan addenda, confirmation soil, groundwater and soil gas sampling, and design of in-situ treatment (soil mixing and groundwater injection). The site is currently undergoing managed closure, with pending revisions to the management plan to support a master development plan.

The Grove At Louisville – Louisville, KY
Member of project team for USEPA Brownfields Revolving Loan Fund Grant site. The site was formerly used for multiple industrial purposes. Provided technical support of the remediation plan, field activities, and asbestos abatement design. Remedial actions included asbestos abatement, underground storage tank (UST) removal, and in-situ remediation of two trichloroethylene (TCE) groundwater plumes. Site has been redeveloped for student housing and is undergoing long-term management and monitoring.

Le Roy Cusd No. 2 – Le Roy, IL
Successful closure of a state Brownfields project at an operating public school which was expanding its campus. Responsibilities included grant application and procurement, design and execution of investigation and remedial action related to petroleum contamination and chlorinated solvents. Activities included indoor VOC air sampling (with assistance from the IL Department of Public Health), field investigation, public relations, extensive contaminant modeling, excavation, soil management during construction, and compliance with regulatory requests.

Five Points Realty – Urbana, IL
Successful closure of a property enrolled in the voluntary IL Site Remediation Program. The Site was part of a former auto dealership that spanned more than eight acres. A Phase I and subsequent subsurface investigations were performed on the dealership. The results led to enrollment and closure of a 0.3-acre site using modeling, engineered barriers, and institutional controls.

Commercial Redevelopment Of Downtown Property – Champaign, IL
Performed Phase I ESA and extensive site characterization on parking lot considered for redevelopment. Concerns included USTs, historic dry cleaners, printers and auto service. Developed a soil management plan to address impacted areas that would be disturbed during construction. Facilitated permitting and disposal of soil as hazardous waste. Site was redeveloped into a mixed-use residential and commercial multi-story building.

Environmental Site Assessments – Nationwide
Conducted or reviewed Phase I ESAs on numerous developed and undeveloped properties to facilitate real estate transactions. Phase II ESAs were subsequently designed and executed on a portion of these sites. Clients include independent owners, developers, lenders, health care facilities, etc. Properties have ranged from greenfields to large industrial properties. Experience in CO, IL, KY, IN, OH and MI.

Leaking Underground Storage Tank Program – Various, IL and IN
Managed and performed technical work for a variety of LUST sites. Experience has ranged from tank removal to site investigation and co
contaminant modeling and closure using institutional controls and/or excavation. Budget and reimbursement preparation through the IL state fun
frequently in excess of $100,000.

JOHN A. SKOGMAN, P.E.

ENVIRONMENTAL DEPARTMENT MANAGER, FORT COLLINS
PROJECT MANAGER

PROFESSIONAL EXPERIENCE

Mr. Skogman serves as the Department Manager for Environmental Services and as a Senior Project Environmental Engineer/Project Manager for the Fort Collins, Colorado office. He provides supervision of department projects and staff involved with environmental assessments, soil and groundwater remediation and environmental compliance services, as well as serves as the primary point of contact and senior project manager for local, regional, and national clients.

Mr. Skogman's project responsibilities include the management and preparation of leaking above or underground storage tank (LAUST) site characterization reports and Corrective Action Plans (CAPs), Remedial Action Plans (RAPs), remediation design documents including construction specifications and drawings, contractor bid support, Spill Prevention Control and Countermeasures (SPCC) Plans, Phase I and Limited Phase II environmental site assessments (ESAs), soil and groundwater sampling/monitoring reports, all types of environmental sampling, documentation of field activities, statistical analysis, operation and maintenance (O&M) of remediation systems, and management of O&M of remediation systems. Field activities Mr. Skogman performs include construction and installation of remediation technologies, construction oversight, drilling oversight for subsurface sampling, groundwater sampling and development, and documentation of field activities.

PROJECT EXPERIENCE

Colorado Department of Labor and Employment Oil and Public Safety (OPS), Loveland, CO
Assisted with engineering design and bidding of a dual-phase extraction remediation system. Conducted operation and maintenance of the remediation system with quarterly reporting using the MRR template.

Vanatta Filling Station – Hygiene, CO
Provided underground storage tank removal management and oversight, along with registration, notification and reporting to OPS. Prepared and implemented a work plan for site characterization of a LUST site in accordance with OPS guidance, to delineate the vertical and horizontal extent of groundwater contamination of dissolved petroleum fuels. Prepared a Site Characterization Report and Corrective Action Plan for monitored natural attenuation.

Laust Site Remediation – Yellowstone National Park, WY
Subsurface Site Investigation (SSI), pilot testing of remedial technologies, engineering assessment, and remediation design for the treatment of petroleum contamination in soil and groundwater for eleven facilities. Lead project engineer in the preparation of the Remedial Action Plan (RAP). Prepared construction specifications and drawings and provided engineering construction oversight for the installation of six remediation systems located in areas with high snow loads and extreme cold temperatures. Mr. Skogman continues to provide management of O&M activities.

Larimer County Fleet Services - Livermore, CO
Mr. Skogman prepared project specifications for the replacement of a gasoline and diesel fleet fueling facility for Larimer County. Mr. Skogman's services included preparation of specifications and construction oversight for the installation of new dual-compartment above-ground storage tank (AST) and associated equipment, including dispensers, product pumps and sensors. Additionally, Mr. Skogman attended to the removal of the existing AST fueling facility and provided a contaminant investigation.

EDUCATION
Bachelor of Science, Environmental Engineering, 1999, Colorado State University

REGISTRATIONS
Professional Engineer: Colorado, No. 38968

Professional Engineer: Wyoming, No. 11333

CDLE-OPS, Listed Consultant, No.: 6079

CERTIFICATIONS
OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training

OSHA 8-Hour HAZWOPER Refresher Training, Current

American Red Cross First Aid and CPR

Nuclear Density Gauge Safety Training

Terracon Phase I ESA Training Program

Terracon Environmental Professional

AFFILIATIONS
American Society of Civil Engineers

LNAPL Group

WORK HISTORY
Terracon Consultants, Inc., Department Manager – Environmental Services, 2000-Present

Lust Site Remediation – Riverton, Sundance & Sheridan, WY
Mr. Skogman provided project management, oversight and engineering support of O&M phases of the remediation projects. Technologies for the project included SVE, AS, groundwater extraction (GWE), and dual-phase extraction and treatment. Work was performed under the direction of the Wyoming Department of Environmental Quality (WDEQ).

Lust Site Remediation – Baggs, WY
Mr. Skogman provided construction oversight with remedial system installation, startup and operation and maintenance at three facilities. Project work included construction materials testing services including field work of concrete testing, soil density and moisture testing, and asphalt density testing.

Laust Site Remediation – Niobrara-Goshen Counties, WY
Mr. Skogman performed pilot testing, engineering assessment, and design of remedial technologies for the treatment of petroleum and chlorinated solvent contamination in soil and groundwater at seven facilities. . Mr. Skogman assisted in the preparation of the Remedial Action Plan (RAP), prepared construction specifications, and provided construction oversight and project management for the construction activities. Mr. Skogman was the manager of O&M of ongoing remediation systems for the LAUST remediation project.

Laust Site Remediation – Casper, WY
Mr. Skogman provided project oversight, management, engineering assessment, and remediation design for the treatment of petroleum contamination in soil and groundwater and management of O&M of remediation phases of the projects and site closure and system decommissioning associated with 26 facilities at the start of the project. Technologies utilized included SVE, AS, iSOC and enhanced bioremediation. The work was performed under the direction of the WDEQ.

Laust Site Remediation – Amoco Oil, Casper, WY
Mr. Skogman provided engineering assessment, management, and remediation design for the treatment of petroleum contamination in soil and groundwater. Mr. Skogman oversaw construction of a soil vapor extraction and air sparge remediation system, and utilized equipment and enclosure from a closed site. The work was performed under the direction of the WDEQ.

Phase I Environmental Site Assessments For Property Transfer
Mr. Skogman provided Phase I ESA reports for this project, which included historical research, review of databases, interviews with previous owners and regulators, site inspections, and preparation of reports.

Spill Prevention Control And Countermeasure Plans
Mr. Skogman assisted in preparing SPCC plans for over 30 compressor stations and AST/UST facilities in Colorado and Wyoming.

Colorado State University Hazardous Waste Disposal Facility
Mr. Skogman assisted in developing a permit modification request for a closed hazardous waste disposal facility (landfill). Mr. Skogman conducted quarterly and semi-annual statistical analysis of groundwater monitoring data collected from the facility.

HEATHER N. OTTERSTETTER, P.E.

SENIOR ENVIRONMENTAL ENGINEER

PROFESSIONAL EXPERIENCE

With over 15 years of experience in the environmental engineering industry, Ms. Otterstetter is a proven leader in her field. She possesses professional engineer licenses for the states of Colorado, Nebraska, Kansas and Utah, and has performed numerous environmental projects throughout each of these states. Ms. Otterstetter has also spent eight years focusing on projects within the oil and gas sector (including upstream, midstream and downstream), and has an extensive soil and groundwater remediation background that has been enhanced with client management, marketing, proposal preparation, project management, personnel management, compliance, and health and safety experience. Serving as the project and client manager in each of her previous roles, Ms. Otterstetter has developed a solid reputation for mentoring staff while executing projects with efficiency and remaining within budget.

Ms. Otterstetter is a Registered Storage Tank Consultant with the State of Colorado, and has provided project management and engineering expertise on numerous projects throughout the state involving the investigation, remediation and closure of a variety of contaminated sites, including hundreds of leaking underground storage tank (UST) sites at retail gas stations, transportation facilities and third-party businesses. She is well-versed on regulatory agency requirements, procedures and reporting mechanisms, and has originated corrective action plans (CAPs) to meet the needs of both public and private clients.

Additionally, Ms. Otterstetter has facilitated community outreach and client relationship management throughout her professional history, having coordinated numerous public meetings and educated clients and community members on remediation processes and the impacts to soil and groundwater.

PROJECT EXPERIENCE

**Indicates projects completed before joining Terracon*

Former Dry Cleaner Site – Wheat Ridge, CO

Ms. Otterstetter is currently managing the remediation of a chlorinated solvent site from former dry cleaner operations. The site is currently under the Voluntary Cleanup Program (VCP). Initial remediation included excavation and injection of BOS100. Additional remediation was necessary to meet cleanup objectives based on the results of quarterly groundwater sampling. A pilot study is underway at the site for a new and upcoming technology E-Redox. Ms. Otterstetter is responsible for overall project management, adjusting the quarterly groundwater monitoring program, selecting additional remediation technologies, and meeting with board members.

Former Radiation Site – Denver, CO

Ms. Otterstetter is currently managing the environmental oversight for the redevelopment of the Former Denver Radiation site. A Materials Management Plan was developed as a precautionary measure in case metals and radiologically-impacted soil and groundwater are encountered. Radiological and other environmental monitoring will be conducted to ensure worker protection. Radon monitoring will be conducted immediately following the completion of construction activities.

EDUCATION

Bachelor of Science, Biological Engineering with an emphasis in Environmental, University of Georgia, 2002

CERTIFICATIONS

Colorado Professional Engineer – License #41321

Nebraska Professional Engineer – License #E-13210

Kansas Professional Engineer – License #22260

Utah Professional Engineer – License #9170946-2202

Qualified Preparer of Storm Water Management Plans – Colorado

Qualified Compliance Inspector of Stormwater – Colorado

40-hour and 8-hour Refresher OSHA HAZWOPER Training

PEC SafeLandUSA

Red Cross CPR/First Aid Certified

PUBLICATIONS

"CVOC Remediation Using BDI and Diagnostics in a Methanogenic Aquifer," Battelle's 8th International In-Situ and On-Site Bioremediation Symposium, June 2005, Baltimore, Maryland

WORK HISTORY

Terracon Consultants, Inc., Senior Environmental Engineer, Mar. 2016 - Present

Apex Companies, LLC, Project Manager/ Client Manager, 2015 - Feb. 2015 - Jan. 2016

LT Environmental, Inc., Project Manager/ Group Manager/ Client Manager, 2008-2015

ARCADIS, Project Environmental Engineer, 2006-2008

Voluntary Cleanup Projects – Denver, Co And Boulder, WY

Ms. Otterstetter is currently managing the environmental oversight for redevelopment of several properties in Denver. One of the properties requires a discharge permit and monitoring for a dewatering system. Another property requires the design of a vapor mitigation system. Ms. Otterstetter has also prepared, for submittal to the CDPHE, a VCP application and Materials Management Plan for four parcels to facilitate the remediation and redevelopment of the property.

Ms. Otterstetter managed a Voluntary Remediation Program (VRP) oilfield services site in Wyoming that involved excavation and land-farming of petroleum and methanol-impacted soils and dewatering of impacted groundwater for treatment. Ms. Otterstetter designed the landfarm and oversaw the installation of additional monitoring wells to monitor the remediation progress. The project required providing status updates to key stakeholders via electronic mail, website, and library, including the oil and gas client, and obtaining a Certificate of Completion from the WDEQ.

Midstream Oil And Gas Company Projects – Various Sites, CO*

Ms. Otterstetter provided remediation oversight management for various projects throughout Colorado for a major midstream oil and gas company. She managed on- and off-site personnel while providing oversight on excavation using a roustabout crew. She additionally provided technical reviews on remediation summary reports and determined remediation strategy, including in-situ chemical oxidation injections. These projects resulted in the successful closure of ten sites within ten months.

Upstream Oil And Gas Projects – Various Sites, CO*

Ms. Otterstetter was the project manager for the remediation and closure of eleven former water pit sites under Colorado Oil and Gas Conservation Commission (COGCC) regulations. The project involved excavation and soil shredding (ex-situ technology) selected to remediate impacts to subsurface soil. Ms. Otterstetter oversaw the submission of Form 19s, Form 27s and Closure Reports throughout the duration of the project.

Remediation Of Retail Petroleum Hydrocarbon Release Sites – NE and WY

Ms. Otterstetter provided site management for quarterly monitoring programs and remediation strategies at petroleum hydrocarbon release sites in Cheyenne and Rock Springs, Wyoming for the Department of Environmental Quality (WDEQ Storage Tank Program) and in Nebraska (NDEQ “Pay for Performance” program). Project activities included proposal preparation, site investigation, field management, designing remedial systems (including iSOCs, free product vacuum extractions, chemical and biological injections, SVE/AS, BIOX, bioslurping, and bioventing), remediation systems Operation and Maintenance (O&M), and permit and report preparation and submittal.

Non-Oil And Gas Spcc And Stormwater Plans – Various Sites, CO, OR and WA

Ms. Otterstetter conducted SPCC and stormwater inspections to prepare stormwater management and SPCC plans for various facilities throughout Oregon and Washington. SPCC plans and SWMPs will be prepared summarizing any deficiencies, corrective actions, training requirements, inspection requirements, and best management practices that should be implemented. The facilities included semi-trailer truck facilities and concrete and brick manufacturing plants and mines.

Oil And Gas Spill Prevention, Control, and Countermeasure (Spcc) Plan Development – Various Sites; CO, ND, MT, NM, UT, WY*

Ms. Otterstetter provided engineering support for Spill Prevention, Control, and Countermeasure (SPCC) plans for upstream and midstream oil and gas facilities in Colorado, North Dakota, Montana, New Mexico, Utah, and Wyoming. She was responsible for creating SPCC plans via a database for over 6,000 tank batteries that typically included spill reporting flowcharts. Additionally, she prepared SPCC plans for several CDOT facilities, gas plants, oil polishing facilities, mobile water treatment facilities and water gathering facilities, as well as provided annual SPCC training for various oil and gas clients.

Schofield Barracks & Tripler Army Medical Center Landfill Caps – OAHU, HI*

Ms. Otterstetter managed the O&M of two landfill caps in Oahu, HI. The project involved achieving Remediation-In-Place at a former UST site at Tripler Army Medical Center, preparing O&M Plans, preparing Sampling and Analysis Plans, negotiating with regulatory agencies, managing and maintaining project schedules, overseeing client relations, and performing cost accounting.

Pueblo Chemical Depot – Pueblo, CO*

Ms. Otterstetter served as the project manager for multiple solid waste management units (SWMUs) at the Pueblo Chemical Depot in Pueblo, Colorado. The scope of work included completing Resource Conservation and Recovery Act (RCRA) Facility Investigations, developing a comprehensive remedial action strategy for multiple source areas, preparing Corrective Measure Studies (CMS) and work plans, and designing and permitting treatment technology pilot studies for ongoing RCRA facility investigation and corrective measures.

AARON VARNELL, E.I.T.

STAFF ENVIRONMENTAL ENGINEER

PROFESSIONAL EXPERIENCE

Mr. Varnell currently serves as a Staff Environmental Engineer for the Fort Collins, Colorado office with over 3 years of engineering and environmental consulting experience. His primary responsibilities include Phase I and Limited Phase II environmental site assessments (ESAs), soil and groundwater sampling/monitoring reports, all types of environmental sampling, documentation of field activities, statistical analysis, and operation and maintenance (O&M) of remediation systems. Field activities include construction oversight for installation of remediation technologies, drilling oversight for subsurface sampling, groundwater sampling and development and documentation of field activities.

PROJECT EXPERIENCE

Texas Commission on Environmental Quality (TCEQ) Remediation Projects

Mr. Varnell has been associated with and managed elements of numerous remediation projects including refineries, oil and gas exploration and production facilities, industrial/manufacturing facilities, landfill and dump sites, underground storage tank sites, and dry cleaning facilities. Remediation projects have been performed under TCEQ Risk Reduction Rules (RRR) and Texas Risk Reduction Program (TRRP) as well as Railroad Commission of Texas (RRC) rules. Mr. Varnell has been primarily involved with performing engineering assessment for the treatment of soil and groundwater via institutional controls, including the preparation of the Response Action Plans (RAPs), Affected Property Assessment Reports (APARs), and Response Action Completion Reports (RACRs).

Leaking Petroleum Storage Tank (LPST) Remediation

Served as Staff Engineer for Terracon's pavement engineering services to assess the overall condition of Portland cement concrete pavement at existing Southwest Airlines Hangar. Ms. Tran was responsible for evaluating the Portland cement concrete pavement at the hangar utilizing procedures outlined in the FAA Advisory Circular (AC) 150/5320-6E.

Phase I Environmental Site Assessments

Mr. Varnell has conducted environmental site assessments for large tracts of undeveloped property, agricultural parcels, residential, industrial and commercial areas. Properties and adjacent properties have contained AST facilities, LUST facilities, oil & gas facilities, and manufacturing facilities.

Limited Site Investigations

Mr. Varnell has performed Limited Site Investigations (LSI) for former fueling stations, agricultural properties, and planned commercial development in order to identify and/or characterize potential on-site contamination. Duties included drilling oversight, field screening soil samples, collecting soil and groundwater samples, maintaining field notes, and report preparation. Mr. Varnell has also assessed structures for vapor intrusion concerns due to volatile organic compounds. This includes conducting indoor, sub-slab, and subsurface vapor sampling.

EDUCATION

Bachelor of Science, Civil and Environmental Engineering, 2013, Rice University

REGISTRATIONS

Engineer-in-Training (EIT), Texas, 50458

CERTIFICATIONS

40-Hour OSHA Hazardous Waste Operations (HAZWOPER) Training, 2014

HAZWOPER 8-hour Annual Refresher Courses, 2015 to Present

WORK HISTORY

Terracon Consultants, Inc., Fort Collins, Colorado, Staff Environmental Engineer, March 2018 – Present

ESE Partners, LLC, Houston, Texas, Staff Environmental Engineer, March 2014 – March 2017

CHELSEA PARTEN, E.I.T.

FIELD ENVIRONMENTAL ENGINEER

PROFESSIONAL EXPERIENCE

Ms. Parten has over four years of environmental consulting, oversight, and site supervision experience. As a Field Environmental Engineer for Terracon Ms. Parten provides oversight for: the installation of monitoring wells; the advancement of soil borings; the advancement and logging of geotechnical soil borings and collection of geotechnical data; conducts groundwater, soil, air, and sediment sampling; conducts asbestos-related (CABI) oversight for soil excavations and other intrusive subsurface activities; conducts ambient air quality monitoring for soil excavation and other subsurface activities at sites impacted by petroleum and hazardous waste products; conducts operations, monitoring and maintenance activities at site's with vapor mitigation systems; conducts building inspections to identify asbestos containing building materials; conducts data reduction; and prepares associated deliverables.

PROJECT EXPERIENCE

Suncor Refinery – Commerce City, CO

Ms. Parten conducted environmental health and safety oversight during the installation of caissons at the Suncor Refinery in Commerce City, Colorado. Ms. Parten's daily duties included ambient air quality and breathing space monitoring of petroleum related vapors using a six-gas meter and explosimeter during subsurface work, documenting the results, and preparing daily documentation for submittal to Terracon's Project Manager and Suncor's on-site representative.

1710 Platte Street Discharge Monitoring for Saunders Construction – Denver, CO

Ms. Parten conducted sampling of dewatering effluents for Saunders Construction at the construction site located at 1710 Platte Street in Denver, Colorado. Ms. Parten's duties included collection of the weekly effluent water sample after the suspended solids and naturally occurring metals treatment system. Ms. Parten also performed onsite field test of the effluent water for total residual chlorine and pH to evaluate the effectiveness of the treatment system in compliance with the site-specific discharge permit.

Alexan Cherry Creek Dewatering Monitoring and Reporting – Denver, Colorado

Ms. Parten conducted sampling of dewatering effluents for the developer of a commercial property at Alexan Cherry Creek site located at 3300 East 1st Avenue in Denver, Colorado. Ms. Parten's duties included collection of the weekly effluent water sample for suspended solids and naturally occurring metals. Ms. Parten also performed onsite field test of the effluent water for pH to evaluate the compliance with the site-specific discharge permit. Estimated Project fees:

CVS Pharmacy Retail Petroleum Station – Parker, Colorado

Ms. Parten performed a Phase II and geotechnical site investigation of an operating retail gasoline site to determine the site suitability for new construction. Following this investigation, she provided project oversight of the removal of the stations' underground storage tanks, multiple fuel dispensers, the pump island canopy, station building and car wash to clear this property for new construction. Ms. Parten documented the removal of these features, provided onsite environmental testing of the soils and collected environmental samples for laboratory analysis.

EDUCATION

Bachelor of Science, Geological Engineering, Colorado School of Mines, Golden, Colorado, 2011

REGISTRATIONS

Engineer in Training

CERTIFICATIONS

40-Hour HAZWOPER

AHERA-Accredited Asbestos Building Inspector Training

State of Colorado Certified Asbestos Building Inspector (CABI)

AFFILIATIONS

Geological Society of America (GSA)

Women in Mining (WIM)

Association of Environmental and Engineering Geologists (AEG)

Society for Mining, Metallurgy, and Exploration (SME)

WORK HISTORY

Terracon Consultants, Inc.-Denver, CO, Field Environmental Engineer – 2015-Present

Golder Associates-Denver, CO, Geological Engineer – 2012-2014

Terracon Consultants, Inc.-Irvine, CA, Geotechnical Technician – 2011-2011

Colorado School of Mines-Dallas, TX, Information Technologist – 2010-2012

Investments from Earth-Dallas, TX – 2006-2010

OTHER PROJECT WORK CONDUCTED

MINING

Honeywell – Ottawa, Canada
Developed a Vulcan 3D model of an urban contamination plume. The model was developed to provide the client with a 3D model that could be easily understood and manipulated in real time. The model included plume extents, surface topography, subsurface geology, sampling wells, buildings and a fault.

MINING

Hopping Green & Sams – Florida, USA
Updated a unit cost based cost model for a phosphate dragline mine expansion. The cost model included different mining options developed to optimize wetland preservation and ore recovery.

MINING

EB – British Columbia, Canada
Assisted in building a geologic model for coal resource evaluation.

MINING

Mt. Klappan – British Columbia, Canada
Assisted in building the block model for a coal mining feasibility study and performing pit optimizations on the block model.

MINING

Midway Gold – Nevada, USA
Performed quality assurance of geosynthetic liner on the barren pond, pregnant pond, spillway and heap leach pad for a heap leach gold mining project.

COMMERCIAL

NASCAR Hall of Fame, Convention Center & Parking Deck – Charlotte, NC
Project Manager for geotechnical, shear wave velocity profiling, construction materials engineering and testing and Special Inspections services. The Hall of Fame includes exhibit space, a Great Hall, a Hall of Honor, interactive entertainment restaurants, retail outlets, and a state-of-the-art media center for the industry. The project also included the construction of an 80,000-square-foot Grand Ballroom Expansion to the Charlotte Convention Center and a 1,000-space parking deck.
Professional Services Completed: 2010
Construction Completed: 2010
Construction Cost: $107.5 million
Terracon Fee: $1.6 million

KEVIN M. TROYER

INDUSTRIAL HYGIENE AND ASBESTOS PROGRAM MANAGER

PROFESSIONAL EXPERIENCE

Mr. Troyer is a senior industrial hygienist in Terracon's Denver, Colorado office. Mr. Troyer is responsible for management of the asbestos and industrial hygiene group, including business development; overseeing operations; project assignments and mentoring of field staff; review and update of QA/QC programs; SOPs and safety; and preparation and review of proposals and reports.

Mr. Troyer has more than 29 years of professional experience in the environmental consulting industry with extensive experience in leading teams conducting asbestos and lead-based paint surveys, designing and monitoring of major remediation projects for commercial, industrial, municipal, State and Federal properties. Mr. Troyer also has designed corporate air-monitoring programs for both environmental remediation and commercial environments; conducted indoor air quality investigations; and served as Corporate Health and Safety Officer and Air Monitoring Program Manager for local consulting firms. He has a strong ability to translate functional requirements into technical specifications.

Mr. Troyer serves as primary client contact for Xcel Energy under the State of Colorado mandated electricity production facility pollution reduction upgrade program (Clean-Air / Clean-Jobs Act) and as Xcel's leading safety and industrial hygiene consultant. Mr. Troyer manages multiple field teams for asbestos/lead inspection, project design and air-monitoring/oversight, tracks project budgets, ensures timely completion and review of final deliverables, and also has extensive international experience working in US Embassies in 23 countries.

PROJECT EXPERIENCE

**Indicates projects completed prior to joining Terracon*

Industrial Hygiene Services, Xcel Energy Natural Gas Supply – Denver, CO
Mr. Troyer is the project manager for this ongoing industrial hygiene project at a major State highway intersection in Denver, Colorado. The project includes ongoing regulatory compliance monitoring during excavation of petroleum contaminated soils, and real-time employee exposure monitoring for BTEX constituents, oxygen, VOCs, LEL, CO, and H_2S during welding operations on the natural gas main in the bottom of the excavation. Terracon is staffing the project with experienced field industrial hygienists, and will provide Xcel with a detailed analytical report including 8-hour Time-Weighted Averages (TWA) of exposure measurements. Estimated fees: $35,000

Grand Junction Regional Center – Grand Junction, CO
Mr. Troyer is the project manager for this on-going hazardous materials evaluation project at the Grand Junction Regional Center in Grand Junction, Colorado. The project involves a visual assessment/field investigation to estimate projected abatement costs for decommissioning, demolition and sale of the property. Initial Project tasks included creation of a project schedule, evaluation of historical data, a visual assessment for hazardous materials, and a projection of anticipated abatement costs. Additional services now being considered include a detailed survey for a more accurate estimation of abatement costs. Estimated fees: $105,000

City Of Loveland Pre-Demolition Surveys – Loveland, CO
Mr. Troyer prepared the proposal and served as project manager providing asbestos and lead-paint consulting services to the City of Loveland, Colorado in anticipation of demolition of two

EDUCATION

Bachelor of Science, Biological Sciences, Colorado State University, 1988

CERTIFICATIONS

40-Hour HAZWOPER

8-Hour HAZWOPER Site Supervisor Certification

AHERA / State of Colorado Certified Asbestos Building Inspector/Management Planner

AHERA / State of Colorado Certified Asbestos Supervisor/Project Designer

State of Colorado Certified Air-Monitoring Specialist

EPA / State of Colorado Certified Lead-Based Paint Inspector

NIOSH 582e Certification

NPDES Storm Water Permit Compliance Training

State of Colorado Registered Underground Storage Tank Professional (#5393)

AFFILIATIONS

American Industrial Hygiene Association (AIHA), National and Rocky Mountain Section Member

Colorado Environmental Management Society (CEMS) Member

Colorado Environmental Professionals Association (CEPA) Member

structures. Services provided included a detailed survey for asbestos and lead-paint, development of asbestos and lead paint abatement specifications, assistance with abatement contractor bid walk and evaluation of bids, provision of air-monitoring and oversight during abatement activities and demolition permit signature at the successful conclusion of abatement. Estimated Fees: $21,000

Albany County School District Industrial Hygiene Services – Laramie, WY
Mr. Troyer was the project manager for this industrial hygiene project at the high school in Laramie, Wyoming. The project involves an investigation / survey of the facility, including planning meetings, creation of a project schedule, evaluation of historical data, a comprehensive hazardous material inspection, development of abatement specifications and assistance with the bid walk and evaluation of abatement bids. Additional services included providing technical assistance and construction administration throughout the abatement and demolition phases of the project. Estimated fees: $411,000

Demolition Asbestos Air Monitoring, Arapahoe Xcel Decommissioning – Denver, CO
Mr. Troyer was the project manager for this industrial hygiene project at an Xcel plant in south Denver, Colorado. The project included ongoing regulatory compliance monitoring, including a field laboratory designed to analyze asbestos air samples. Terracon staffed the project with experienced and licensed Asbestos Air Monitoring Specialist (AMS) and Building Inspectors (CABIs). Project responsibilities include verifying abatement contractor work plan submittals, conducting pre-asbestos removal, daily and final abatement containment inspections, collection and on-site analysis of ambient and final clearance air-samples, and providing construction administration for the selected abatement contractor. Estimated fees: $687,000

Pre-Demolition Asbestos Inspection And Technical Specifications, Arapahoe Xcel Decommissioning – Denver, CO
Mr. Troyer served as the project manager for this pre-demolition asbestos survey and abatement design project at an Xcel plant in Denver, Colorado. The project included management of 4 field inspection teams to thoroughly assess the number and types of ACMs present to be abated prior to demolition, generation of ACM location drawings and preparation of the technical specifications for abatement bidding. Estimated fees: $220,000

Asbestos Consulting Services, Gallup Refinery – Jamestown, NM
Mr. Troyer was the project manager for this 2015 project, which consisted of performing an asbestos survey and developing an Operations and Maintenance (O&M) plan at the refinery. The purpose of the survey was to identify and locate asbestos-containing materials (ACM) in specific areas of the refining plant and associated outbuildings. Estimated fees: $104,000

Public Service Company Of Colorado / Xcel Energy – Various, CO*
Mr. Troyer has provided asbestos and lead project management, inspection, design and air monitoring services during numerous industrial maintenance/upgrade and emergency response projects at Xcel Energy's Arapahoe, Cherokee, Zuni (in Denver), Cameo (Grand Junction), Comanche (Pueblo), Hayden Station (Steamboat Springs), Pawnee (Brush) and Valmont (Boulder) Steam Electric Generating Stations, and Cabin Creek and Shoshone Hydroelectric plants, and on various subterranean equipment expansion projects in the downtown area. Mr. Troyer serves as primary technical advisor and principal contact to the Xcel Safety and Industrial Hygiene Coordinator; has acted as Project Manager during abatement activities; provides oversight to ensure compliance with Federal, State and Local regulatory requirements; and evaluates air sampling data for determination of response actions. Estimated fees: $1,250,000

Byron G. Rogers Federal Office Building Renovation – Denver, CO*
Mr. Troyer served as the hazardous materials technical advisor for the Design/Build Team for the federally (ARRA) funded, $200M complete renovation, energy efficiency, seismic and blast protection upgrade of the Byron G. Rogers Federal Office Building (FOB) located in Denver, Colorado. His responsibilities include management of inspection teams and coordination/review of abatement design specifications, and management of field personnel directly responsible for implementation of air-monitoring program for the Design/Build Team and provision of quality control oversight of the abatement contractor during asbestos abatement activities. Responsibilities included overseeing review of historical documentation including original construction drawings, inspection and air-monitoring information; managing the re-inspection of the facility for asbestos-containing materials; managing the lead-based paint inspection using a portable SXRF analyzer; review of the final inspection report, and finalization of the demolition and asbestos/lead-based paint abatement specifications and architectural quality drawings in accordance with renovation plans and Federal, State and Local regulatory requirements. The Scope of Work included removal and proper disposal of impacted asbestos-containing building materials and lead-based paints, and proper clean-up of contaminated areas. Estimated fees: $2,350,000

New Customs House Federal Building Renovation Project – Denver, CO*
Mr. Troyer served as part of the Matsuo-Centerre design/build team for the asbestos/lead inspection and design in anticipation of renovation of the New Customs House federal office building located in Denver, Colorado. Responsibilities included management of inspection teams, coordination/review of drafting of abatement design specifications, review and finalization of the final asbestos abatement design deliverable document, and management of asbestos abatement air-monitoring field staff. Estimated fees: $450,000

Regional Transportation District (Rtd) Fastracks West Corridor Construction – Denver, CO*
Served as liaison to the RTD FasTracks Construction Management Team and Field Task Manager for asbestos and lead paint inspection, project design, abatement contract management and abatement oversight activities. The RTD FasTracks Light Rail Expansion is a multi-billion dollar Public-Private Partnership (PPP) project for expansion of Denver's mass-transit system over a twelve-year period, and includes construction of six new light-rail lines, two extensions to existing light-rail lines, and one bus rapid transit line. Mr. Troyer was tasked with estimating costs of field work, submission of proposed abatement costs for approval, subcontracting of abatement contractors, managing project budgets including review/approval of change orders, assignment and management of inspection and oversight field personnel, maintenance of schedules of completion and review of final deliverables. Estimated fees: $1,750,000

New St. Anthony's Hospital / Rtd Fastracks West Corridor Federal Center Station Construction Project – Denver, CO*
Mr. Troyer drafted the Soils Characterization and Management Plans (SCMPs) for remediation of asbestos-contaminated soils for multiple parcels at the new Concentra Health Medical Center/RTD FasTracks development site for the new St. Anthony's Hospital and RTD Light Rail Station located along the west perimeter of the Denver Federal Center in Denver, Colorado. Mr. Troyer integrated requirements from multiple Federal, State and local agencies during the development of the SCMPs and served as the Project Manager for visual inspection of soils for asbestos during remediation and construction activities. Estimated fees: $45,000

Asbestos Consulting Services, Cherokee Ranch And Castle Foundation – Castle Rock, CO*
Mr. Troyer met with foundation administration officials and devised a scope of work that would best serve the client in determining costs for remediation of hazardous materials prior to complete restoration of the homestead. This structure was one of the last surviving original pioneer homesteads remaining in the area south of metro Denver, and was found to possess some limited foundation damage (one corner of the homestead had sunk approximately 18 inches). Mr. Troyer prepared a consulting scope and assigned personnel to sample/test those area impacted by planned restoration activities. We successfully worked with the foundation to complete the inspection/design within budget and on time by limiting the work to restoration of the most critical and affordable items (foundation, interior plaster and window/doors). Contact: Donna Wilson; 6113 N. Daniels Park Road, Sedalia, CO. Estimated fees: $15,000

Asbestos Consulting Services, Church Ranch – Arvada, CO*
Mr. Troyer visited the Church Ranch site and prepared a cost projection for the preservation foundation in order to gather budget numbers for grant applications. The site included one residence, one bunk-house, four barns and multiple smaller out-buildings. Mr. Troyer then managed the project team in conducting the inspection/design for hazardous materials, resulting in a determination that hazardous materials removal was unnecessary. Estimated fees: $3,500

Asbestos Consulting Services, Hoopes Farm, Broomfield, CO*
Mr. Troyer lead a team of three inspectors to conduct a comprehensive asbestos and lead paint inspection of the property; although asbestos and lead-contaminated materials were discovered and included in an abatement design document, the final determination was for demolition instead of historic preservation. Estimated fees: $8,500

Hurricane Katrina Epa Start Subcontractor – New Orleans, Louisiana*
Assisted in conducting oversight of the clean-up of household hazardous wastes (HHW) and other wastes that could potentially impact the environment in Plaquemines Parish, Louisiana. This project also included Grand Isle and Vermillion Parishes, and involved initial site reconnaissance for the identification of potential hazardous materials; documenting locations using GPS technology and input of pertinent data into the project database through use of handheld personal data assistants (PDAs); investigation of identified containers and recommendation of PPE to be utilized by the HHW recovery contractor; oversight and documentation of the recovery of containers of both known and unknown hazardous wastes; emergency response to work areas where leaking containers of unknown contents were discovered in order to safely classify leaking material prior to recovery and for safety of the general public; classification of residual unknown materials for disposal; and final visual inspection of work areas for completion. Mr. Troyer was also tasked with assisting the National Guard in identification of potential safety hazards within local school district buildings, commercial stores and marinas; calibration and maintenance of field equipment (Multi-RAEs and FIDs) and general safety compliance of field crews.

KURT L. STREEB, CHMM

SENIOR PROJECT MANAGER

PROFESSIONAL EXPERIENCE

Kurt Streeb is a senior project manager responsible for asbestos, lead-based paint (LBP), mold and industrial hygiene projects in Terracon's Denver, Colorado office. He has more than 29 years of experience managing and supervising asbestos and lead projects.

He has written health and safety plans, conducted OSHA personal air monitoring, conducted Phase I Environmental Site Assessments (ESAs), conducted limited site investigations for soil and groundwater contamination, supervised underground storage tank (UST) removals, performed confined space monitoring, conducted indoor air quality and mold investigations.

Mr. Streeb has also performed asbestos surveys, developed operation and maintenance plans, written abatement specifications, and performed abatement air monitoring in numerous occupied and unoccupied commercial, educational, residential, governmental and industrial buildings. He also conducted LBP surveys, lead abatement monitoring and written abatement specifications for residential, commercial and public buildings.

PROJECT EXPERIENCE

Albany County School District Industrial Hygiene Services – Laramie, WY

Mr. Streeb was the lead inspector, project designer and project quality reviewer for an industrial hygiene project at a high school in Laramie, Wyoming from 2015-2018. The project involved an investigation / survey of the facility, including planning meetings, creation of a project schedule, evaluation of historical data, and a comprehensive hazardous material inspection. Additional services include providing technical assistance and construction administration throughout the abatement and demolition phase of the project. Terracon's team was responsible for creating a work plan or specification for abatement and demolition contractors and managing the abatement bid process for the client. Estimated fees: $455,900

Demolition Asbestos Survey And Air Monitoring, Arapahoe Xcel Decommissioning – Denver, CO

Provided project quality review and field services for this industrial hygiene project at an Xcel plant in Denver, Colorado from 2014-2017. The project included a demolition survey of the plant and regulatory compliance monitoring, specifically at a field laboratory designed to analyze asbestos air samples. Project responsibilities included verifying abatement contractor work plan submittals, conducting pre-asbestos removal and daily inspections, and providing construction administration for the selected abatement contractor. Estimated fees: $1.25 million.

Weir Spm – CO and WY

Conducted personnel monitoring for noise, organic vapors and dusts of employees, at Weir SPM facilities in Colorado and Wyoming in 2017.

Indoor Air Quality Services, Td Ameritrade – Denver Metro Area, CO

Mr. Streeb provides annual indoor air quality assessments of TD Ameritrade facilities in the Denver metro area.

Asbestos Consulting Services, The Church Of Jesus Christ Of Latter-Day Saints – Various Locations, CO

Performs asbestos surveys, develops asbestos abatement contract documents and performs abatement oversight at LDS facilities throughout Colorado.

EDUCATION

Bachelor of Arts, EPO Biology, University of Colorado Boulder, 1985

CERTIFICATIONS

Certified Hazardous Materials Manager, No. 11001

40-Hour OSHA Hazardous Training

EPA/AHERA: Asbestos Building Inspector, Management Planner, Project Designer

Colorado Asbestos Certification: Inspector, Management Planner, Project Designer, Air Monitoring Specialist; No. 9234

NIOSH 582, Sampling and Evaluating Airborne Dust Equivalent

EPA Lead Inspector/Risk Assessor

Colorado Lead: Inspector/Risk Assessor, No. 9239

Confined Space and Respiratory Standard

Factory Training for RMD's LPA-1 Lead Paint Inspection System

AFFILIATIONS

American Industrial Hygiene Association (AIHA), Rocky Mountain Section, Member

Alliance of Hazardous Materials Professionals (AHMP), Rocky Mountain Chapter, Board Member

Asbestos Consulting Services, Gallup Refinery – Jamestown, NM
Mr. Streeb was the project quality reviewer for this 2015 project, which consisted of performing an asbestos survey and developing an Operations and Maintenance (O&M) plan at the refinery. The purpose of the survey was to identify and locate asbestos-containing materials (ACM) in specific areas of the refining and associated outbuildings. Estimated fees: $104,000

Asbestos Consulting Services – Kangerlussuaq, Greenland
Mr. Streeb was the project quality reviewer for asbestos consulting services at a former US military installation in Kangerlussuaq, Greenland, in 2015. The project consisted of asbestos monitoring at two warehouse buildings on the installation in connection with decontamination activities undertaken by clients CH2M Hill and EDI. Terracon provided testing services during cleaning and decontamination operations to determine the effectiveness of those processes. Estimated fees: $15,000

W.W. Reynolds – Boulder, CO
Conducted a pre-renovation asbestos survey, developed asbestos abatement specifications and performed abatement oversight of a multi-story office building. Estimated fees: $68,500

Schlumberger – CO and WY
Conducted noise surveys, included personnel monitoring of employees, at Schlumberger facilities and a fracking site in Colorado and Wyoming in 2015.

City Of Longmont Assessments – Longmont, CO
Conducts Phase I ESAs, asbestos surveys, mold assessments, noise assessments, lead-paint sampling, asbestos surveys and 2-hour asbestos awareness training of various municipal facilities.

Adams County Housing Authority (Acha) – Adams County, CO
Conducted mold assessments, asbestos surveys and post-renovation lead-based paint clearance testing of ACHA owned single-family homes.

Denver Federal Center – Lakewood, CO
Conducted asbestos in soils surveys, oversight activities during cell tower construction/demolition, and well abandonment activities.

US Department Of Interior, Bureau of Reclamation – Western CO
Conducted asbestos surveys of Bureau of Reclamation dams and other buildings at six locations throughout western Colorado.

Rocky Mountain Arsenal – Denver, CO
Site Health and Safety Officer. Responsible for developing and implementing the Task-Specific Safety and Health Plan (THASP) and was present on-site throughout the projects to monitor Terracon personnel's compliance with the THASP, conducted daily tailgate safety meetings, performed personal monitoring and conducted safety inspections.

University Of Colorado Health Sciences Center (Uchsc) – Denver, CO
Conducted pre-demolition asbestos surveys of five buildings on the UCHSC campus and performed abatement oversight. Developed an asbestos abatement design for the School of Dentistry.

El Paso Natural Gas – Various Locations, CO
Conducted asbestos surveys of 14 compressor facilities and office buildings throughout Colorado. Conducted asbestos abatement air monitoring, lead paint, PCB and naturally-occurring radioactive material sampling at the Ft. Morgan facility.

Dyno Nobel, Inc. – Cheyenne, WY
Conducted an asbestos survey and developed an asbestos Operations and Maintenance Plan at a multi-building Dyno Nobel chemical plant in Cheyenne, Wyoming.

Metropolitan Homes – Denver, CO
Managed asbestos investigations, construction oversight and remediation of asbestos-contaminated soils for new home construction on the former Lowry Air Force Base.

Alexan Uptown – Denver, CO
Performed oversight of the 2014-2015 excavation of potentially asbestos-contaminated soil and remediation of asbestos-contaminated soil for a multi-family residential development.

JEFF A. DELISE

PROJECT MANAGER- ABESTOS AND LEAD SERVICES

CERTIFICATIONS

LDEQ Certified Asbestos Inspector

LDEQ Certified Asbestos Contractor/Supervisor

OSHA HAZWOPER 40 HOUR

AHERA Certified Asbestos Designer

NIOSH 582 Equivalency

EPA/LDEQ Lead Inspector

EPA/LDEQ Lead Risk Assessor

Transport Worker Identification Credential (TWIC)

HASC Basic Orientation Plus

WORK HISTORY

Terracon Consultants, Inc.
2015 – Present

Other Consultants (2005-2015)

PROFESSIONAL EXPERIENCE

Mr. Delise has 13 years' experience in the environmental consulting business dealing with building sciences, indoor air quality, asbestos, lead based paint and other hazardous materials. As a project manager for the Asbestos and Lead Services Department Mr. Delise is responsible for client communication, project oversight and planning, staff training, lab management, project scheduling, initial inspections, project specifications, contractor selection, abatement oversight, project clearances, project milestones, project quality assurance, proposal writing, report review, and invoicing.

As an AHERA Building Inspector/EPA Lead Inspector, Mr. Delise has conducted small to large scale surveys on projects including hotels, grocery stores, hospitals, power substations, department stores, and industrial plants. Responsibilities of initial inspections include preparation of field notes, photographic documentation, site drawings, and submission samples collected, and reporting.

As an AHERA Supervisor and Air Sampler, Mr. Delise has inspected, monitored, and cleared large scale abatement projects. These inspections include reviewing written procedures, containment inspections, evaluating worker exposure limits, visual clearances and air clearances. Responsibilities of project oversight include preparation of field notes, instrument readings, photographic documentation, site drawings, and submission samples collected. As a NIOSH 582 technician Mr. Delise is able to analyze PCM air samples, if required.

As a project designer, he has developed technical specifications for the safe removal and monitoring of asbestos, lead-based paint, and universal wastes.

Mr. Delise also has experience with mold and water damage assessment including visual assessment, as well as performing spore trap and tape lift sampling techniques. He has overseen mold remediation projects and provided visual and air quality clearances. He also is experienced in dealing with other hazardous materials including mercury, polychlorinated biphenyls (PCBs), Ozone Depleting Substances (ODS), microbial and biological contamination, and silica dust.

Mr. Delise has also been responsible for training staff in terminology, hazardous material identification, sampling technique, monitoring and clearance procedures, interpretation, and reporting. Mr. Delise also has experience calibrating and operating various diagnostic equipment and interpret raw analytical data

Mr. Delise has Industrial Hygiene experience sampling for noise, CO2, H2S, dust, fiberglass, temperature, and relative humidity. He also has experience working with Lock Out Tag Out (LOTO) procedures.

PROJECT EXPERIENCE

Linda Boggs/Mercy Hospital – New Orleans, LA
The project site is comprised of multiple buildings consisting of a 450,000-square foot, 10 story hospital constructed in the 1920's and a two-story 20,000-square foot mechanical building. Project included asbestos abatement oversight and selective bulk sampling. Project duration was 12 weeks.

GGP/Oakwood Shopping Center – New Orleans, LA
Asbestos initial surveys, technical specifications, and clearance sampling of various commercial suites within a shopping center. Asbestos management plans and abatement oversight in progress.

Northlake Shopping Center – New Orleans, LA
Asbestos initial surveys, technical specifications, and clearance sampling of various commercial suites within a shopping center. Asbestos management plans and abatement oversight in progress.

Dauphin Gate Apartments – Mobile, AL
Project includes limited asbestos sampling of 13 residential building that are undergoing selective renovation upgrades. Project duration estimated at 13 months.

New Orleans Redevelopment Authority (NORA) – New Orleans, LA
Asbestos and lead initial surveys, technical specifications, and clearance sampling of various commercial properties that are applying for neighborhood façade upgrade grant funding.

City of Alexandria CDPPD – Alexandria, LA
Asbestos and lead initial surveys of various residential properties that are applying for neighborhood stabilization funding.

Recovery School District – New Orleans, LA
Asbestos initial inspections and management plan services for multiple school facilities.

Lacombe Museum – Lacombe, LA
Lead paint air monitoring services and abatement oversight for a historical preservation building project. Abatement duration was 6 weeks.

Codofil Building – Lafayette, LA
Lead paint air monitoring services and abatement oversight for a historical preservation building project. Abatement duration was 8 weeks.

Alpha Hall – Lafayette, LA
Lead paint air monitoring services and abatement oversight for a university building upgrade project. Abatement duration was 12 weeks.

Julia Street Development/Stephen Garage – New Orleans, LA
Asbestos and lead paint survey on various buildings and structures for city improvements and revitalization.

Public Housing Authorities – New Orleans, LA
Asbestos survey, technical specifications, abatement oversight, and clearances of government housing facilities that experienced damage by recent flooding.

T-Buildings – Fort Polk, LA Fort
Asbestos and lead initial surveys, technical specifications, abatement oversight, and clearance sampling for the demolition of 9 structures on a military installation.

NOPSI Hotel – New Orleans LA
The project site is comprised of three adjacent buildings consisting of a 140,000-square foot, eight story building constructed in the 1920's, a two-story 20,000-square foot building and a 17,000-square foot three-story office building. This project included the inspection of hazardous materials (including asbestos, lead-based paint, mold and universal waste).

Regions Bank – Various Cities LA
Conducting asbestos inspections and management plans of various bank branches throughout Louisiana for Regions Bank. The management plans include O&M design specifications and implementations, re-inspections, and recommendations. Abatement oversight and clearances were also included in provided services.

Alder Hotel – New Orleans LA
The Alder Hotel project consisted of a 10-story building in New Orleans, LA. An initial inspection was conducted that identified asbestos (friable and Non-Friable), lead-based paint, and other Universal Wastes associated with the site. Specifications and abatement oversight was included in the project.

Conti Street Warehouse – New Orleans LA
The Conti Street Warehouse project consisted of a 2-story, 115,000 square foot building and a 1-story 25,000 square foot building in New Orleans, LA that identified asbestos (friable and Non-Friable), Mr. Delise was involved in the project management, hazardous materials survey, specifications, contractor selection, abatement oversite, and clearances.

Carver/Abramson School Modular Building Assessment – New Orleans LA
The Carver/Abramson Modular Building Assessment consisted of over 50 separate modular buildings that was used as two school campus sites after hurricane Katrina. Mr. Delise was responsible for the project management and hazardous materials survey of the units. He was also responsible for aiding the client with the regulation paperwork and submittals, he was also responsible for coordination of the inspections at various sites.

KYLE LEONARD

ENVIRONMENTAL/FIELD TECHNICIAN

PROFESSIONAL EXPERIENCE

Mr. Leonard is a certified State of Colorado Asbestos Inspector, Air Monitoring Specialist with over four years of experience. He has coordinated and performed asbestos surveys and lead based paint sampling on a wide variety of projects, including education facilities, commercial buildings, municipal structures, power plants, and demolition projects. Mr. Leonard is adept at inspecting soils and construction materials for suspect asbestos containing materials and is responsible for site reconnaissance, field coordination, regulatory compliance, and report preparation.

PROJECT EXPERIENCE

Xcel Arapahoe Generating Station – Denver, CO
Mr. Leonard was responsible for air monitoring and abatement oversight during the demolition of a power plant facility built in 1948. Responsibilities included performing field activities, air monitoring, subcontractor coordination and oversight, and report preparation.

Xcel Steam Heat– Denver, CO
Mr. Leonard was responsible for air monitoring and abatement oversight during the removal of asbestos pipe insulation on subsurface steam lines at various locations in Downtown Denver. Responsibilities included performing field activities, air monitoring, subcontractor coordination and oversight, and report preparation.

Sage West Health – Riverton, Lander, WY
Mr. Leonard performed asbestos surveys for SageWest Health Facility renovations at both the Riverton and Lander locations. Responsibilities included performing sample collection, data analysis, and report preparations.

Maple Multi-Family Land Tx Lp - Us Bank Highlands – Denver, CO
Mr. Leonard performed an asbestos survey at the US Bank Highlands location in preparation for building demolition. Responsibilities included performing sample collection, data analysis, and report preparations.

Schnitzer West – Denver Health – Denver, CO
Mr. Leonard performed an asbestos survey at the US Bank Highlands location in preparation for building renovation. Responsibilities included performing sample collection, data analysis, and report preparations.

Dow Chemical – Freeport, Pasadena, La Porte, Deer Park, TX
Mr. Leonard was responsible for performing asbestos inspections, air monitoring oversight of abatement, and PLM (Polarized Light Microscopy) analysis of suspect materials for DOW sites located in the southeastern Texas Region

EDUCATION

Bachelors of Science, Environmental Geoscience
Texas A&M University

CERTIFICATIONS

State of Colorado Asbestos Building Inspector

State of Colorado Air Monitoring Specialist

State of Colorado Asbestos Supervisor

WORK HISTORY

Terracon Consultants, Inc.
Project Manager, 2015-present

AARON MAIER, M.S.

SENIOR SCIENTIST/ NATURAL RESOURCES PROGRAM MANAGER

PROFESSIONAL EXPERIENCE

Mr. Maier is a Certified Ecologist with the Ecological Society of America and has over 20 years of experience working as a biologist in the Rocky Mountain region. He has significant experience with CERCLA and RCRA ecological risk assessments; petroleum refinery and oil & gas permitting and remediation; soil, sediment, surface water, and/or ground water sampling; chemical data evaluation; USACE 404 permitting; wetland delineation and mitigation; wildlife surveys; threatened and endangered species surveys; vegetation surveys; mine permitting; and National Environmental Policy Act (NEPA) planning. Though most of his experience has been gained in Colorado and Wyoming, Mr. Maier has also managed projects in California, Idaho, Texas, Montana, North Dakota, South Dakota, New Mexico, New Jersey, Florida, Illinois, and Ohio.

Mr. Maier earned a B.S. degree in Forestry from the University of Montana and a M.S. degree in Rangeland Ecology and Watershed Management from the University of Wyoming. He also spent four years as a research assistant at Colorado State University studying erosion and rangeland hydrology.

Mr. Maier has significant experience with project management, personnel management, technical writing, proposal development, document peer review, data quality assessment, public outreach and coordination, and client development.

PROJECT EXPERIENCE

** Indicates projects completed prior to joining Terracon*

Aquatic Resources Inventory and Biological Assessment – Confidential Site, Wyoming
Mr. Maier is serving as the project manager for an assessment of aquatic and biological resources for a land exchange transaction being carried out by a confidential client. The nearly 100-acre area of land is currently being administered by the U.S. Forest Service (USFS). The private client plans will transfer private holdings to the U.S. in exchange for tracts held by the U.S., including this site. Mr. Maier is conducting an Aquatic Resources Inventory and Floodplain Assessment, as well as a Biological Assessment to satisfy requirements of the USFS for the transaction. Estimated fees: $14,000

Vista Highlands – Broomfield, Colorado
Mr. Maier was the project manager for providing a biological resources report for an approximately 15.7-acre undeveloped site in Broomfield, Colorado. The report fulfills City and County of Broomfield requirements for addressing wildlife and wetlands for the subject project, and includes information pertaining to federal threatened and endangered species, habitats present on the property, existing conditions and potential impacts related to specific area species, and information on the presence/absence of wetlands and/or other waters. Estimated fees: $6,600

Avian Protection Plan – Denver, Colorado*
Mr. Maier was the project manager for a multi-phase avian protection plan for a mid-sized oil and gas production company with assets in Montana, Wyoming, Colorado, North/South Dakota, Texas, and the midwest. Plans included preparation of oil spill first response scenarios, spill cleanup guidelines, mitigation strategies, and regulatory guidance for T&E species, raptors, migratory songbirds, and waterfowl. The project included annually updating the plan, which was a company-wide document intended to be used by drillers and oilfield staff if in the event that birds might be harmed by oil and gas exploration and development activities. Estimated fees: $15,000

EDUCATION

Master of Science, Rangeland Ecology and Watershed Management, University of Wyoming, Laramie, WY, 1999

Bachelor of Science, Forestry, University of Montana, Missoula, MT, 1997

CERTIFICATIONS

Certified Ecologist, Ecological Society of America

Certified Mediator, Wyoming Department of Agriculture

Certified Wetland Delineator, Wetland Training Institute

OSHA 40-Hour HAZWOPER Training (2014)

MSHA 24-Hour Training (2014)

CPR/First Aid Trained

Past Secretary/Treasurer, WY Society for Range Management

Eagle Scout

AFFILIATIONS

Society of Environmental Toxicology and Chemistry

Ecological Society of America

WORK HISTORY

Terracon Consultants, Inc., Senior Scientist/ Natural Resources Program Manager – April 2017-Present

Formation Environmental, Senior Ecologist – 2015-2016

Trihydro Corporation, Senior Ecologist – 2004-2015

North Wind, Inc., Wyoming Office Manager, Biologist – 2002-2004

Research Assistant, Colorado State University, 1999-2002

Sandstone Mining Environmental Assessment (Ea) – Boise, Idaho*

Mr. Maier served as the project manager for an EA prepared in conjunction with the BLM's Boise Field Office. The purpose of the EA was to evaluate the effects of a proposed sandstone rock quarry to be located on BLM-administered lands. The EA was written in accordance with the National Environmental Policy Act (NEPA), BLM NEPA Handbook H-1790-1, as well as local and state guidelines. Potential effects due to the Proposed Action included: soil erosion, invasive species, threatened and endangered species, cultural resources, and socioeconomic impacts. The EA involved coordinating with the BLM, academic specialists, and the general public to ensure that the Proposed Action could proceed in accordance with NEPA. Estimated fees: $30,000.

Kirby Creek Watershed Assessment – Thermopolis, Wyoming*

Mr. Maier served as the natural resources project manager for a large (30,000 acre) assessment of environmental conditions within the Kirby Creek Watershed located in north-central Wyoming. The project was awarded through the Wyoming Water Development Commission and was completed in 2003. The technical aspects of the project included evaluating soil and vegetation conditions throughout the watershed to determine the cause (and potential mitigation options) for stream channel degradation and upland erosion. Field work was conducted over two seasons and involved evaluations of climate data, rangeland health, and stream morphology. Estimated fees: $50,000

Former Petroleum Refinery Risk Assessment – Natrona County, Wyoming*

Mr. Maier was the project manager for a multi-year, interdisciplinary toxicological risk assessment conducted at a former refinery site near Casper, Wyoming. The project was coordinated with the Wyoming Department of Environmental Quality Voluntary Remediation Program (WDEQ VRP), United States Fish and Wildlife Service (USFWS), and United States Environmental Protection Agency (USEPA). An ecological risk assessment was performed for the former refinery using soil, surface water, sediment, and groundwater data. All data were collected and validated accorded to project Data Quality Objectives (DQOs). Summary statistics were calculated using ProUCL to estimate an upper-bound estimate of the mean for selected contaminants (i.e., UCL95). Constituents of potential ecological concern (COPECs) included heavy metals, polycyclic aromatic hydrocarbons (PAHs), semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs). Estimated fees: $1,000,000.

Active Petroleum Refinery Risk Assessment – Cheyenne, Wyoming*

Mr. Maier was the project manager for a multi-year, interdisciplinary toxicological risk assessment conducted at an active refinery site in Cheyenne, Wyoming. An ecological risk assessment was performed to evaluate the potential impacts of contaminant migration to off-site locations, including agricultural fields and a nearby waterway. The project was coordinated with the Wyoming Department of Environmental Quality Voluntary Remediation Program (WDEQ VRP), United States Fish and Wildlife Service (USFWS), and United States Environmental Protection Agency (USEPA). Wildlife surveys and aquatic data were collected to evaluate potential contaminant migration pathways. Additionally, wetland delineation and 404 permits were obtained though the United States Army Corps of Engineers (USACE) to mitigate the impacts of a subsurface impermeable barrier wall constructed in a wetland which was located between the refinery and a creek. Estimated fees: $150,000.

Research Associate – Fort Collins, Colorado*

Mr. Maier served as the project lead and research assistant for a four-year interdisciplinary rangeland hydrology study completed in conjunction with the United States Department of Agriculture Agricultural Research Service (USDA-ARS). Field work included the hiring and management of seasonal field technicians at two locations near Nunn and Walden, Colorado. The project included management of day-to-day data collection efforts, including supply purchasing, budget tracking, and field work.

Natural Resources Office Manager – Cody, Wyoming*

Mr. Maier managed the daily operations of a mid-sized environmental consulting firm located in northern Wyoming. Representative projects included observation and monitoring activities (O&M) for a former petroleum refinery, a watershed assessment for the State of Wyoming, a forestry management environmental assessment (EA) for the Bureau of Land Management (BLM), in Billings, MT, and a wildlife and fuels mitigation EA for the BLM in Worland, Wyoming.

Natural Resources Team Leader – Golden, Colorado and Laramie, Wyoming*

Mr. Maier led the Ecological and Risk Assessment Services Team at a mid-sized environmental engineering company based in Laramie, Wyoming, and was responsible for directing natural resources and ecological risk assessment work across the company. Mr. Maier was the "first" biologist hired on and developed a group within the company that consisted of over 10 professionals in the field of ecological risk assessment, wildlife biology, wetland ecology, soil science, plant ecology, and National Environmental Policy Act (NEPA) planning.

Active Surface Coal Mining Project – Kemmerer, Wyoming*

Mr. Maier was the project manager for a multi-year wildlife and vegetation assessment to determine reclamation bond performance for a surface coal mine in western Wyoming. Efforts were coordinated through the WDEQ Land Quality Division (LQD). Quantitative vegetation survey data were collected and the following performance metrics were estimated: live vegetative cover, ground cover, litter cover, bare ground cover, shrub density, and invasive weed cover. Two years of data were collected and summarized in a bond release report. The results of this study enabled the mining company to demonstrate to the WDEQ that successful reclamation was achieved. Estimated fees: $25,000.

Surface Coal Mining – Laredo, Texas*

Mr. Maier served as the natural resources project manager for a former surface coal mining project in Webb County, Texas. The mine, which closed in the 1990s, required annual vegetation surveys to determine reclamation success. Additionally, waters of the U.S. (WOTUS) evaluations were performed to determine potential impacts to streams and ponds that may be regulated by Section 404 of the Clean Water Act. Reclamation goals and seed mixes were prepared to enhance biodiversity and wildlife in order to meet the long term goals of the former mining property. Work was coordinated though the Natural Resources Conservation Service (NRCS) and permits were obtained through the Railroad Commission of Texas (RCT). Estimated fees: $250,000.

Oil And Gas Permitting Project– Denver, Colorado*

Mr. Maier served as the natural resources project manager for a large well-siting project being conducted for a large (Fortune-500) upstream oil and gas production company based in Denver, Colorado. Development sites were located in the DJ Basin of north-central Colorado and southeast Wyoming. Tasks included an evaluation of cultural resources, potential jurisdictional wetlands, threatened and endangered species (T&E), raptors, Bald and Golden Eagles, and migratory birds. Evidence of these features was documented in report format and mitigation was recommended, when necessary, to avoid disturbance. Estimated fees: $85,000.

Invasive Plant Survey – Cape Canaveral, Florida*

Mr. Maier was the project manager for a large invasive plant survey conducted at Cape Canaveral Air Force Base in Florida. Work was executed through a contract with the Air Force Center for Environmental Excellence (AFCEE). Surveys were completed by qualified biologists using hand held Global Positioning Units (GPS). Non-native and/or invasive plants were surveyed and mapped for the entire air force base. A final report was prepared showing the location and potential mitigation options for the species encountered. Estimated fees: $65,000.

Ecological Risk Assessment – Sunburst, Montana*

Mr. Maier served as the natural resources task manager for a multi-year, million-dollar risk assessment for a former petroleum refinery near Sunburst Montana. Activities included preparation of an 8-phase CERCLA (Comprehensive Environmental Response, Compensation & Liability Act) risk assessment. The project was completed in conjunction with the Montana Department of Environmental Quality (MDEQ) as well as the USFWS, USACE, and other local stakeholders. Tasks included an initial site visit to map wildlife habitat and other ecological attributes, development of a conceptual site model (CSM) to evaluate potential exposure pathways, preparation of a sampling and analysis plan, preparation of DQOs, soil/sediment/surface water sampling, wetland delineation, and forward or intake-based risk assessment calculations. The results of the risk assessment were used to determine potential remedy alternatives and future use options for the site. Estimated fees: $200,000.

Metals Plating Facility Risk Assessment – Anaheim, California*

Mr. Maier served as the document manager for an ecological risk assessment conducted for a former metals plating facility in Anaheim California. All work was completed and submitted in conjunction with the California Department of Toxic Substances Control (DTSC). Residual heavy metals were found at the facility following closure, and an ecological risk assessment was completed to determine the effects of lead, cadmium, and chromium on potential ecological receptors. Estimated fees: $50,000.

Wildfire Fuels Mitigation Environmental Assessment – Thermopolis, Wyoming*

Mr. Maier served as project manager and leader author for a fuels mitigation environmental assessment (EA) for the Bureau of Land Management's Worland Field Office. The purpose of the EA was to evaluate the effects of fuels mitigation on BLM lands surrounding the town of Thermopolis, Wyoming. Specifically, the BLM desired to lower wildfire risk surrounding residential development by removing pine and juniper trees. The purpose of the EA was to evaluate the effects of timber harvesting on wildlife, hydrology, and other natural and cultural resources. Estimated fees: $35,000.

Wetland Delineation and Permitting – Laramie, Wyoming*

Mr. Maier served as project manager for a wetland delineation and mitigation project located adjacent to the Laramie River in Laramie, Wyoming. The purpose of the delineation was to map potential jurisdictional wetlands along Interstate 80 at the site of a proposed construction projects. Lands to be developed were privately owned, however due to wetlands located on the property, Section 404 permits with the U.S. Army Corps of Engineers were required. Estimated fees: $10,000

ELIZABETH B. NEWCOMB, M.A., R.P.A.

STAFF ARCHAEOLOGIST

PROFESSIONAL EXPERIENCE

Elizabeth Newcomb is a Staff Archaeologist at Terracon's Denver office. She has more than six years of professional experience. Ms. Newcomb has spent the last four years of her career providing cultural resource management services following regulations outlined by the National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA). Ms. Newcomb is responsible for cultural assessments and is experienced in technical writing, research design, data management, archaeological and biological pedestrian surveys, archaeological excavation, and archaeological curation.

Ms. Newcomb is a Secretary of the Interior Qualified Archaeologist practiced in Section 106 compliance, including archaeological and historic preservation field surveys, National Register of Historic Places evaluations, artifact analysis and curation. Her foci in archaeology consist of ceramic analysis, design analysis, and cultural resource laws and practices.

PROJECT EXPERIENCE

**Indicates projects completed before joining Terracon*

NATIONAL ENVIRONMENTAL POLICY ACT / NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE

North Aurora Family Health Services Center
Principal Investigator for archaeology, responsible for conducting a Cultural Resources Survey for an Environmental Assessment, in anticipation for application of (i.e. HRSA Health Infrastructure Improvement Program – HIIP grant), requiring compliance with National Environmental Policy Act (NEPA) regulations.

The Memorial Hospital At Craig Categorical Exclusion
Principal Investigator for archaeology, responsible for conducting a Cultural Resources Survey for an Environmental Report (ER), in anticipation of a Categorical Exclusion (CE) application for the U.S. Department of Agriculture (USDA) Rural Development (RD) program, for the expansion of the hospital.

Journey Home Canon City Hud Environmental Assessment
Project Manager and Principal Investigator for an Environmental Assessment for the application for the US Department of Housing and Urban Development LIHTC and an archaeological pedestrian survey of project area. Responsibilities included documenting findings through appropriate forms, GIS, and field notes; report writing.

Poudre Canyon Firehouse Categorical Exclusion
Staff archaeologist responsible for conducting a Cultural Resources Survey for an Environmental Report (ER), in anticipation of a Categorical Exclusion (CE) application for the U.S. Department of Agriculture (USDA) Rural Development (RD) program, for the proposed firehouse.

La Quinta Hotel Categorical Exclusion
Staff archaeologist responsible for conducting a Cultural Resources Survey for an Environmental Report (ER), in anticipation of a Categorical Exclusion (CE) application for the U.S. Department of Agriculture (USDA) Rural Development (RD) program, for the proposed La Quinta Hotel.

EDUCATION

Master of Arts, Applied Archaeology, Northern Arizona University, 2015

Bachelor of Arts, Anthropology, University of Colorado at Boulder, 2008

PERMITS

State of Colorado Archaeological Permit 2017-96

REGISTRATIONS

Register of Professional Archaeologists

AFFILIATIONS

Society for American Archaeology

Register of Professional Archaeologists

Colorado Council of Professional Archaeologists

American Cultural Resources Association

PUBLICATIONS

2015 Searching for Communities of Practice with Sherds: Stylistic Variation in the Cibola Region, Master's Thesis, Northern Arizona University.

2013 Preliminary Analysis of Ceramics from LA16616, (with Olivia Brewer), Metropolitan State University of Denver, Denver.

PRESENTATIONS

"Little Sherds Big Community: A Comparative Study of Ceramic Design" presented at the Society for American Archaeology international convention, April 2015.

St Vincent General Hospital Categorical Exclusion
Staff archaeologist responsible for conducting an Environmental Report (ER), in anticipation of a Categorical Exclusion (CE) application for the U.S. Department of Agriculture (USDA) Rural Development (RD) program, for the St. Vincent General Hospital.

Various Telecommunication Projects – Various Locations, CO
NEPA and Section 106 of the National Historic Preservation Act (NHPA) compliance. Process including Tribal consultation, in-house research, and on-site assessment.

DUE DILIGENCE

Aurora Commerce Center Class Iii Cultural Survey
Project Manager and Principal Investigator for an archaeological and historical pedestrian survey of project area. Responsibilities included documenting findings through appropriate forms, GIS, and field notes; report writing.

ARCHAEOLOGICAL SURVEYS

Village Corporative of Lakewood And Longmont Class LII Cultural Surveys
Project Manager and Principal Investigator for an archaeological and historical pedestrian survey of project area. Responsibilities included documenting findings through appropriate forms, GIS, and field notes; report writing.

Lake Powell Pipeline, Washington County, UT*
Archaeological and historical pedestrian survey and site revisits for proposed pipelines, transmission lines, and hydroelectric facility sites for about 130 miles through Utah and Arizona west to St. George. Findings were documented through appropriate forms, GIS, and field notes.

Rangely 3d Seismic Study – Rangely, CO*
Archaeological and historical pedestrian survey for project area. Findings were documented through appropriate forms, GIS, and field notes.

Buenos Aires National Wildlife Refuge – Sasabe, AZ*
Archaeological and historical pedestrian survey and site recordation for cultural resource inventory. Biological survey and recordation for threatened and endangered species inventory. Findings were documented through appropriate forms, GIS, and field notes.

Ruby Pipeline Archaeological Excavation – Kemmerer, WY*
Archaeological excavation of previously known sites for proposed pipeline. Findings were documented through appropriate forms, GIS, and field notes. Materials were collected and documented.

ARCHAEOLOGICAL EXCAVATIONS

Wide Hollow Reservoir Archaeological Excavation – Escalante, UT*
Archaeological excavation of features and structures, and catalog artifacts. Findings were documented through appropriate forms, GIS, and field notes. Materials were collected and documented.

Crow Canyon Archaeological Center – Hovenweep National Monument, Goodman Point Pueblo, Cortez, CO*
Archaeological excavation of features and structures, managing lay participants, and cataloging artifacts. Findings were documented through appropriate forms, GIS, and field notes. Materials were collected and documented.

ARCHAEOLOGICAL CURATIONS

Ruby Pipeline Archaeological Curation – Kemmerer, WY*
Curated collected materials to current museum standards. Curation included labeling, packaging artifact in archival quality materials, and general documentation.

Piceance Basin Expansion – Rio Blanco And Moffat Counties, Co And Sweetwater County, WY*
Curated collected materials to current museum standards. Curation included labeling, packaging artifact in archival quality materials, and general documentation.

TYLER T. WORLEY

STAFF SCIENTIST/ NATURAL RESOURCES LEAD

PROFESSIONAL EXPERIENCE

Mr. Worley is a Staff Scientist in Terracon's Denver, Colorado office. As part of the Natural and Cultural Resource Team, he is responsible for contributing to Natural Resource Surveys including USACE 404 permitting; wetland delineation and mitigation; wildlife surveys; threatened and endangered species surveys; vegetation surveys; mine permitting; and National Environmental Policy Act (NEPA) planning. He has experience with CERCLA and RCRA ecological risk assessments; soil, surface water, and groundwater sampling; construction and demolition oversight; remediation system operations and maintenance and hydrocarbon recovery; chemical data evaluation; Phase I Site assessments; USACE wetland delineation/mitigation; wildlife surveys; threatened and endangered (T&E) species surveys; vegetation surveys; and noxious/invasive weed management. Though most of his experience has been gained in Colorado and Wyoming, Mr. Worley has also managed projects in California, Texas, Montana, North Dakota, New Mexico, and New Jersey.

PROJECT EXPERIENCE

** Indicates projects completed prior to joining Terracon*

Natural and Cultural Resources Evaluation – Alamosa, CO
Mr. Worley is the project manager for providing a natural and cultural resources report for a client developing a solar energy site on an undeveloped 14-acre site in Alamosa, Colorado. The site was addressed for jurisdictional wetlands, cultural resources, and federal threatened and endangered species. Terracon is providing a report that fulfills Section 106 requirements driven by the National Historic Preservation Act as well as satisfying the Federal Endangered Species Act.

Natural and Cultural Resources Evaluation – Leadville, CO
Mr. Worley is the project manager for providing a natural and cultural resources report for a client developing a retail site on an undeveloped site in Leadville, Colorado. Terracon is providing a report that fulfills Section 106 requirements driven by the National Historic Preservation Act as well as satisfying the Federal Endangered Species Act.

Critical Environmental Issues Assessment – Commerce City, CO
Mr. Worley served as the project manager for a critical environmental issues analysis for a client developing a solar energy site. The 900-acre area of land in Commerce City, Colorado was addressed for jurisdictional wetlands, cultural resources, and federal threatened and endangered species. Mr. Worley performed a desktop review that surveyed potential wetlands and habitats for T&E species, along with flood plain data and a list of current geology and soils.

Raptor and Nest Survey – Culbertson, MT*
Mr. Worley provided consultation and field services for a client performing seismic surveys in northern Montana. The project consisted of 22 square miles on an Indian Reservation requiring an avian protection plan and close work with Tribal Employment Rights Office (TERO). Plans included preparation of regulatory guidance for T&E species, raptors, migratory songbirds, and waterfowl. The project included Global Positioning Units (GPS) data points on existing raptor nests and identifying raptors within the project area.

EDUCATION

Bachelor of Science, Rangeland Ecology and Watershed Management, University of Wyoming, Laramie, WY, 2011

CERTIFICATIONS

Certified Wetland Delineator, Wetland Training Institute

OSHA 40-Hour HAZWOPER Training (2011)

MSHA 24-Hour Training (2018)

CPR/First Aid Trained

AFFILIATIONS

Ecological Society of America

WORK HISTORY

Terracon Consultants, Inc., Staff Scientist/ Natural Resources Lead– February 2018-Present

Trihydro Corporation, Staff Scientist – 2011-2018

Wyoming Weed & Pest, Entomologist 2006-2010

Environmental Assessment (EA) – Puerto Rico*
Mr. Worley served as the staff scientist for an EA prepared for a client with a chemical transfer facility in Puerto Rico. The purpose of the EA was to evaluate the current conditions of a transfer facility and the toxicological risk assessment and potential impacts of contaminant migration to off-site locations including agricultural fields.

Raptor Survey – Rock Springs, WY*
Mr. Worley served as the natural staff biologist for a raptor survey in southwest Wyoming. Field work included working with the Bureau of Land Management (BLM) Rawlins, Wyoming field office, and assessing previous known raptor nests and documenting new ones. Plans included surveying for the Pygmy Rabbit and other T&E species.

Noxious and Invasive Weed Management Plan – Red Desert, WY*
Mr. Worley was the project manager for a noxious and invasive weed management plan for an Oklahoma-based oil and gas company with a reclaimed pipeline and associated oil pads in Wyoming's Red Desert area. The project was coordinated with the BLM Rawlins field office and included assessing an overgrowth of halogeton on reclaimed surfaces. A field visit was conducted to determine vegetation and a soil quality assessment. Data was sent to Colorado State University and validated. A summary of lab work was presented to the client and a management plan created to lower sodium absorption ratios (SAR) and stimulate growth for an approved BLM seed mix

Wetland Delineation and Permitting– Nowood River Watershed, WY*
Mr. Worley was staff scientist for a delineation of the Nowood Watershed near Ten Sleep, Wyoming. The purpose of the delineation was to map jurisdictional wetlands along the watershed for construction of a reservoir. Lands to be developed were privately owned but due to wetlands within the watershed, Section 404 permits with the U.S. Army Corps of Engineers were required.

Wetland Delineation and Permitting – Lander, WY*
Mr. Worley served as the staff scientist responsible for delineating a tract of undeveloped land for a car dealership in Lander, Wyoming. The purpose of the delineation was to map jurisdictional wetlands within the project boundary. Due to a significant nexus, Section 404 permits with the U.S. Army Corps of Engineers were required.

Surface Coal Mining – Laredo, TX*
Mr. Worley served as the natural resources project manager for a former surface coal mining project in Webb County, Texas. The mine, which closed in the 1990s, required annual vegetation surveys to determine reclamation success. Additionally, waters of the U.S. (WOTUS) evaluations were performed to determine potential impacts to streams and ponds that may be regulated by Section 404 of the Clean Water Act. Work was coordinated though the Natural Resources Conservation Service (NRCS) and permits were obtained through the Railroad Commission of Texas (RCT).

Invasive Plant Survey – Cheyenne, WY*
Mr. Worley was staff biologist for numerous invasive plant surveys conducted at oil and gas pads throughout Cheyenne, Wyoming. Surveys were completed using hand-held GPS units. Non-native and/or invasive plant cover was observed and documented using the Daubenmire method.

APPENDIX D

ENTITLEMENT & ENGINEERING SOLUTIONS, INC. FLOODPLAIN ANALYSIS (JULY 2019)

No-Rise Certification (NRC) Report

City of Greeley, CO
Fish Pond Remediation Project

Prepared For:
City of Greeley, CO & Terracon Consultants, Inc.
Contract No. 21197001

July, 2019

Prepared by:

Entitlement and Engineering Solutions, Inc.
501 South Cherry Street, Suite 300
Glendale, CO 80246
Attn: Steve KandeLind, P.E.

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1. Project Description

This No-Rise Certification (NRC) report has been prepared for the City of Greeley, Colorado (City), on behalf of Terracon Consultants, Inc. in support of the City's Fish Pond project. The project is located just off the northern bank of the South Platte River, straddling the Greeley/Unincorporated Weld County (County) border, southeast of the US34 and US85 interchange, and approximately 0.5 miles directly east of the 31st Street and 1st Avenue intersection (see Figure 1).

The project involves placing a 2 foot clay cap over Asbestos Containing Materials on the site with a stabilizing cover of grass vegetation, for protection of public health and environment. As the proposed grading is located in the FEMA regulatory floodplain and partially within the floodway of the South Platte River, an encroachment analysis and NRC are required to satisfy City and County requirements for development/fill.

1.1. Purpose

The purpose of this report is to document the no-rise condition in the South Platte River at the above location due to the project and will accompany the floodplain development permit applications submitted to the City and County.

1.2. Study Area Description

The Fish Pond project falls within Flood Insurance Rate Map (FIRM) Panel 08123C1543E with an effective date of January 20th, 2016. The Special Flood Hazard Area (SFHA) along this reach of the South Platte River consists of Zone AE (100-year) and Zone X (500-year), with a designated floodway. Situated between SH54 (East 37th Street) to the south and US34 to the north, the project lies between effective cross sections Q and R, and proposes to place fill within the floodplain and floodway. The triangular shaped fish pond to the west of the proposed fill area will not receive any modifications as part of this project.

Figure 1 – Site Location Map

2. Previous Hydraulic Studies

This stretch of the South Platte River was initially studied for Weld County's 1977 Flood Insurance Study (FIS), with revisions in 1990 and 1999. Effective data presented for comparison and reference in this report was taken from the 2016 FIS. A request for the effective model was sent to the FEMA Engineering Library, with confirmation received from the library that no effective HEC-RAS data was available.

Additionally, this stretch of the South Platte River was studied by the State's Colorado Water Conservation Board (CWCB) as part of the Colorado Hazard Mapping Program (CHAMP). This analysis is still in the preliminary phase of becoming effective. However, in light of the lack of available effective data, the City and County have agreed to use this CHAMP data as best available information for the purpose of this no-rise certification. The City has requested that an additional comparison of water surface elevations be made to the FIS cross section elevations to satisfy municipal requirements.

The CHAMP data for reach SP-2 has been further modified via Letter of Map Revision (LOMR) for reconstruction of the US34 bridge. This data set overlaps the Greeley Fish Pond project grading limits and is the basis of comparison. The US34 LOMR model contains modifications to cross sections surrounding the bridge. Cross section modifications for the US34 LOMR model end more than 1500 feet downstream of the Greeley Fish Pond project grading.

3. Flood Discharges and Modeled Recurrence Intervals

Flood discharges used by the CHAMP and the US34 LOMR models are 13% higher than the discharges listed adjacent to the project site in the effective FIS for the 1% Annual Chance storm event due to recent revised Hydrology. For the CHAMP models, the cross sections listed in Table 1 below are just downstream of 37th Street.

Table 1: Summary of Flood Discharges (cfs) for South Platte River

Model	Reach	Cross Section	1% Annual Chance Event (cfs)
Effective	South Platte River	at 37th Street [1] and at US 85	32500
CHAMP	SP_2	1427410	36624
	US34_SP	1427410	36624

[1] FIS incorrectly lists this location as 37th Avenue rather than 37th Street.

4. Methods and Approach

The US Army Corps of Engineers' (USACE) Hydrologic Engineering Center River Analysis System (HEC-RAS) Version 3.0.7 was used to analyze the channel hydraulics. As stated, the effective model was not available from the FEMA Engineering Library, so data from CHAMP and the US34 LOMR were used. Both CHAMP and US34 LOMR models contain a cross section which intersects the proposed Fish Pond project grading.

Per City administrator request, an indirect comparison was made between effective, CHAMP, and proposed water surface elevations (WSEL). Effective model cross section locations were plotted based on GIS data available from the FEMA map service center. The effective water surface elevation at the site was then estimated by graphically interpolating based on the locations of cross sections Q and R relative to the site.

To ensure that sufficient cross sections were available upstream of the project and to allow indirect comparison of cross section water surface elevations between the effective and CHAMP models, cross sections from the CHAMP model were spliced upstream of the US34 LOMR model. The upstream and downstream extents were then truncated. These truncated cross sections were then plotted to ensure coordinate system consistency.

Surveyed existing and proposed grading were plotted to cross section 1424468. The HEC-RAS model was run to analyze the effects of the proposed grading for this the no-rise analysis.

4.1. Project Limits

The project is grading is located between the effective cross sections Q and R. Relative to the CHAMP data, the project grading sits between cross sections 1423696 and 1425238, and modifies the cross section geometry of section 1424468.

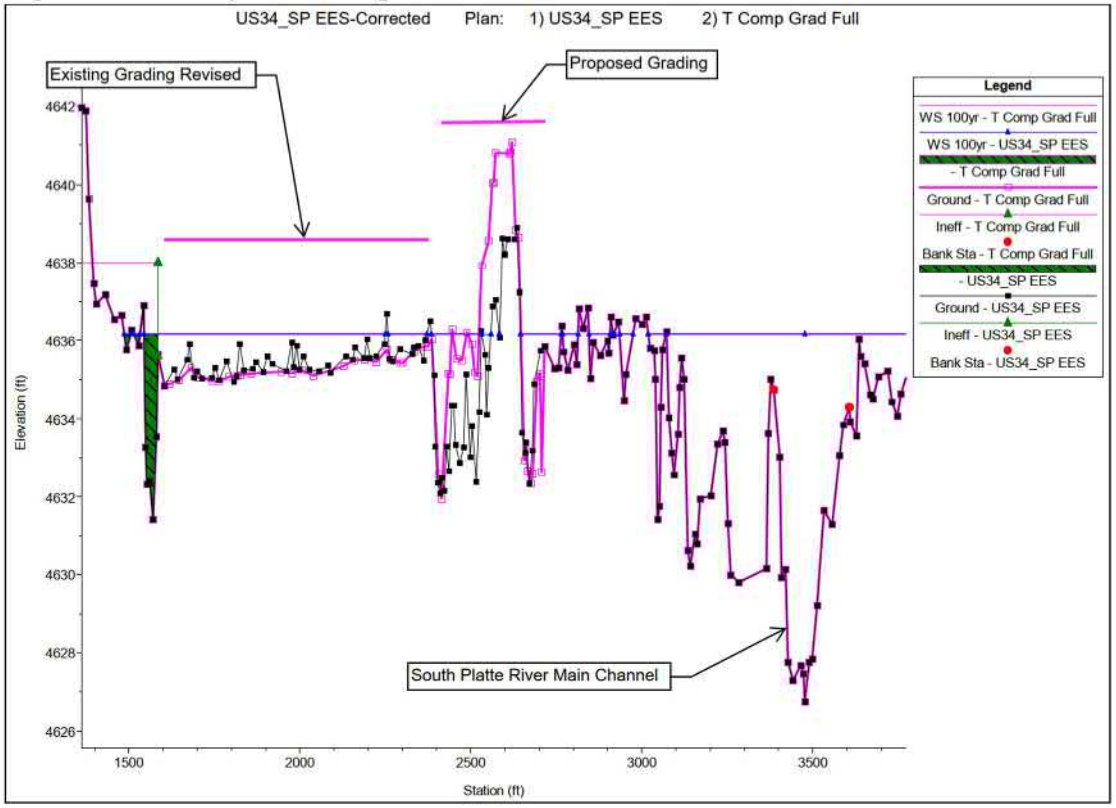
4.2. Vertical Datum

Flood and ground elevation data contained in the effective data and in the CHAMP models are referenced to the NAVD88.

4.3. Survey and Topographic Data

Survey information for the CHAMP models was originally provided via LiDAR obtained by the State in 2014. Modifications for the SH34 LOMR model were based on survey and design specific to that project. For the Greeley Fish Pond project, existing site survey was provided by King Surveyors, dated May 14, 2019. It is notable that the existing survey elevations match well with the 2014 LiDAR data used for the previous models. This can be seen in Figure 2 below. As stated above, existing survey was plotted along with the proposed grading to cross section 1424468 for this no-rise analysis.

Figure 2 – Survey data compared to LiDAR elevations at cross section 1424468



4.4. Cross-Sections

Cross sections are displayed on two work maps in the Attachments section for the effective data and for the combined CHAMP US34 LOMR models.

4.5. Manning's n-Values

Manning's values were not modified for this no-rise analysis. To accommodate new cross section data points for proposed model cross section 1424468, the point of change of Manning's value from 0.04 to 0.1 needed to move. The closest station point was selected.

4.6. Structure Parameters

No structures are modeled for this no-rise analysis.

5. Hydraulic Models

5.1. Existing Conditions (Spliced) Pre-Project Model

As stated above, since the effective model data was not available from the FEMA Engineering Library this project relies on the CHAMP and SH34 LOMR models for pre-project conditions. The models were obtained from the CWCB contractor (AECOM) who developed the models, with floodplain information obtained from the County.

When truncating the upstream and downstream ends of the existing conditions model, it became necessary to change the boundary conditions to match the new most upstream and downstream sections. Event flows were mapped to the most upstream section 1427934, and a starting water surface elevation was set for section 1422633 equivalent to the SH34 LOMR model results for that section.

It is notable that when cross sections from the CHAMP model upstream of the project limits were spliced onto the SH34 LOMR model, an exact match to the CHAMP elevations was obtained at all cross sections except at the first cross section upstream of the splice. Cross section 1426322 sits approximately 1500 feet upstream of the Greeley Fish Pond project grading limits and is the second cross section upstream of cross section 1424468. In the existing conditions spliced model, this cross section shows an increase in water surface elevation of 0.03 feet compared to the unmodified CHAMP model. Because this is the splice point of the CHAMP and SH34 LOMR models, and because the change in water surface elevation at the next section downstream is less than 0.5 feet, it is assumed that this slight anomaly is a remnant of the SH34 LOMR model truncation.

A table comparing the existing conditions model water surface elevations to the CHAMP and US43 LOMR model water surface elevations is available in the Attachments section.

5.2. Proposed Conditions Post-Project Model

Modeling of proposed conditions consisted of substituting site survey and proposed grading onto cross section 1424468. One Manning's change location was altered to match the closest altered station point. The model was run, and water surface elevations compared to the existing conditions model.

A table comparing the proposed model water surface elevations to the existing conditions water surface elevations is available in the Attachments section.

5.3. Hydraulic Modeling Summary

The existing conditions model was spliced and truncated from the best available data from CHAMP and the SH34 LOMR models. Compared to those models, the existing conditions model resulted in water surface elevations matching at all except the first cross section above the splice. As discussed above, this slight anomaly is attributed to the truncation of the US34 LOMR model.

Existing site survey and proposed grading were incorporated into the proposed conditions model to represent best available information and the post project site conditions. From the existing site survey, the quality of the 2014 LiDAR used in the CHAMP models can be seen in Figure 2 above.

An additional comparison was made of the floodway encroachment data. This final analysis showed that no change in the encroachment limits was necessary to maintain the calculated floodway water surface elevations.

The proposed conditions model and the floodway model indicate that the proposed grading does not create an increase in water surface elevation and does not alter the CHAMP or SH34 LOMR model floodway encroachments. The proposed grading satisfies the City and County requirements for no-rise.

6. References

1. U.S. Department of Homeland Security, Federal Emergency Management Agency, Flood Insurance Rate Map, Weld County, Colorado And Incorporated Areas, January 20, 2016.

2. U.S. Department of Homeland Security, Federal Emergency Management Agency, Flood Insurance Study, Weld County, Colorado And Incorporated Areas, January 20, 2016.

Attachments

No-Rise Certification Information

Floodplain Development Permit Applications

FEMA Information
- Effective FEMA FIS Data
- Effective FEMA FIRM Maps

Proposed Project Design
- Existing Site Survey
- Proposed Site Grading Plan

HEC-RAS Output
- CHAMP Model HEC-RAS Reports & Sections Excerpts
- SH34 LOMR Model HEC-RAS Reports & Sections Excerpts
- Existing Conditions HEC-RAS Reports & Sections
- Proposed Conditions HEC-RAS Reports & Sections

Proposed Project Hydraulic Data
- BFE Comparison Tables
- Floodplain Workmaps

Digital Data (Provided on Data DVD)
- CHAMP Model
- SH34 LOMR Model
- Existing Conditions Model
- Proposed Conditions Model

"NO-RISE CERTIFICATION"

For development in the floodway

This is to certify that I am a duly qualified, registered, professional engineer licensed to practice in the State of Colorado.

It is further to certify that the attached technical data supports the fact that the proposed **Greeley Fishing Pond Waste – Waste Dump Regrade** project activities in the floodway will not impact the 100-year flood elevations, floodway elevations, or floodway widths at published or unpublished cross-sections in the vicinity of the proposed development activity and will not impact the 100-year flood elevations, floodway elevations, or floodway widths on the **South Platte River** at published sections in the **Flood Insurance Study for Unincorporated Weld County dated January 20, 2016**.

The "No-rise" Certificate is supported with hydrologic and hydraulic modeling used to determine the floodway elevations, floodway widths, 100-year flood elevations, and/or 100-year floodplain widths. The documentation in the attached report supports my findings.

Signature:

Steven J. KandeLind, P.E.
Entitlement and Engineering Solutions, Inc.
501 S. Cherry Street, Suite 300
Glendale, CO 80246
Phone: 303-437-9404
E-Mail: Steve.KandeLind@ees.us.com

Date: 7/18/2019

CITY OF GREELEY
FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

Property Owner: City of Greeley Date: 7/3/2019

Owner Address: 1001 9th Ave. Greely, CO 80631

Phone - Home: 970-350-9881 Business: City of Greely Engineering Department

Legal Description of Property:

Lot: Block: Subdivision: Schneider Industrial Park

Property Address: Section 21, Township 05, Range 65

Assessor Parcel No. 096121201023 Longitude: 104.67018W Latitude: 40.38582N

Contractor: Terracon Consultants, Inc. Phone: 303-776-3921

Contractor Address: 1831 Lefthand Circle. STE C. Longmont, CO 80501

Date of Construction: August - October 2019

PROJECT DESCRIPTION **(check all that apply)**

☐	Single-Family Residential	☐	New Construction
☐	Multifamily Residential	☐	Substantial Improvement
☐	Manufactured Home	☒	Fill Material
☐	Nonresidential	☐	Excavation
☐	Accessory Structure	☐	Watercourse Alteration
☐	Addition	☐	Flood Damage Repair
☐	Remodel	☐	Other

Brief Description of Proposed Development in the Floodplain:

Terracon is adding fill in floodplain to cap existing waste disposal sites.

The proposed Structure is to be

☐ Elevated
☐ Floodproofed
☐ N/A

Does this project involve Federal Funds? ☐ (Check the box if yes)

Floodplain Information

Floodplain Name: South Platte River

Ashcroft Draw | Eaton Draw | Sheep Draw
Cache la Poudre River | John Law Ditch | South Platte River
Coal Bank Creek | Sand Creek

The FEMA base flood elevation is N/A feet above geodetic datum at the structure location and elevations are based on the: NAVD 1988 vertical datum

The lowest floor of the structure is proposed to be built at an elevation of N/A feet above the NGVD 1929 vertical datum

Is the property or site located in Floodway? [X] Yes [ ] No

A floodplain development permit map shall be submitted as part of the application requirements. The map shall be drawn to scale and shall be a minimum of 8½" x 11" (or another suitable size when approved by the Floodplain Administrator) and shall, at a minimum, contain the following:

- ✓ The name and address of the property owner.
- ✓ A scale and north arrow.
- ✓ Existing topographic elevation information around the building site above mean sea level, with datum referenced to NAVD 1988.
- ✓ Note indicating the benchmark and datum used to determine the project elevations.
- ✓ Water surface elevation of the 100 year flood (BFE) at the building site.
- ✓ The boundary of the floodplain area and any regulatory cross-sections on the property.
- ✓ The location, dimensions and lowest floor elevations of the existing and proposed structures.
- ✓ The higest and lowest proposed ground elevations adjacent to any proposed structures.

Approval of the FDP is a determination by the Floodplain Administrator that the proposed development has been reviewed and is in compliance with floodplain management regulations. It is not a comprehensive design review and does not constitute approval or warranty of the design. It does not imply or create, and the City expressly disclaims, any liability on the part of the City or any official or employee thereof for any flood damages that result from reliance on the FDP.

No construction or development will commence until the FDP is approved. The FDP will expire one-hundred and eighty (180) days after the approval date unless development has commenced.

By signing below, I agree that:

The proposed development will be done in accordance with floodplain management regulations (*see Chapter 18.34, Article II, Greeley Municipal Code*) and all other applicable federal, state or local regulations.

I have obtained all other permits applicable to the proposed development. The floodplain development permit (FDP) will be considered void if all applicable permits have not been obtained.

Date: _____

Signature of Property Owner or Legally Authorized Representative

City Use Only

Date: _____

Received By

Approved [ ] Yes [ ] No

Federal Action Required? (CLOMR, LOMR, LOMA, 404) [ ] Yes [ ] No

None
Special Conditions

Permit Number

Date: _____

City of Greeley Floodplain Administrator Signature

City Use Only

FLOOD HAZARD DEVELOPMENT PERMIT (FHDP) APPLICATION

DEPARTMENT OF PLANNING SERVICES * 1555 N. 17TH AVENUE *
www.weldgov.com GREELEY, CO 80631 * 970-400-6100 * FAX 970-304-6498

FOR PLANNING DEPARTMENT USE:	DATE RECEIVED:
AMOUNT $	CASE # ASSIGNED:
APPLICATION RECEIVED BY	PLANNER ASSIGNED:

Parcel Number 0961-2120-1023
(12 digit number - found on Tax I.D. information, obtainable at the Weld County Assessor's Office www.weldgov.com).

Address None Specified. South of 30th St. and East of 1st Ave. in Schneider Industrial Park.

Legal Description Please See Attached, Page 20, Section 21, Township 05 N, Range 65 W

Waterway Name South Platte River Flood Insurance Rate Map (FIRM) Panel # *08123C-*1543*E*

Floodzone A ○ AE ◉ AH ○ AO ○ Parcel size 18.930 acres Zoning Exempt Prop.

Project located in designated floodway? Yes ◉ No ○ If yes, a "No Rise" certificate is required.

FEE OWNER(S) OF THE PROPERTY:

Name: City of Greely C/O Real Estate Management
Company: City of Greely Real Estate Management
Phone #: 970-350-9881 Email:
Street Address : 1000 10th Street
City/State/Zip Code: Greely, CO 80631-3808

APPLICANT OR AUTHORIZED AGENT: *(See Below*: Authorization must accompany all applications signed by Authorized Agent)*

Name: Michael J. Skridulis
Company: Terracon Consultants, INC.
Phone #: 303-776-3921 Email: mike.skridulis@terracon.com
Street Address : 1831 Lefthand Circle. STE C.
City/State/Zip Code: Longmont, CO 80501

Type of Proposed Development: (Please check all that apply)

Residential Home	**Non-Residential**	**Manufactured of Mobile**
☐ New Construction	☐ New Construction	☐ On Single Lot
☐ Addition or Improvements	☐ Addition or Improvements	☐ In Mobile Home Park
☐ In Subdivision	☑ Fill Material	☐ Fill Material
☐ Fill Material Subdivision	☐ Watercourse Alteration	☐ In Mobile Home

☐ Other (pipeline, tank battery, etc.)

Description of Proposed Development**: Terracon is adding fill in floodplain to cap existing waste disposal sites.

**Attach a detailed narrative of the project to this application.

Signature: Owner or Authorized Agent | Date | Signature: Owner or Authorized Agent | Date

Print: Owner or Authorized Agent | Print: Owner or Authorized Agent | Rev 3/2018

*If an Authorized Agent signs, a letter of authorization from all fee owners must be included with the application. If a corporation is the fee owner, notarized evidence must be included showing the signatory has to legal authority to sign for the corporation.

CERTIFICATION

I hereby affirm that this Floodplain Development Permit was prepared under my responsible charge for the owners thereof and to my knowledge is accurate and adherent to the applicable standards and rules provided by Weld County, Colorado.

Signature: _____

PE #: 47154

Name Print: Steve KandeLind, P.E.

Company Name: Entitlement and Engineering Solutions, Inc.

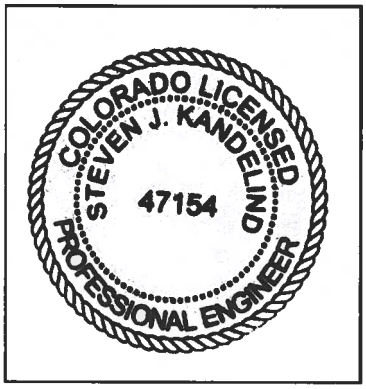
Address: 501 S. Cherry Street STE 300

City, State, Zip: Glendale, CO 80246

Phone: 303-437-9404 Fax: N/A

E-Mail: Steve.KandeLind@ees.us.com

Date: 7/10/2019



PE Stamp

Chapter 23 Article XI

Division 4 - Standards

I have read and understand the Standards in Division 4 of Chapter 23 Article 11 of the Weld County Code. Per my signature below I have received a copy of the Standards and the development in the floodplain that is described in my Floodplain Permit will remain in compliance with the aforementioned section of the Weld County Code.

Signature: _____ Date: _____

Name Print: _____

DEPARTMENT OF PLANNING AND BUILDING
DEPARTMENT OF PUBLIC HEALTH AND ENVIRONNMENT
1555 NORTH 17TH AVENUE
GREELEY, CO 80631

AUTHORIZATION FORM

I, (We), City of Greely (Owner – please print), give permission to Terracon Consultants, INC. (Authorized Agent – please print)

to apply for any Planning, Building or Septic permits on our behalf, for the property located at (address or parcel number) below:

Parcel 096121201023

Legal Description: See Page 20 of Section 21, Township 05 N, Range 65 W

Subdivision Name: Schneider Industrial Park Lot_____ Block_____

Property Owners Information:

Address: City of Greely Real Estate Management

Phone: 970-350-9741 E-mail: City Clerk: Betsy.Holder@greelygov.com

Authorized Agent Contact Information:

Address: 1831 Lefthand Circle. STE C. Longmont, CO, 80501

Phone: 303-776-3921 E-Mail: mike.skridulls@terracon.com

Correspondence to be sent to: Owner ☐ Authorized Agent ☐ Both ☑ / by Mail ☑ Email ☐

Additional Info:_____

_____

_____

Owner Signature:_____ Date:_____

Owner Signature:_____ Date:_____

FLOOD INSURANCE STUDY

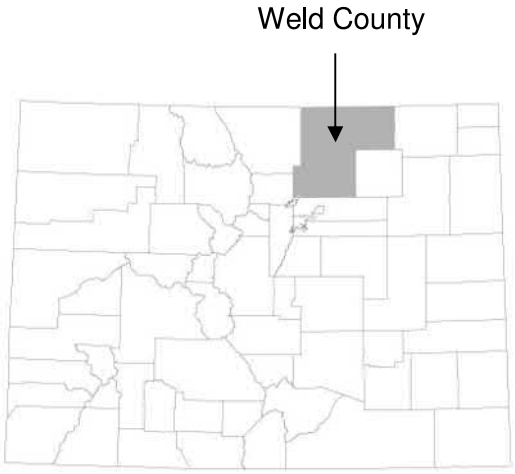
VOLUME 1 0F 3

WELD COUNTY, COLORADO

AND INCORPORATED AREAS

Community Name	*Community Number*
AULT, TOWN OF	080179
DACONO, CITY OF	080236
EATON, TOWN OF	080180
EVANS, CITY OF	080182
FIRESTONE, TOWN OF	080241
FORT LUPTON, CITY OF	080183
FREDERICK, TOWN OF	080244
GARDEN CITY, TOWN OF *	080246
GILCREST, TOWN OF	080213
GREELEY, CITY OF	080184
GROVER, TOWN OF *	080025
HUDSON, TOWN OF	080249
KEENESBURG, TOWN OF	080251
KERSEY, TOWN OF *	080185
LA SALLE, TOWN OF	080186
LOCHBUIE, TOWN OF *	080012
MEAD, TOWN OF	080218
MILLIKEN, TOWN OF	080187
NUNN, TOWN OF	080188
PIERCE, TOWN OF	080189
PLATTEVILLE, TOWN OF	080190
RAYMER, TOWN OF *	080069
SEVERANCE, TOWN OF	080317
WELD COUNTY (UNINCORPORATED AREAS)	080266
WINDSOR, TOWN OF	080264

* No Special Flood Hazard Areas Identified



Effective: January 20, 2016

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
08123CV001A

Table 2 – Summary of Discharges (Continued)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Percent Annual Chance	2-Percent Annual Chance	1-Percent Annual Chance	0.2-Percent Annual Chance
Sheep Draw					
At upstream side of Greeley No. 3 Ditch	--[1]	1,221	3,212	4,673	8,065
At upstream side of C Street	--[1]	1,200	3,156	4,596	7,940
Downstream of Hunter's Cove Detention Pond	--[1]	1,176	3,117	4,556	7,897
Downstream of Summer Park Detention Pond	--[1]	1,163	3,102	4,558	7,939
At upstream side of 4th Street	--[1]	1,134	3,055	4,502	7,862
Downstream of HP Detention Pond	--[1]	1,104	3,002	4,436	7,766
Sheep Draw (Continued)					
At upstream side of 10th Street	--[1]	1,085	2,977	4,425	7,787
Tributary Inflow (Downstream of 71st Avenue)	--[1]	993	2,789	4,216	7,529
Tributary Inflow (River Station 17237)	--[1]	814	2,432	3,756	6,830
Tributary Inflow (Upstream of 77th Avenue)	--[1]	808	2,407	3,743	6,845
Tributary Inflow (River Station 20280)	--[1]	740	2,227	3,506	6,476
Downstream of 83rd Avenue	--[1]	737	2,215	3,494	6,464
Tributary Inflow (River Station 23334)	--[1]	730	2,198	3,491	6,493
Downstream of Mountain Shadows Detention Pond	--[1]	695	2,067	3,304	6,176
Downstream of Pebble Brook Detention Pond	--[1]	661	1,986	3,185	5,969
Left Bank Tributary Inflow	--[1]	657	1,979	3,176	5,955
Downstream of 95th Avenue	--[1]	627	1,893	3,055	5,753
Upstream of 95th Avenue	--[1]	590	1,691	2,585	4,661
Upstream of U.S. Highway 34 Bypass	--[1]	570	1,633	2,498	4,506
At Confluence with Irrigation Reservoir No 2	--[1]	484	1,467	2,028	3,331
Outflow from Irrigation Reservoir No. 1	--[1]	390	1,174	1,597	2,579
Inflow to Irrigation Reservoir No. 1	--[1]	434	1,223	1,638	2,602
Upstream Limit of Study	--[1]	243	675	872	1,329
South Platte River					
Downstream of Box Elder Creek	--[1]	--[1]	--[1]	44,000	--[1]
At 37th Avenue	7,500	11,000	24,000	32,500	57,000
At U.S. Highway 85 (Near Evans)	7,500	11,000	24,500	32,500	57,500
At Fort Lupton	5,010	10,000	22,000	29,000	52,000

[1]Data Not Available

Locations of selected cross sections used in the hydraulic analyses are shown on the flood profiles (Exhibit 1) and on the Flood Insurance Rate Map (Exhibit 2).

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals (Exhibit 1).

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the finalization of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are being prepared using the NAVD88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD88. Elevation Reference Marks (ERMs) shown on the FIRM represent those used during the preparation of this and previous FIS reports. Users should be aware that these ERM elevations may have changed since the publication of this FIS report. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes. It is important to note that adjacent communities may be referenced to NGVD. This may result in differences in Base Flood Elevations (BFEs) across the corporate limits between communities.

For this revision, a vertical datum conversion was completed for each studied reach. The range of conversion factors was prohibitively high; therefore, a standard conversion factor was not applied for the entire community. The Profile Panel and FDT conversion from NGVD29 to NAVD88 was carried out in accordance to the procedure outlined in the FEMA document Map Modernization – Guidelines and Specifications for Flood Hazard Mapping Partners Appendix B: Guidance for Converting to the North American Vertical Datum of 1988.

Using the multiple conversion factor approach, an average conversion factor for each flooding source was developed by establishing separate conversion factors at the upstream end, at the downstream end and at an intermediate point of the studied reach. From this data, the average conversion factors for each reach were developed. In some cases, it was necessary to divide each reach into multiple sections in order for the maximum offset from the average conversion factor to be less than or equal to 0.25 feet.

For more information on NAVD88, see the FEMA publication entitled *Converting the National Flood Insurance Program to the North American Vertical Datum of 1988* (FEMA, June 1992), or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH PLATTE RIVER								
A	1,310,630	4,154	18,738	1.9	4,605.4	4,605.4	4,606.2	0.8
B	1,313,200	1,298	7,250	4.3	4,608.9	4,608.9	4,608.9	0.0
C	1,314,350	1,371	7,664	4.0	4,611.2	4,611.2	4,611.2	0.0
D	1,315,530	1,073	5,554	5.6	4,612.9	4,612.9	4,613.1	0.2
E	1,315,600	1,073	7,332	4.4	4,614.8	4,614.8	4,614.8	0.0
F	1,316,800	2,321	15,568	2.1	4,615.6	4,615.6	4,615.8	0.2
G	1,321,020	1,800	8,248	3.9	4,618.0	4,618.0	4,618.9	0.9
H	1,323,460	1,740	7,853	4.1	4,622.4	4,622.4	4,622.4	0.0
I	1,325,960	812	5,780	5.6	4,626.9	4,626.9	4,626.9	0.0
J	1,326,880	810	5,909	5.5	4,626.9	4,626.9	4,626.9	0.0
K	1,326,880	1,200	9,563	3.4	4,628.1	4,628.1	4,628.1	0.0
L	1,328,510	1,295	8,556	3.8	4,629.2	4,629.2	4,629.3	0.1
M	1,329,350	842	5,505	5.9	4,629.9	4,629.9	4,630.3	0.4
N	1,329,600	825	5,587	5.8	4,630.1	4,630.1	4,630.4	0.3
O	1,330,930	2,692	13,231	2.5	4,631.6	4,631.6	4,631.9	0.3
P	1,333,140	2,584	17,421	1.9	4,632.7	4,632.7	4,633.4	0.7
Q	1,334,770	1,585	5,457	6.0	4,634.6	4,634.6	4,635.5	0.9
R	1,337,280	2,227	10,489	3.1	4,639.0	4,639.0	4,639.8	0.8
S	1,339,430	535	4,110	7.9	4,641.3	4,641.3	4,642.3	1.0
T	1,339,530	629	4,511	7.2	4,641.7	4,641.7	4,642.3	0.6
U	1,340,730	1,194	4,518	7.2	4,644.4	4,644.4	4,645.1	0.7
V	1,344,710	1,538	10,944	3.0	4,649.2	4,649.2	4,649.5	0.3

[1]Feet above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

WELD COUNTY, CO
AND INCORPORATED AREAS

FLOODWAY DATA

SOUTH PLATTE RIVER

FLOOD INSURANCE STUDY

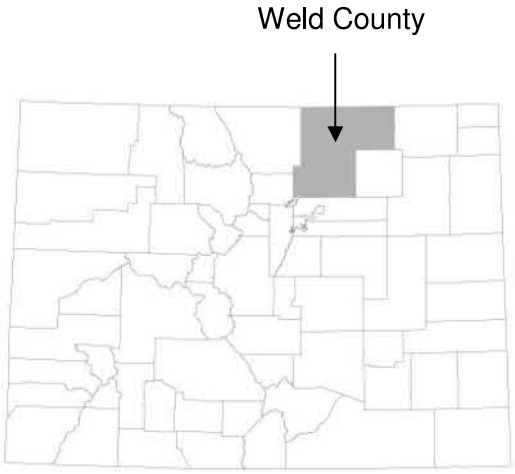
VOLUME 3 0F 3

WELD COUNTY, COLORADO

AND INCORPORATED AREAS

Community Name	*Community Number*
AULT, TOWN OF	080179
DACONO, CITY OF	080236
EATON, TOWN OF	080180
EVANS, CITY OF	080182
FIRESTONE, TOWN OF	080241
FORT LUPTON, CITY OF	080183
FREDERICK, TOWN OF	080244
GARDEN CITY, TOWN OF *	080246
GILCREST, TOWN OF	080213
GREELEY, CITY OF	080184
GROVER, TOWN OF *	080025
HUDSON, TOWN OF	080249
KEENESBURG, TOWN OF	080251
KERSEY, TOWN OF *	080185
LA SALLE, TOWN OF	080186
LOCHBUIE, TOWN OF *	080012
MEAD, TOWN OF	080218
MILLIKEN, TOWN OF	080187
NUNN, TOWN OF	080188
PIERCE, TOWN OF	080189
PLATTEVILLE, TOWN OF	080190
RAYMER, TOWN OF *	080069
SEVERANCE, TOWN OF	080317
WELD COUNTY (UNINCORPORATED AREAS)	080266
WINDSOR, TOWN OF	080264

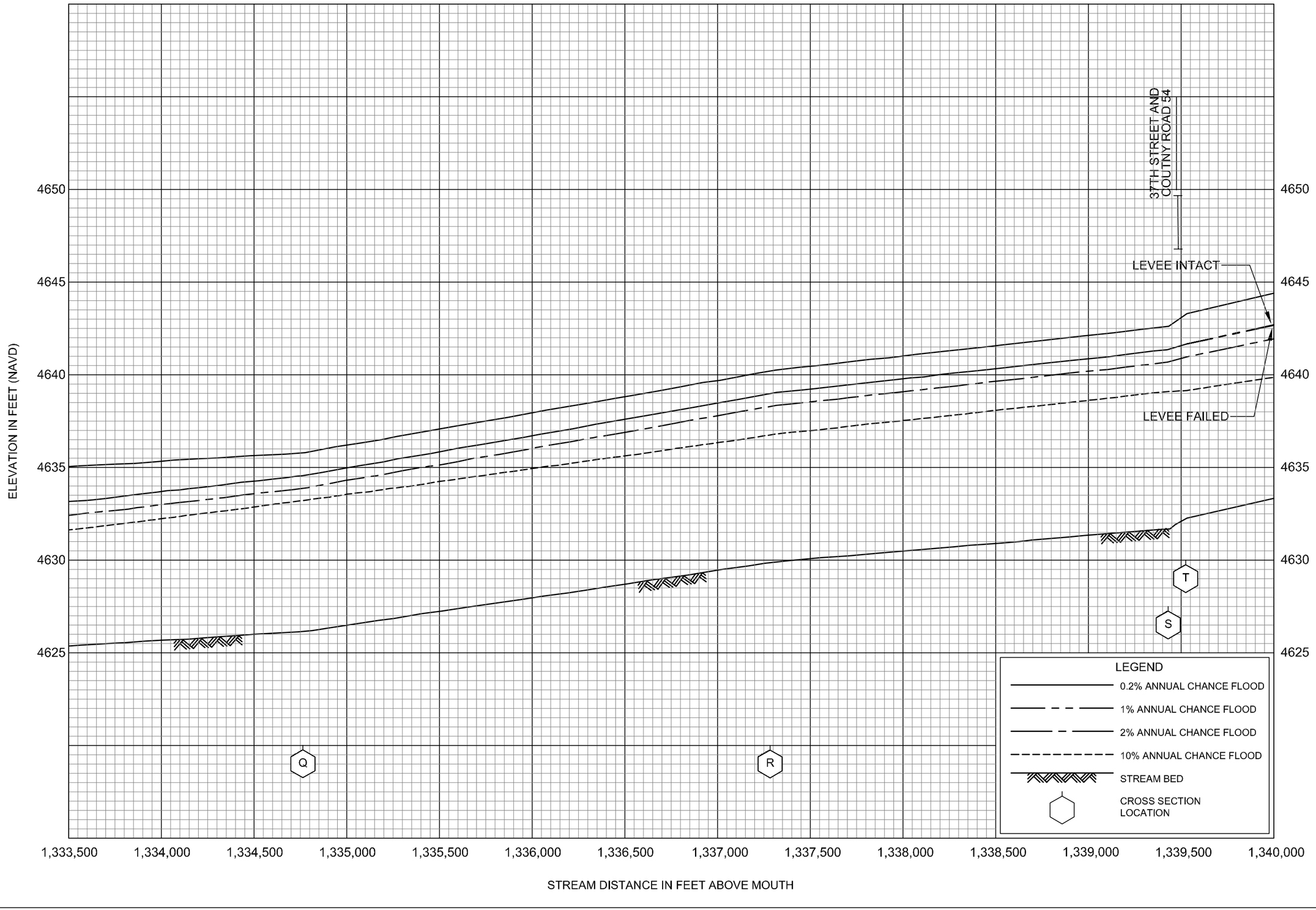
* No Special Flood Hazard Areas Identified



Effective: January 20, 2016

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
08123CV003A



FLOOD PROFILES

SOUTH PLATTE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WELD COUNTY, CO

AND INCORPORATED AREAS

105P

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from NAIP Orthophotography produced with a one meter ground resolution from photography dated 2013.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

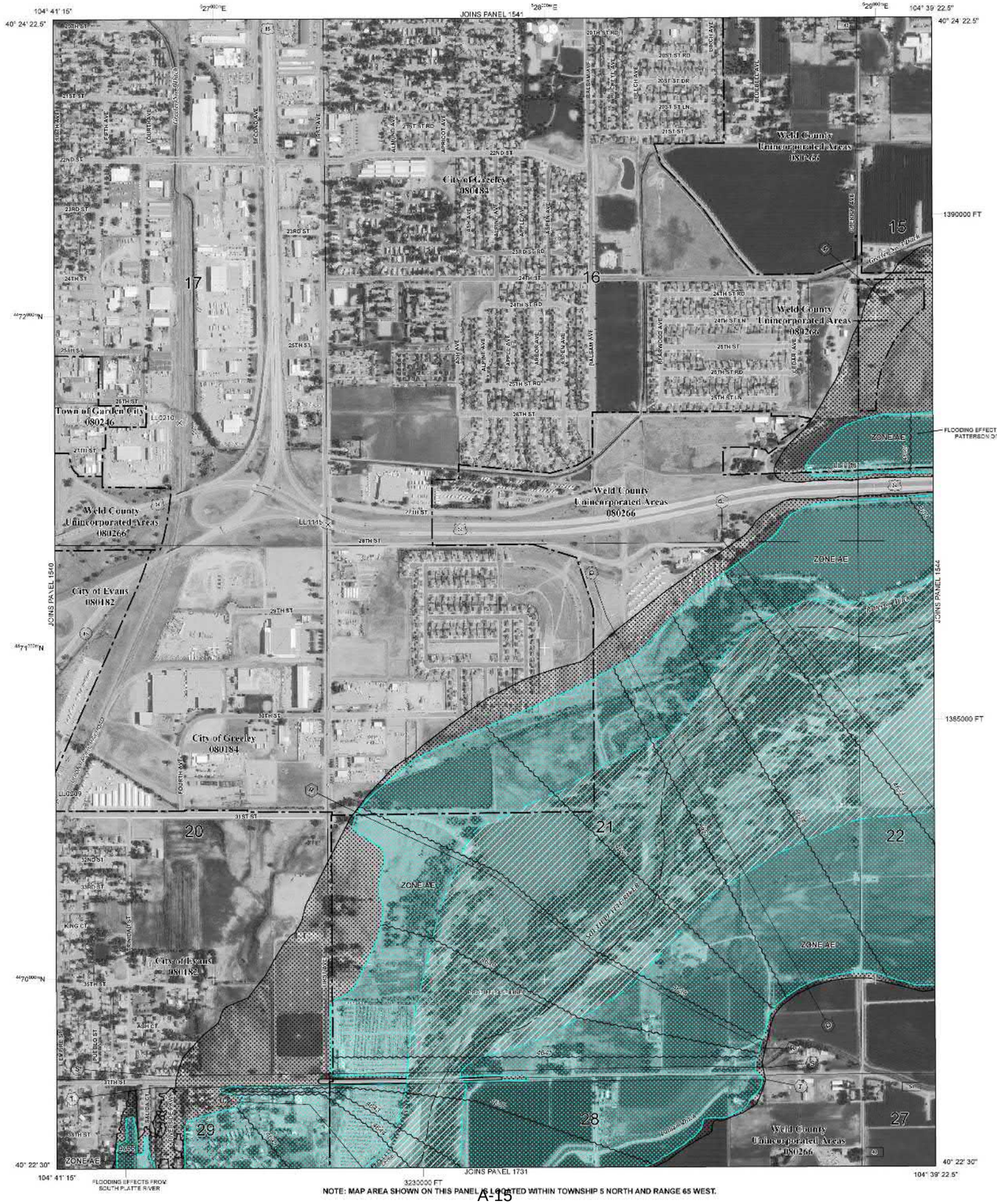
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- (A) — (A) Cross section line
- (23) — (23) Transect line
- 45° 02' 08", 93° 02' 12" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 3180000 FT — 5000-foot ticks: Colorado State Plane Central Zone (FIPS Zone 0502), Lambert Conformal Conic projection
- 4489000 N — 1000 meter Universal Transverse Mercator grid values, zone 13
- DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
January 20, 2016

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
PANEL 1543E

FIRM
FLOOD INSURANCE RATE MAP
WELD COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 1543 OF 2250
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EVANS, CITY OF	080182	1543	E
GARDEN CITY, TOWN OF	080246	1543	E
GREELEY, CITY OF	080184	1543	E
WELD COUNTY	080266	1543	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08123C1543E
EFFECTIVE DATE
JANUARY 20, 2016

Federal Emergency Management Agency

N

40 0 20 40

SCALE IN FEET

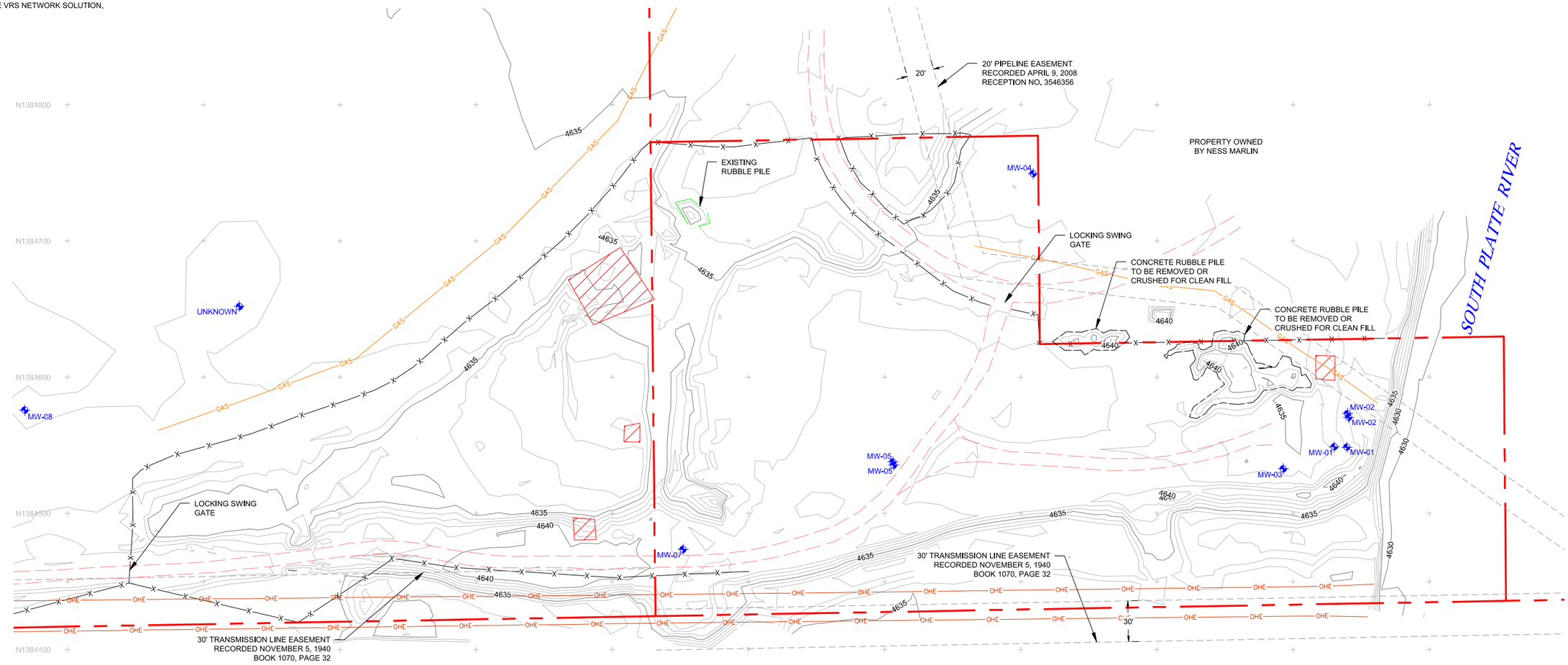
NOTE:
1. EXISTING GRADE CONTOURS PROVIDED BY KING SURVEYORS ON FEBRUARY 21, 2019.
2. SEE NOTE 3 ON DRAWING 2 REGARDING ASBESTOS WASTE.
3. EXISTING MONITORING WELLS WITHIN THE GRADING AREA WILL BE ABANDONED IN ACCORDANCE WITH THE GUIDELINES OUTLINED BY THE COLORADO DEPARTMENT OF WATER RESOURCES (DWR) STATE ENGINEER'S OFFICE (SEO).
4. THIS DRAWING IS AT MODIFIED STATE PLANE. TO REDUCE TO STATE PLANE COORDINATES, SCALE AT 0.99973537 (1.00026470) ABOUT THE ORIGIN 0,0.
5. TREE GRUBING TO BE DETERMINED AT A LATER DATE

VERTICAL DATUM:
NORTH AMERICAN VERTICAL DATUM OF 1988. VERTICAL BENCHMARK IS NGS DESIGNATION S 261, ELEVATION=4653.00, A STANDARD DISK SET IN THE TOP OF A CONCRETE POST, AND LOCATED IN EVANS, COLORADO NEAR THE INTERSECTION OF THE UNION PACIFIC RAILROAD AND 39TH STREET, 93' SOUTH OF THE CENTERLINE OF 39TH STREET AND 31.6' EAST OF THE EAST RAIL OF THE UNION PACIFIC RAILROAD.

HORIZONTAL DATUM:
COLORADO STATE PLANE NORTH ZONE COORDINATES NAD 83(2011) DATUM. HORIZONTAL CONTROL BASED UPON TRIMBLE VRS NETWORK SOLUTION.

LEGEND:

- 100 — EXISTING GRADE CONTOURS (1 FOOT CONTOURS)
- X—X—X—X — EXISTING FENCELINE
- GAS — GAS — EXISTING GAS LINE
- OHE — OHE — OVERHEAD ELECTRIC
- ROAD
- EXISTING UTILITY EASEMENT
- PROPERTY LINE
- MW-04 — MONITORING WELL LOCATION
- STABILIZED ASBESTOS AREA (DO NOT DISTURB)
- N1384900 — HORIZONTAL COORDINATE GRID



A-16

REV.	DATE	BY	DESCRIPTION

EXISTING CONDITIONS

GREELEY FISHING POND - WASTE DUMP REGRADE

CITY OF GREELEY

GREELEY FISHING POND WASTE DUMP

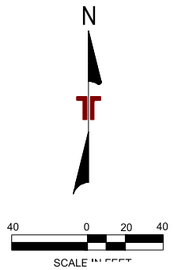
WELD COUNTY COLORADO

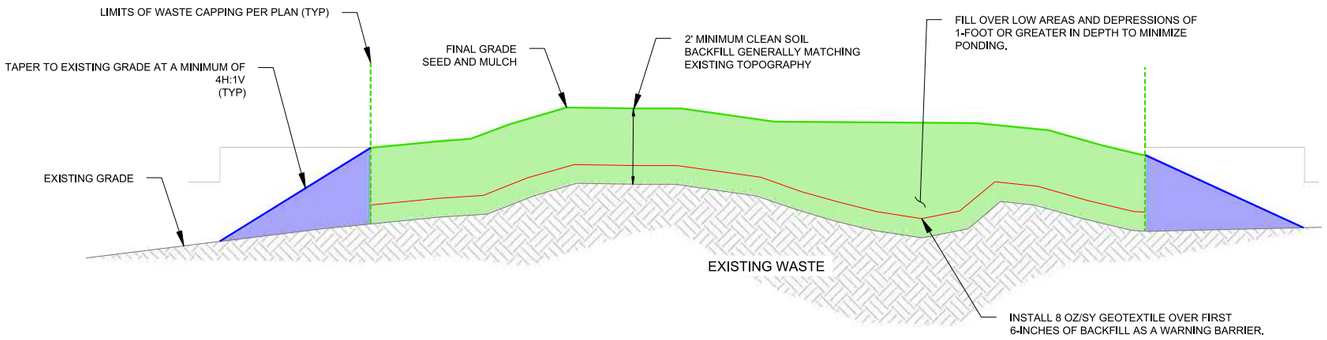
Terracon
Consulting Engineers and Scientists
1831 LEFTHAND CIR, STE C
LONGMONT, CO 80501
PH. (303) 776-5921
FAX. (303) 776-4041

DRAWING 3

DESIGNED BY:	MPB
DRAWN BY:	MPB
APPVD. BY:	FOC
SCALE:	SEE SCALE
DATE:	JUNE 2019
JOB NO.	3519P052
ACAD NO.	167 / 020
SHEET NO.:	3 OF 5

N:\GEC\ARCHIVE\CAD\167\020\3519P052\PLAN SET\003-EXISTING CONDITIONS.DWG





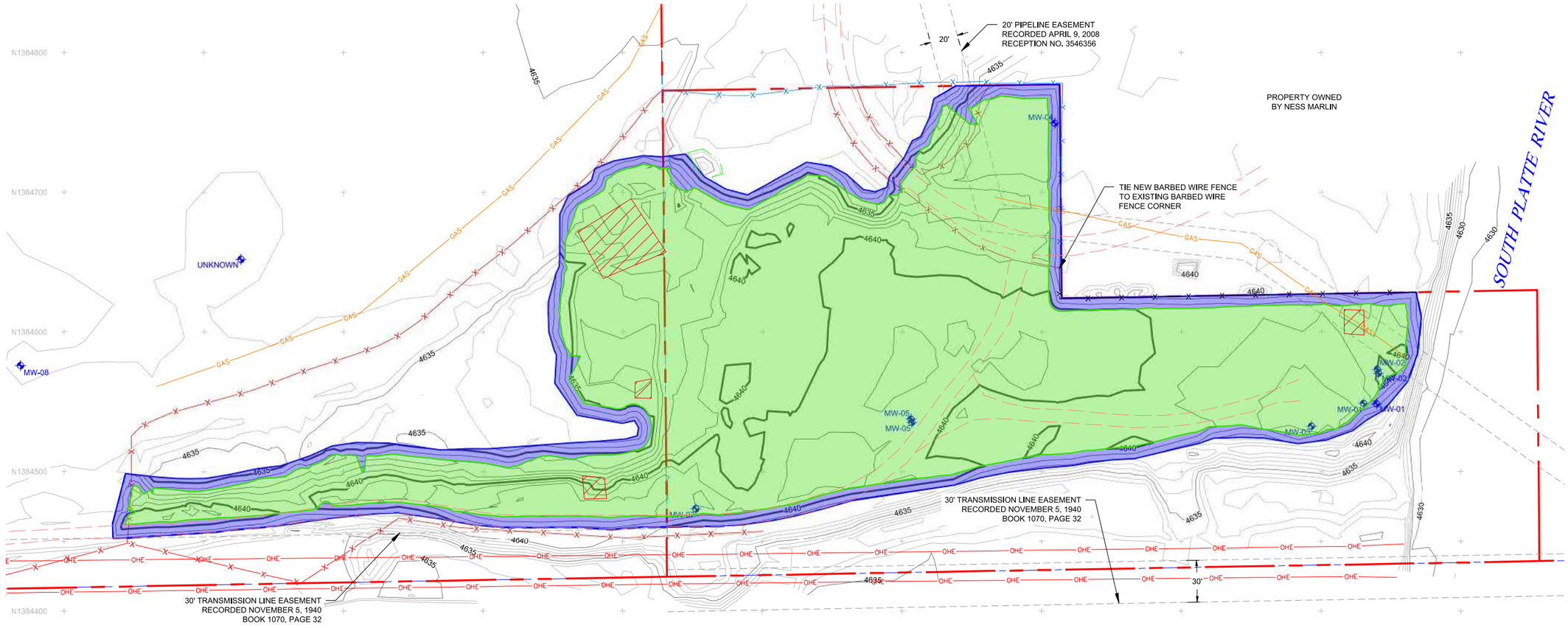
TYPICAL CAP FILL DETAIL

NOTE:

1. EXISTING GRADE CONTOURS PROVIDED BY KING SURVEYORS ON FEBRUARY 21, 2019.
2. SEE NOTE 3 ON DRAWING 2 REGARDING ASBESTOS WASTE.
3. EXISTING MONITORING WELLS WITHIN THE GRADING AREA WILL BE ABANDONED IN ACCORDANCE WITH THE GUIDELINES OUTLINED BY THE COLORADO DEPARTMENT OF WATER RESOURCES (DWR) STATE ENGINEER'S OFFICE (SEO).

LEGEND:

- EXISTING GRADE CONTOURS (1-FOOT CONTOURS)
- PROPOSED FINAL COVER CONTOURS (1-FOOT CONTOURS)
- EXISTING FENCELINE
- EXISTING GAS LINE
- OVERHEAD ELECTRIC
- PROPERTY LINE
- ROAD
- EXISTING UTILITY EASEMENT
- STABILIZED ASBESTOS AREA (DO NOT DISTURB)
- LIMITS OF GRADING
- MONITORING WELL LOCATION
- APPROXIMATE LIMITS OF WASTE CAPPING AREA (SEE DETAIL ON LEFT)
- CAP TAPERING AREA (SEE DETAIL ON LEFT)
- SECTION OF FENCE TO BE REMOVED
- NEW 3 STRAND BARBED WIRE FENCE



REV.	DATE	BY	DESCRIPTION

FINAL GRADING PLAN
GREELEY FISHING POND - WASTE DUMP REGRADE
CITY OF GREELEY
GREELEY FISHING POND WASTE DUMP
WELD COUNTY COLORADO

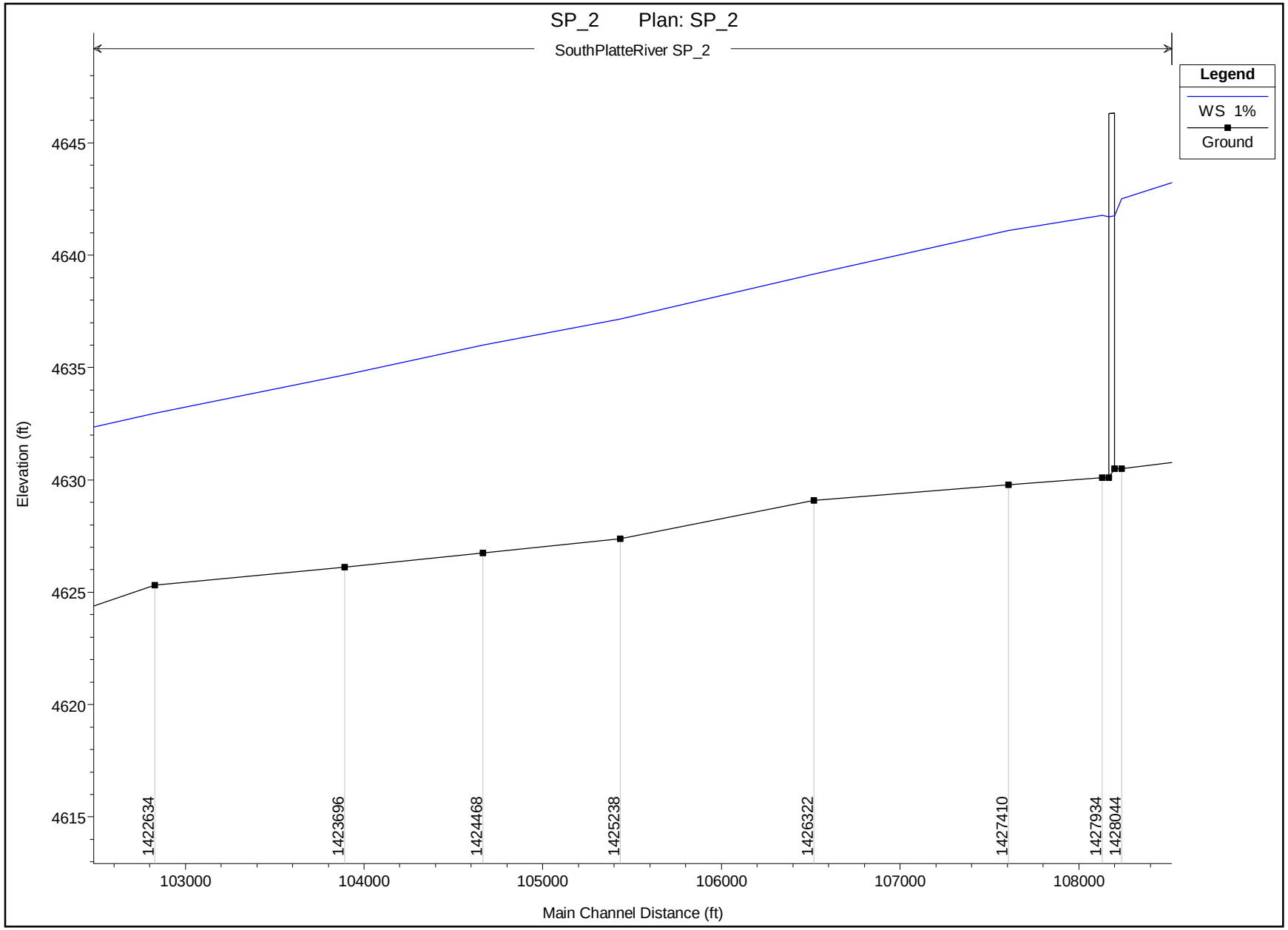
Terracon
Consulting Engineers and Scientists
1831 LEFTHAND CIR. STE C
LONGMONT, CO 80501
PH. (303) 776-5921
FAX. (303) 776-4041

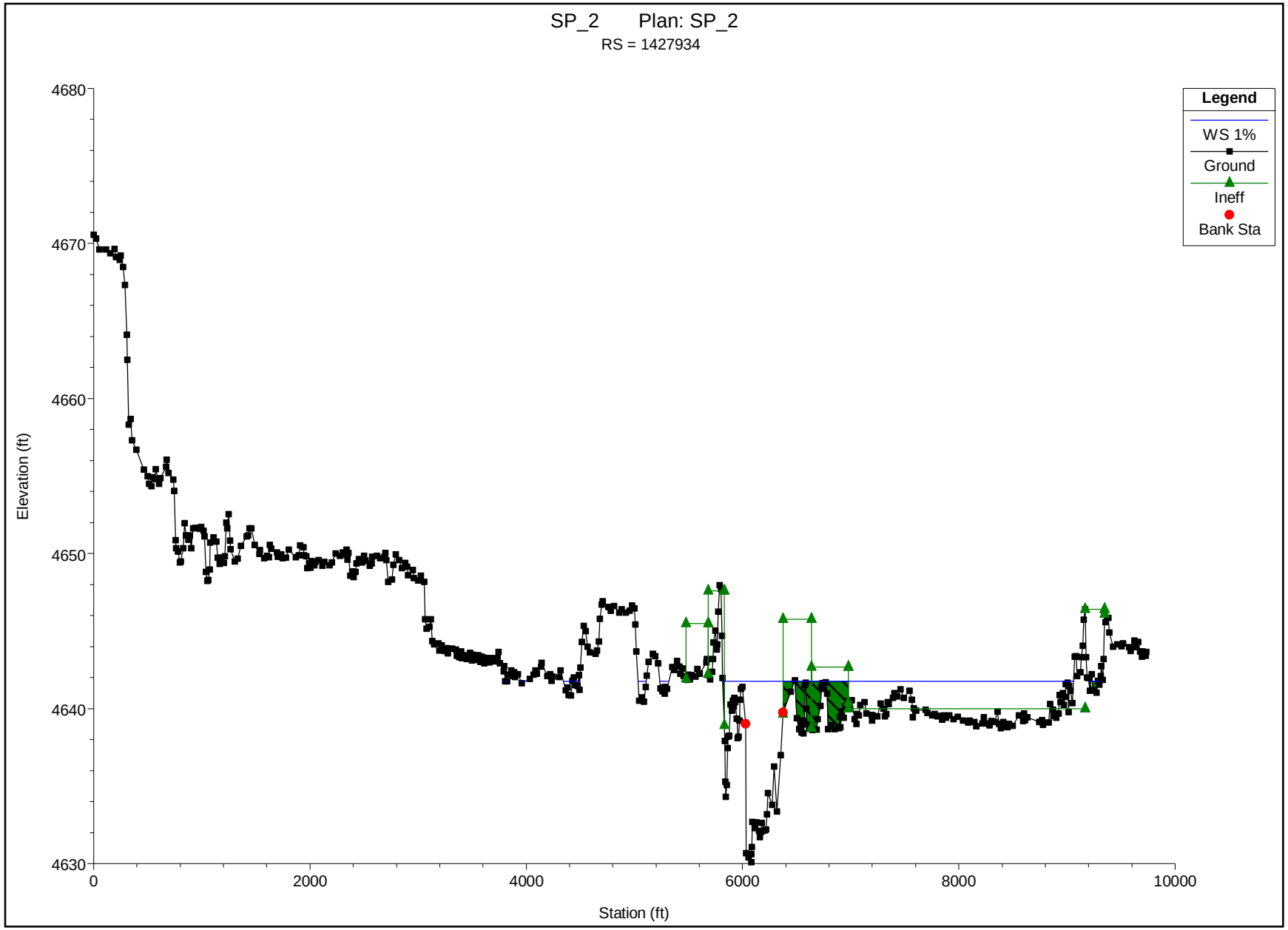
DRAWING 4	
DESIGNED BY:	MPB
DRAWN BY:	MPB
APPVD. BY:	FOC
SCALE:	SEE SCALE
DATE:	JUNE 2019
JOB NO.	3519P052
ACAD NO.	167 / 020
SHEET NO.:	4 OF 5

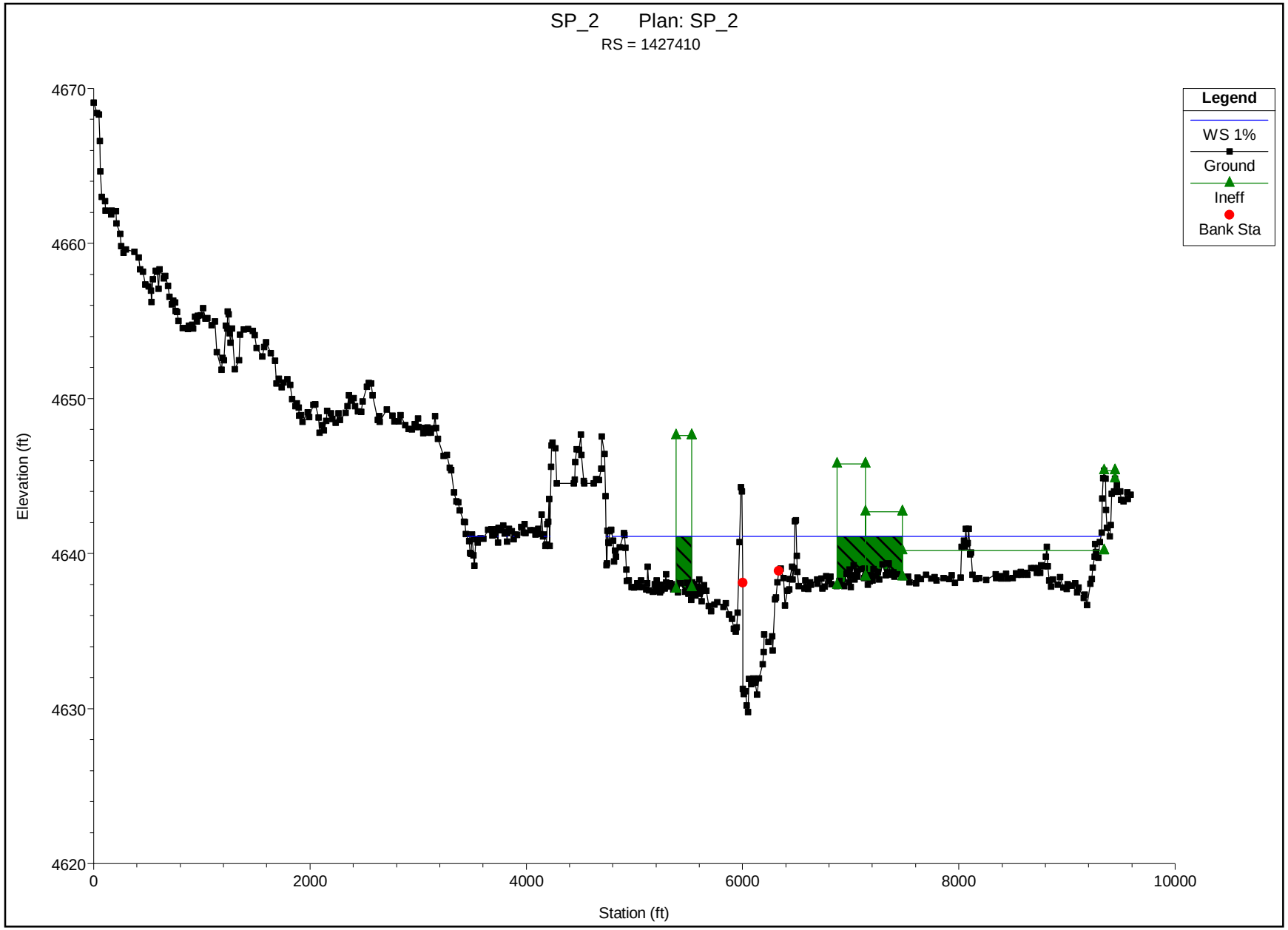
N:\GEC\ARCHIVE\CAD\167\020\3519P052\PLAN SET\004-FINAL GRADING.DWG

HEC-RAS Plan: SP_2 River: SouthPlatteRiver Reach: SP_2 Profile: 1%

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SP_2	1427989		Bridge									
SP_2	1427934	1%	36624.00	4630.09	4641.76	4640.97	4642.30	0.002265	7.25	7922.42	3670.52	0.44
SP_2	1427410	1%	36624.00	4629.78	4641.09	4639.56	4641.27	0.001020	4.64	12340.74	4674.66	0.29
SP_2	1426322	1%	36624.00	4629.08	4639.17	4638.51	4639.46	0.002731	6.17	10741.92	5053.68	0.41
SP_2	1425238	1%	36624.00	4627.37	4637.17	4635.84	4637.46	0.001159	4.38	9158.87	3861.12	0.28
SP_2	1424468	1%	36624.00	4626.75	4635.99	4634.74	4636.22	0.002558	5.28	10095.36	4686.63	0.39
SP_2	1423696	1%	36624.00	4626.12	4634.67	4632.94	4634.80	0.001315	4.20	13270.04	5546.11	0.29
SP_2	1422634	1%	36624.00	4625.31	4632.97	4631.48	4633.08	0.001356	3.83	14716.23	5578.81	0.28
SP_2	1421522	1%	36624.00	4622.32	4630.99	4630.51	4631.30	0.004386	6.65	9752.70	5250.35	0.51
SP_2	1421442		Inl Struct									


SP_2 Plan: SP_2
SouthPlatteRiver SP_2
Legend
WS 1%
Ground
Elevation (ft)
4645
4640
4635
4630
4625
4620
4615
1422634
1423696
1424468
1425238
1426322
1427410
1427934
1428044
103000
104000
105000
106000
107000
108000
Main Channel Distance (ft)


SP_2 Plan: SP_2
RS = 1427934
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
4680
4670
4660
4650
4640
4630
0
2000
4000
6000
8000
10000
Station (ft)


SP_2 Plan: SP_2
RS = 1427410
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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4660
4650
4640
4630
4620
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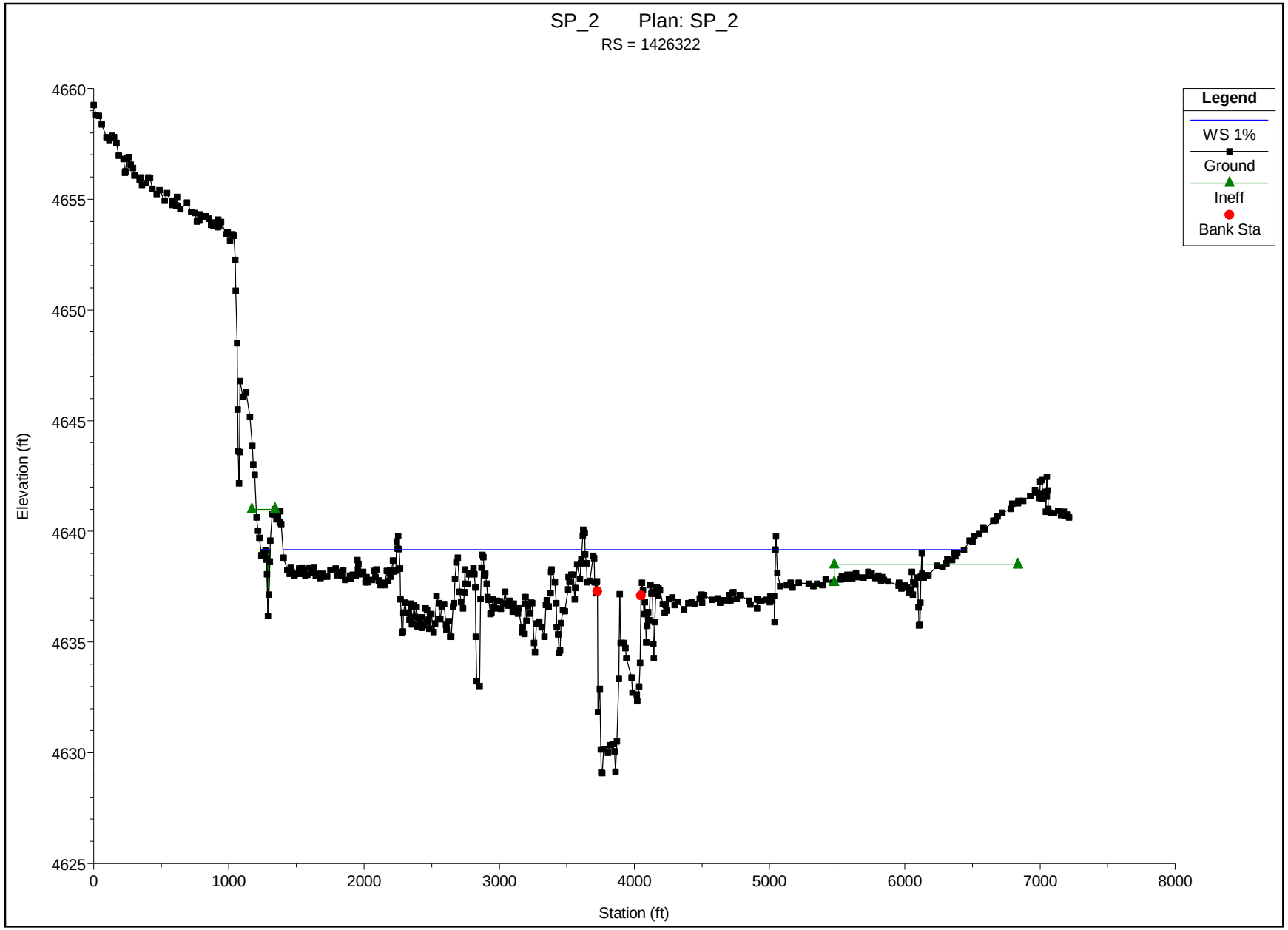
2000
4000
6000
8000
10000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RS = 1426322
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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4645
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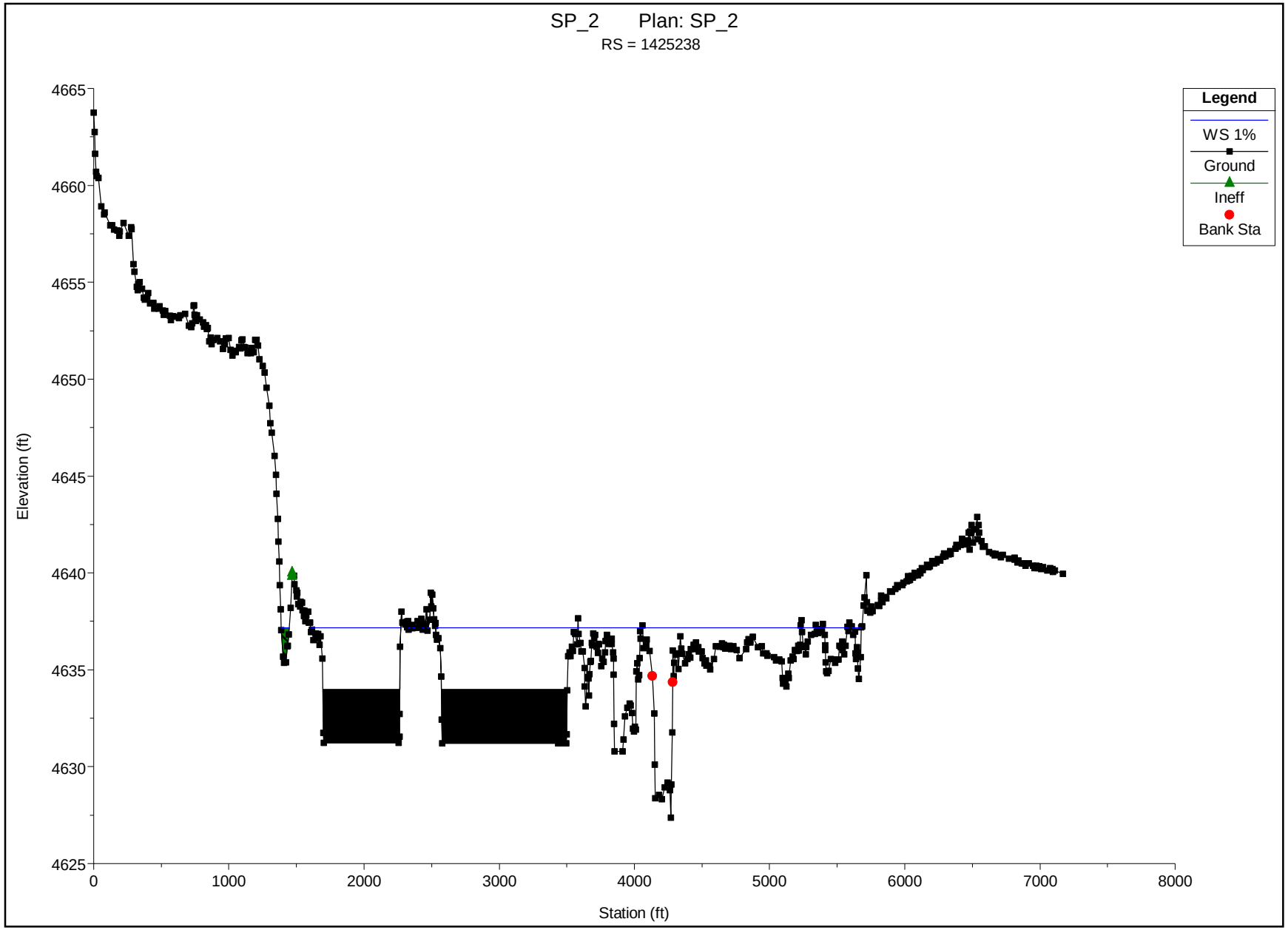
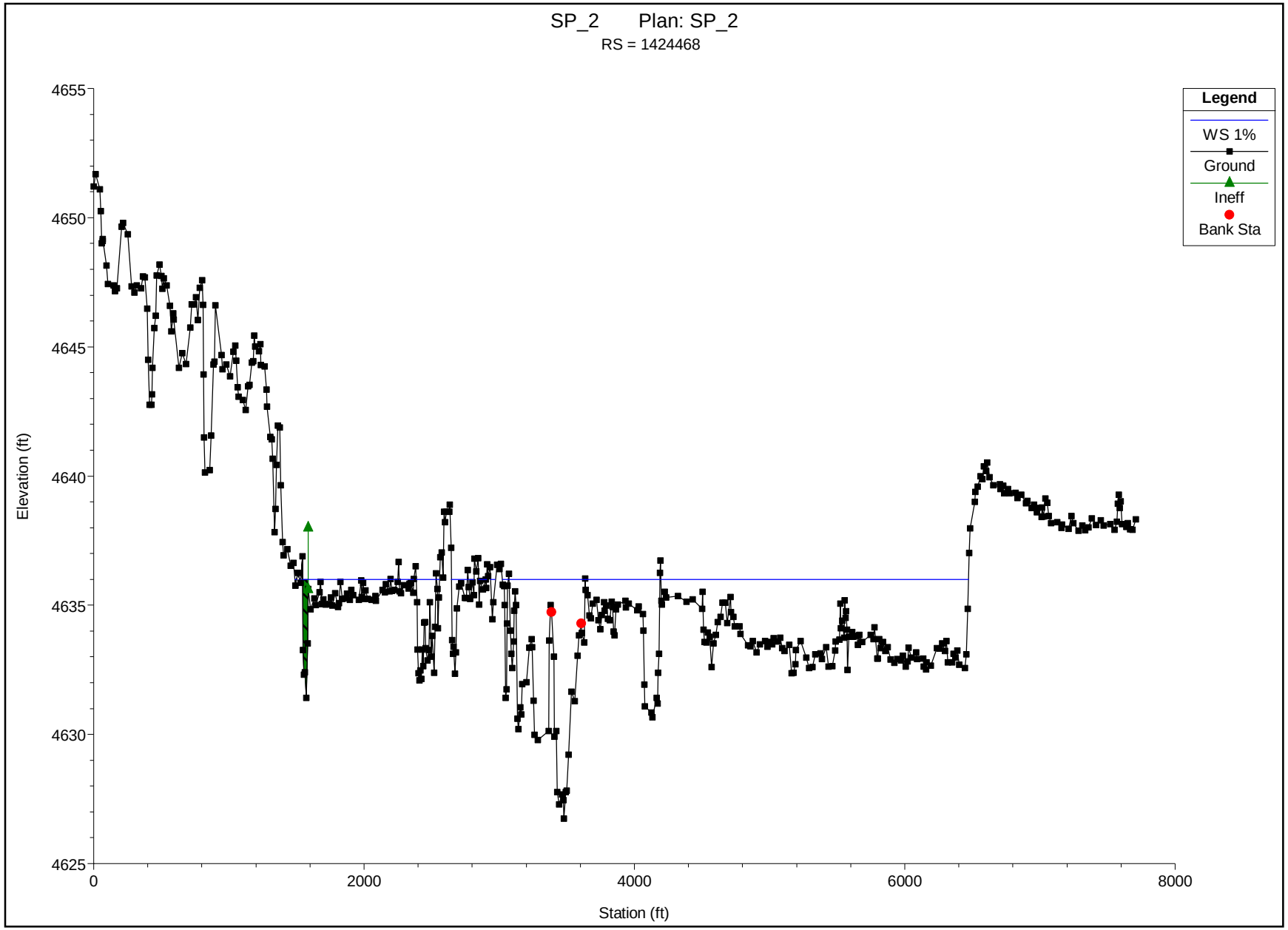
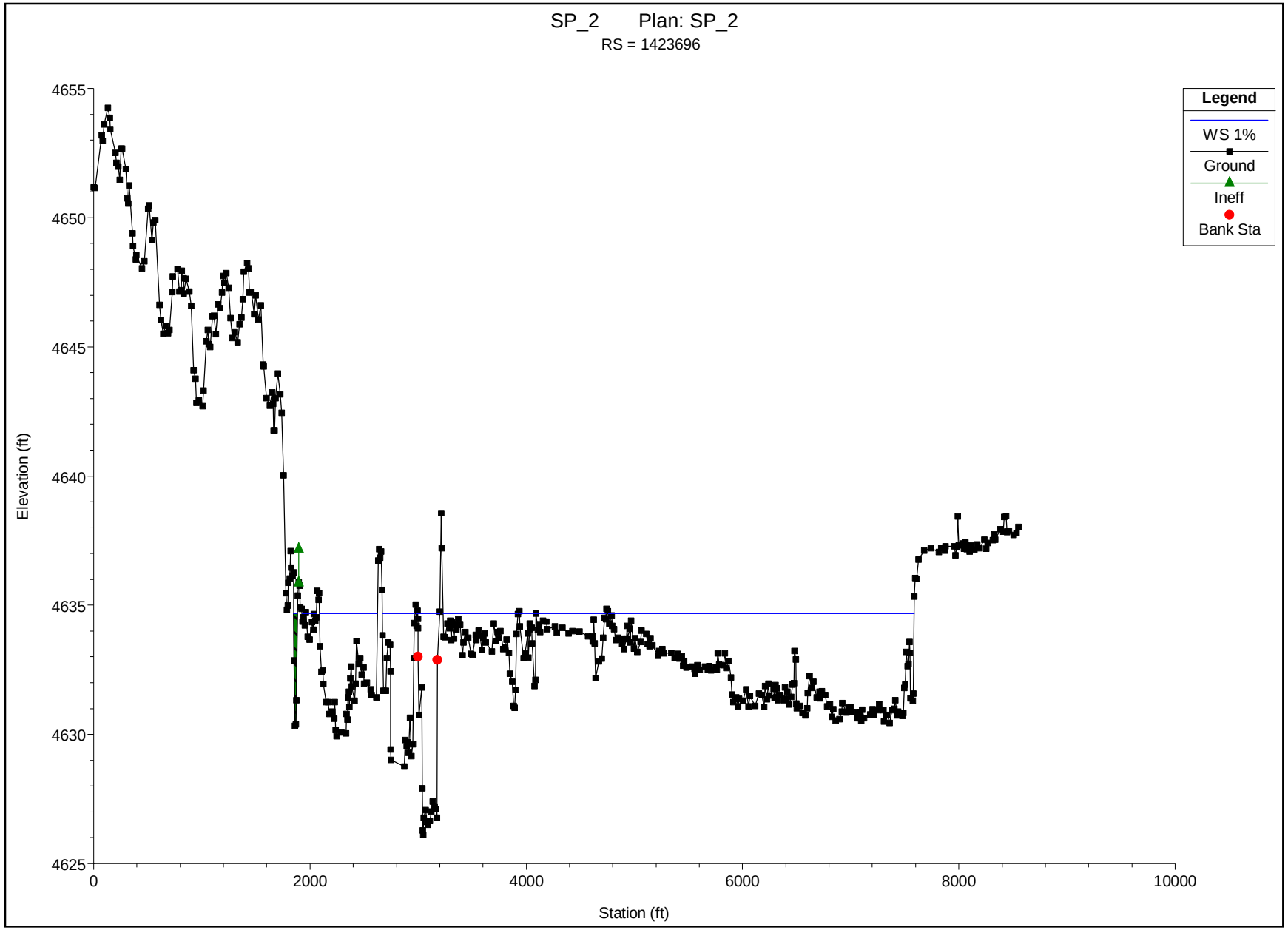
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000

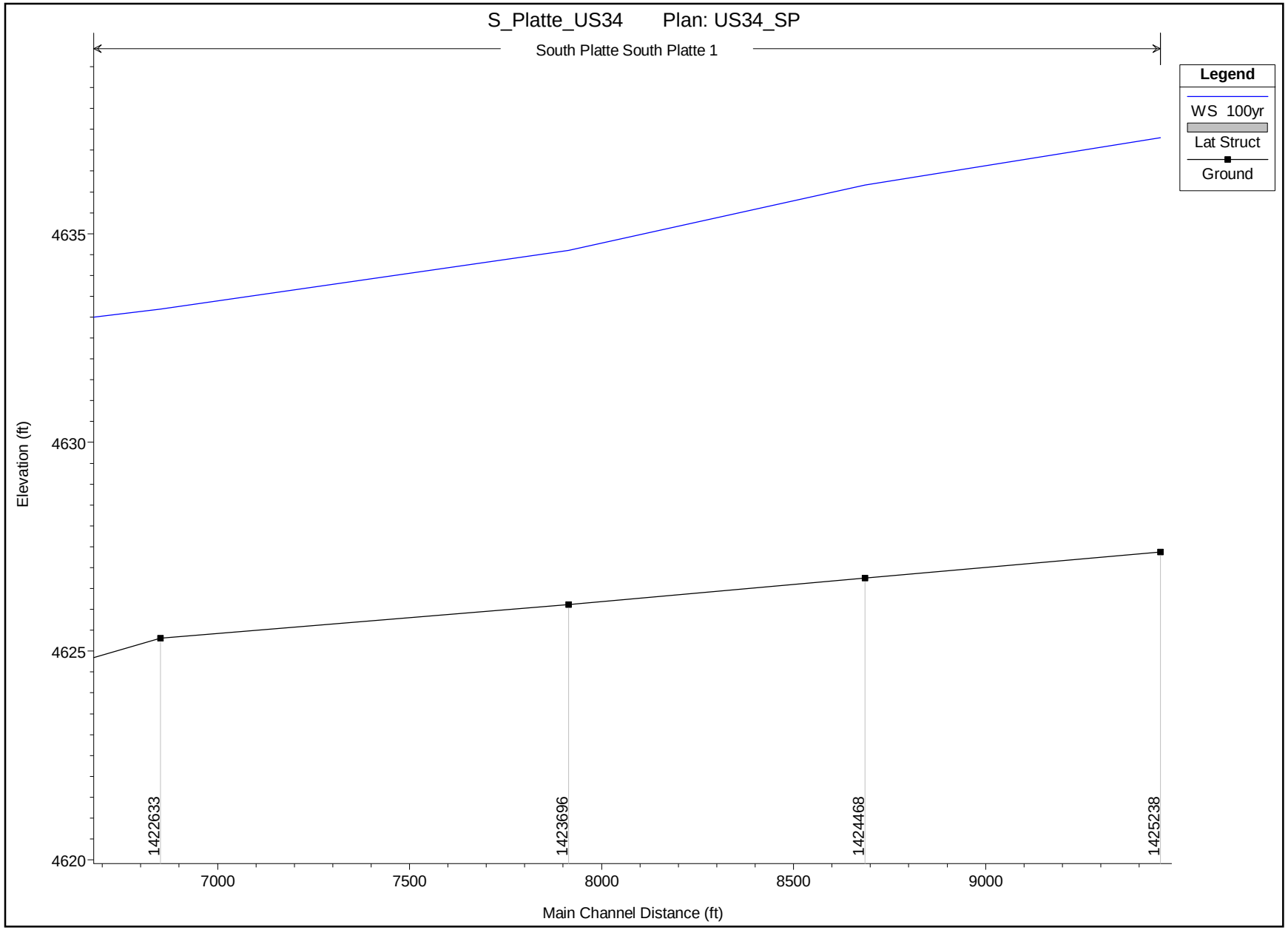

SP_2 Plan: SP_2
RS = 1425238
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4665
4660
4655
4650
4645
4640
4635
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000

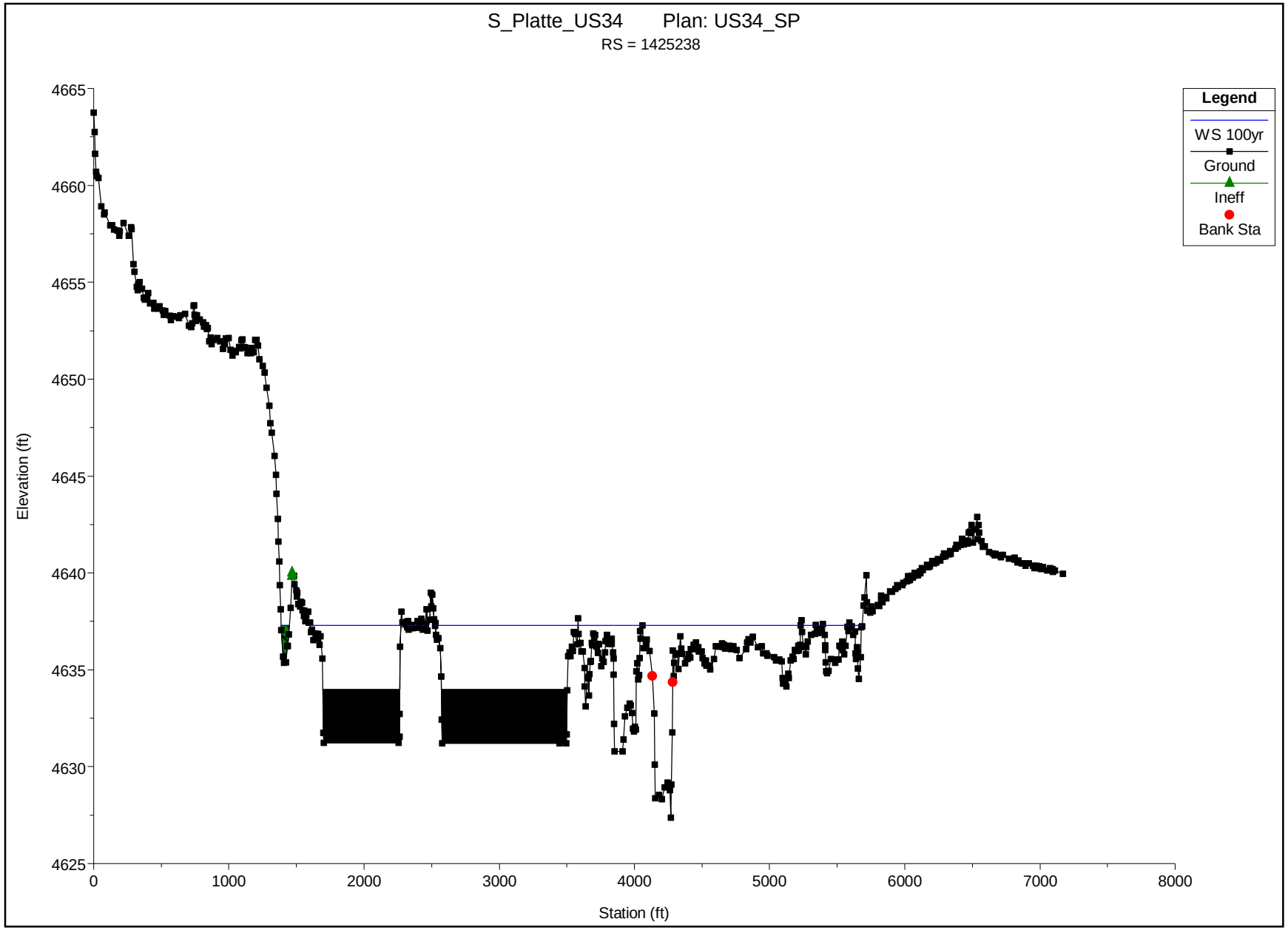

SP_2 Plan: SP_2
RS = 1424468
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
Station (ft)

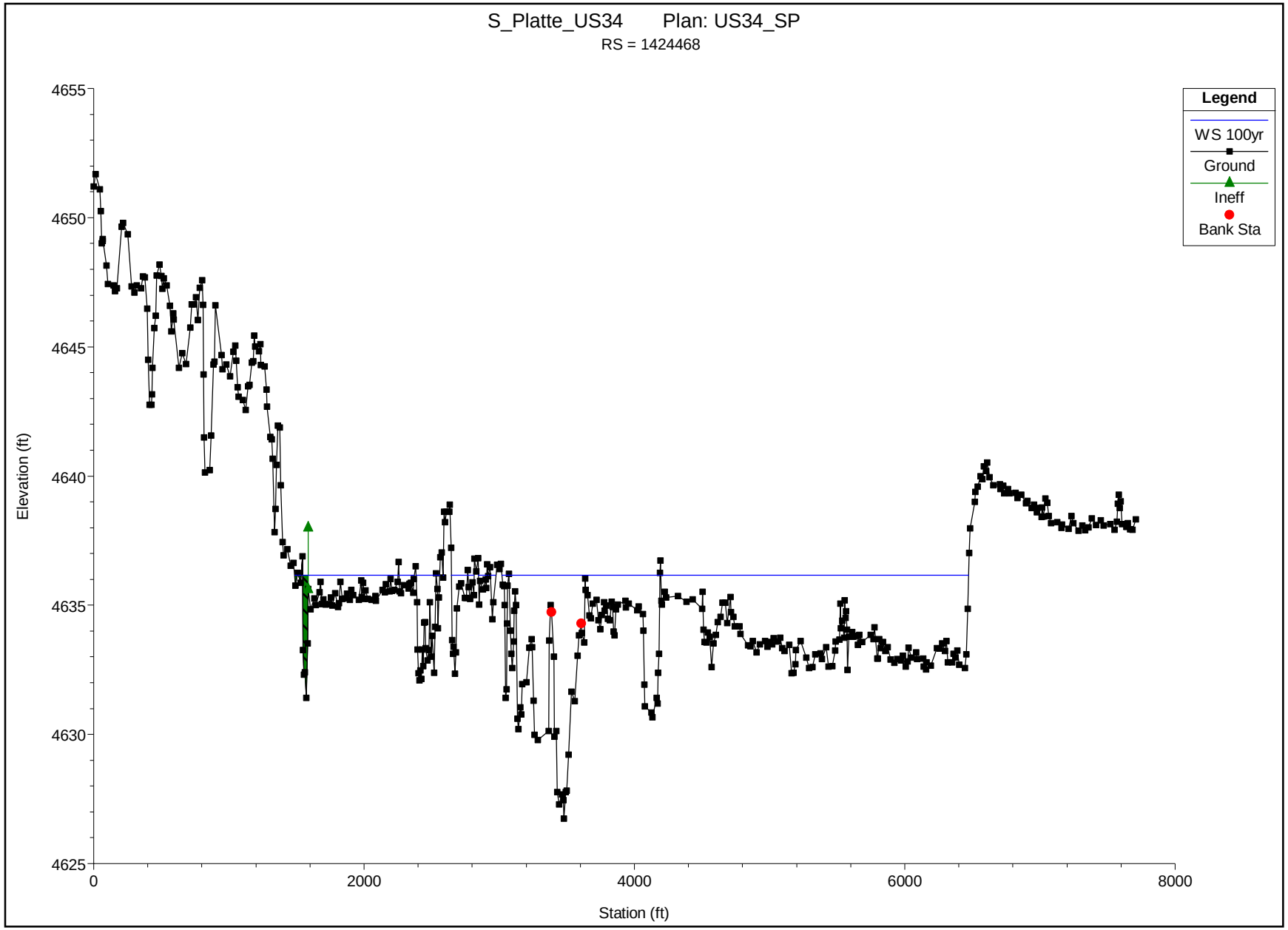

SP_2 Plan: SP_2
RS = 1423696
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000
Station (ft)

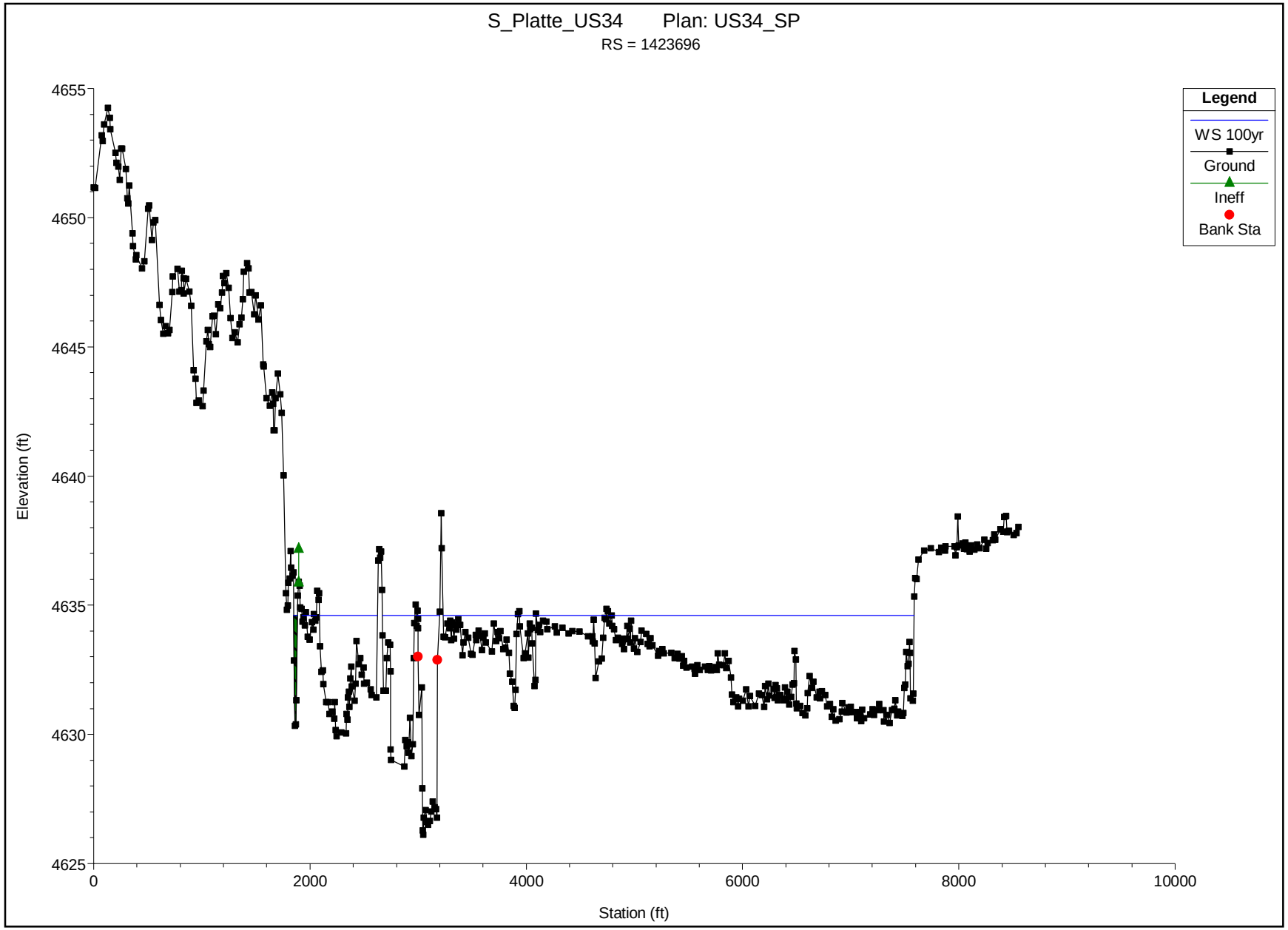
HEC-RAS Plan: US34_SP River: South Platte Reach: South Platte 1 Profile: 100yr

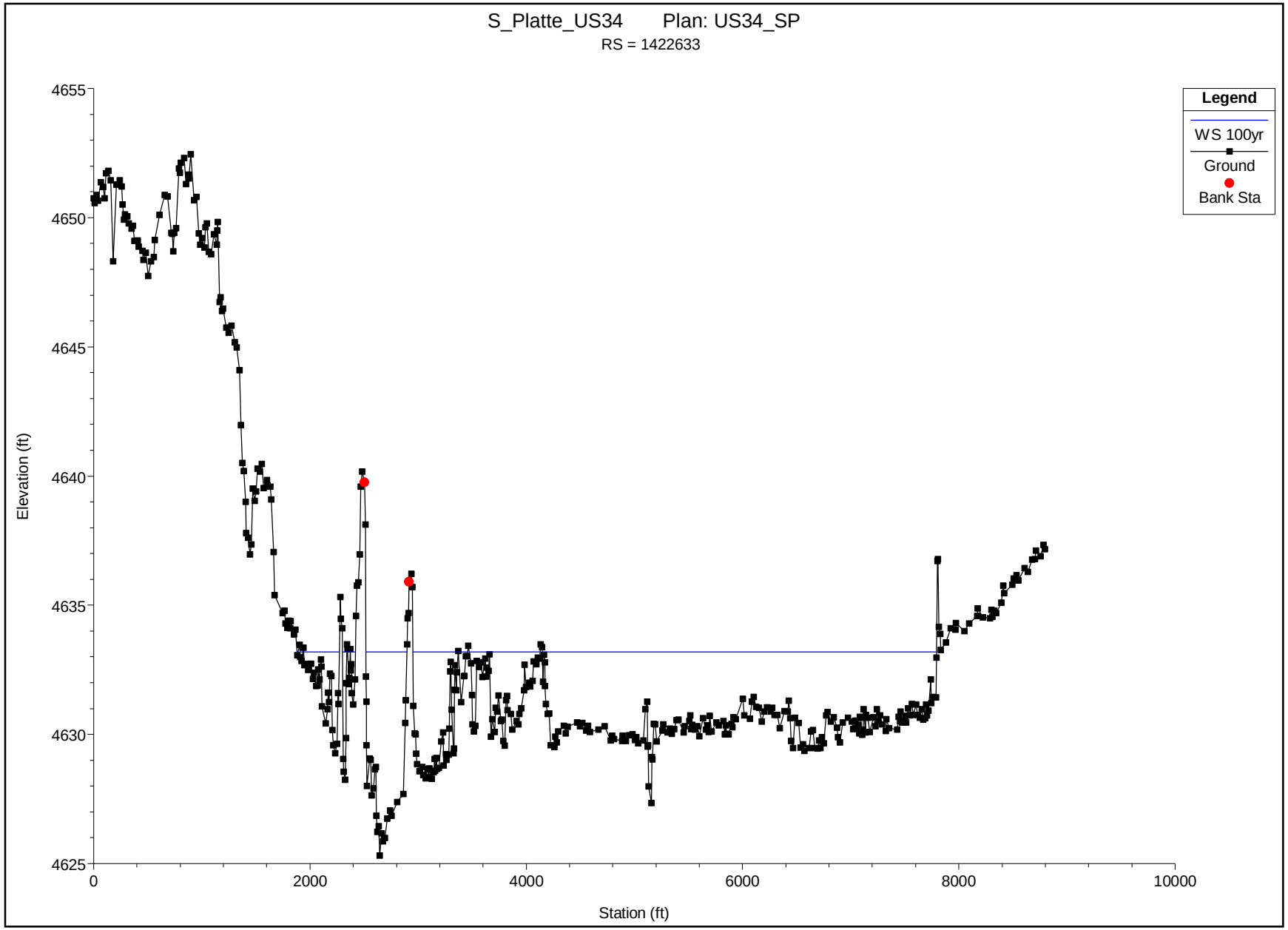
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
South Platte 1	1425238	100yr	36624.00	4627.37	4637.30	4635.88	4637.56	0.001110	4.33	9678.48	3960.11	0.27
South Platte 1	1424468	100yr	36624.00	4626.75	4636.16	4634.86	4636.39	0.002564	5.39	10882.38	4744.94	0.39
South Platte 1	1423696	100yr	36624.00	4626.12	4634.60	4633.03	4634.74	0.001637	4.65	12840.37	5520.85	0.32
South Platte 1	1422633	100yr	36624.00	4625.31	4633.20	4631.49	4633.29	0.001069	3.42	16005.50	5665.91	0.25


S_Platte_US34 Plan: US34_SP
South Platte South Platte 1
Legend
WS 100yr
Lat Struct
Ground
Elevation (ft)
4635
4630
4625
4620
1422633
1423696
1424468
1425238
7000
7500
8000
8500
9000
Main Channel Distance (ft)


S_Platte_US34 Plan: US34_SP
RS = 1425238
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4665
4660
4655
4650
4645
4640
4635
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000

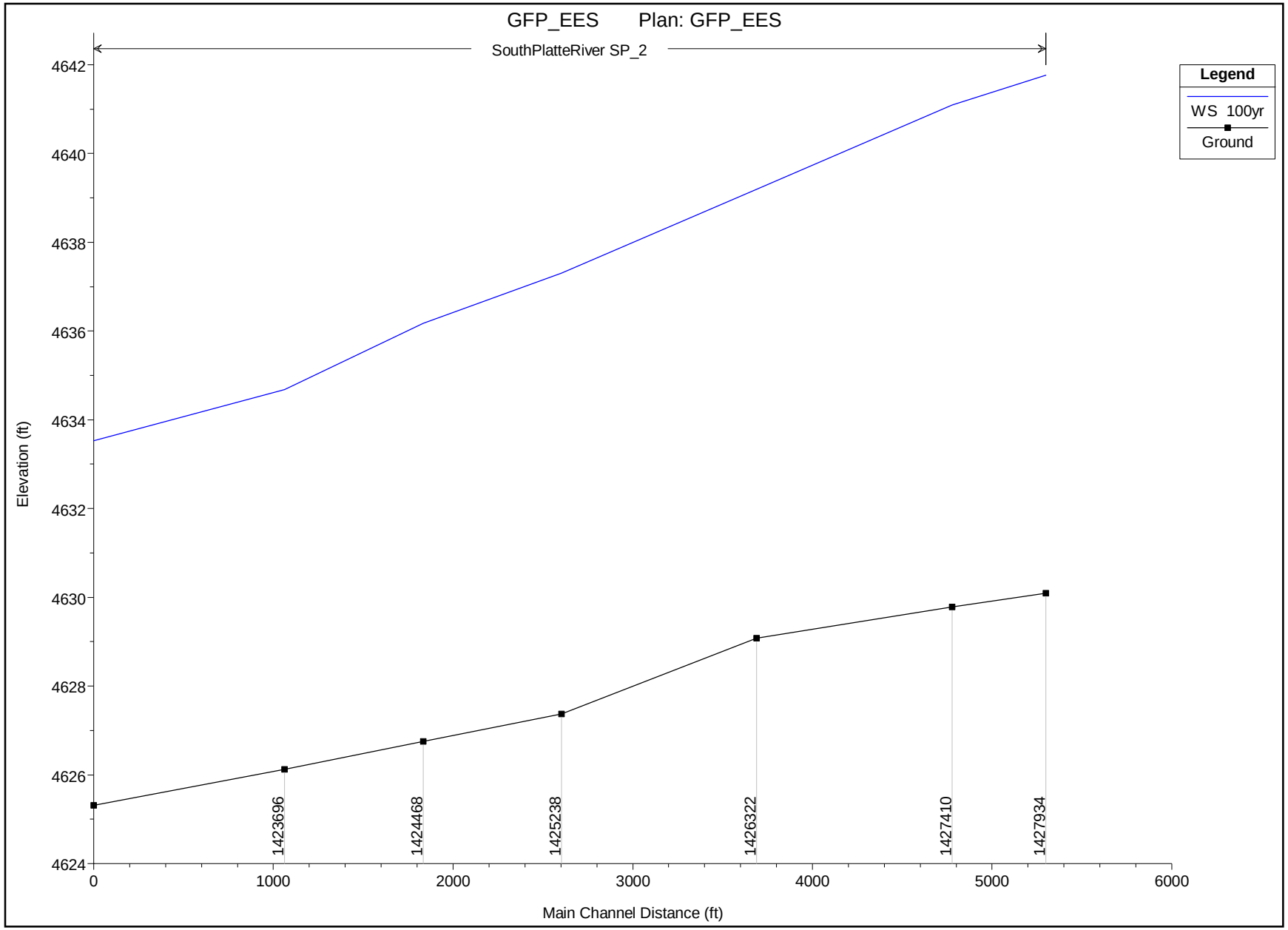

S_Platte_US34 Plan: US34_SP
RS = 1424468
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000

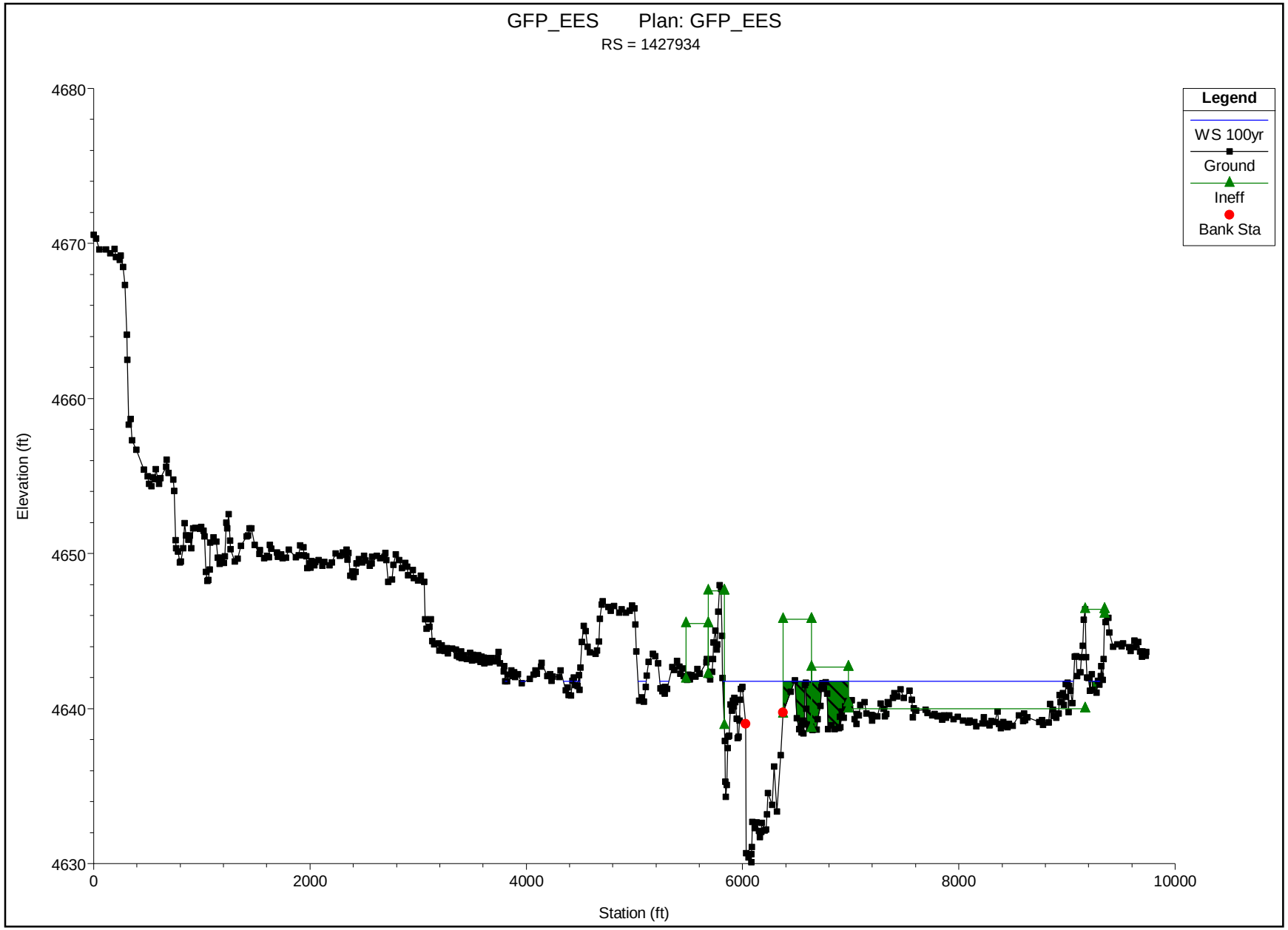

S_Platte_US34 Plan: US34_SP
RS = 1423696
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000
Station (ft)

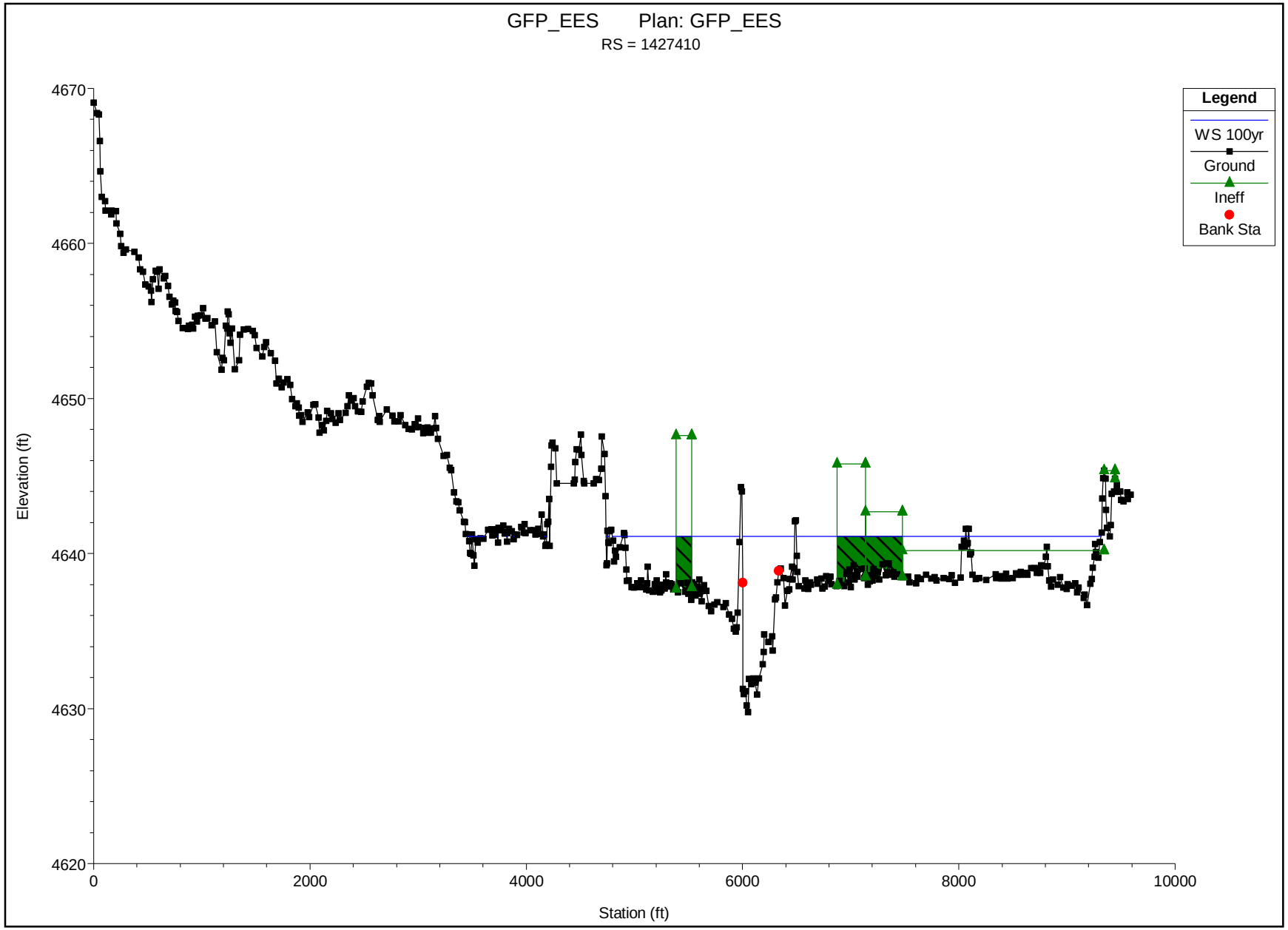

S_Platte_US34 Plan: US34_SP
RS = 1422633
Legend
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000

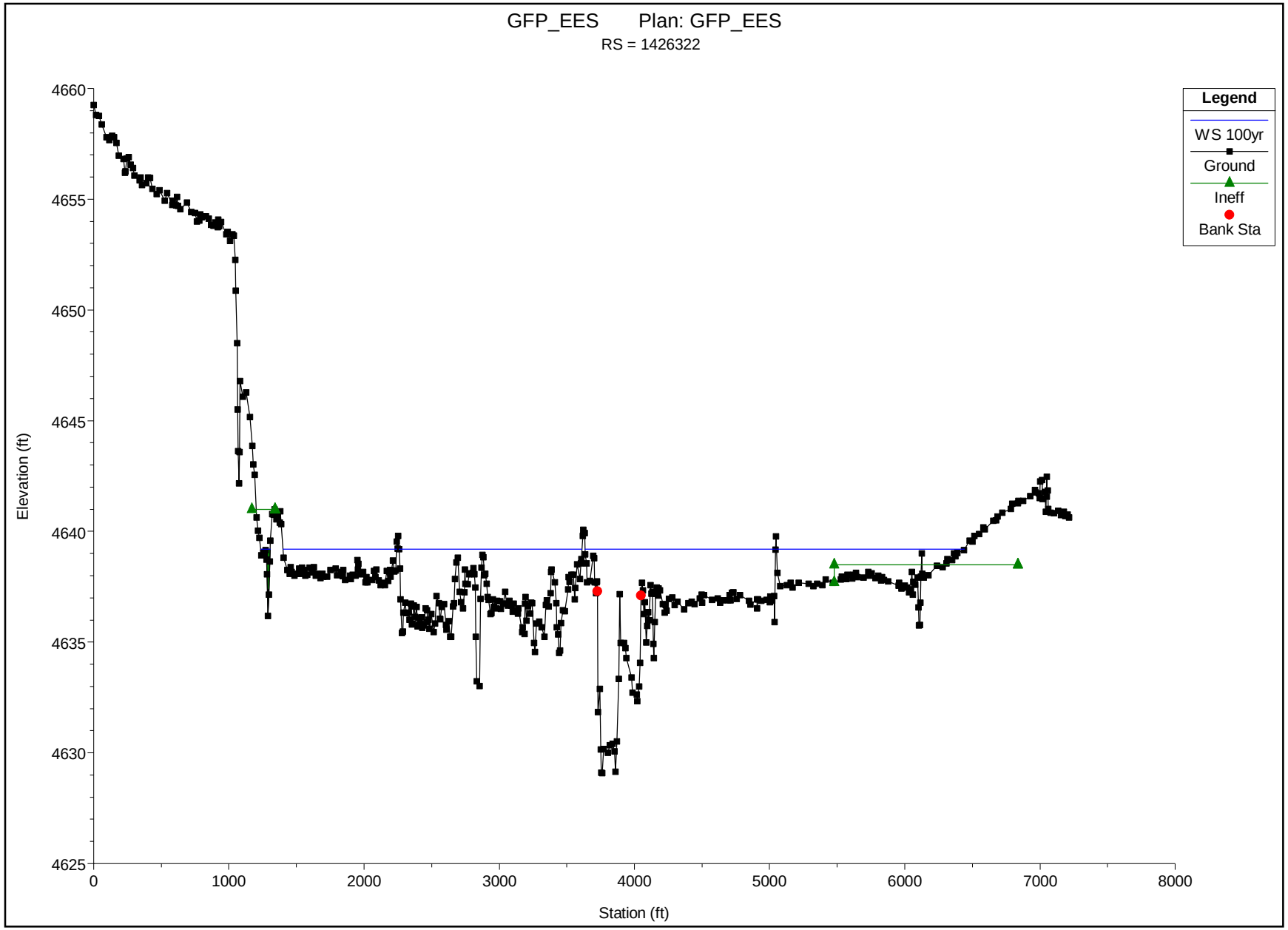
HEC-RAS Plan: GFP_EES River: SouthPlatteRiver Reach: SP_2 Profile: 100yr

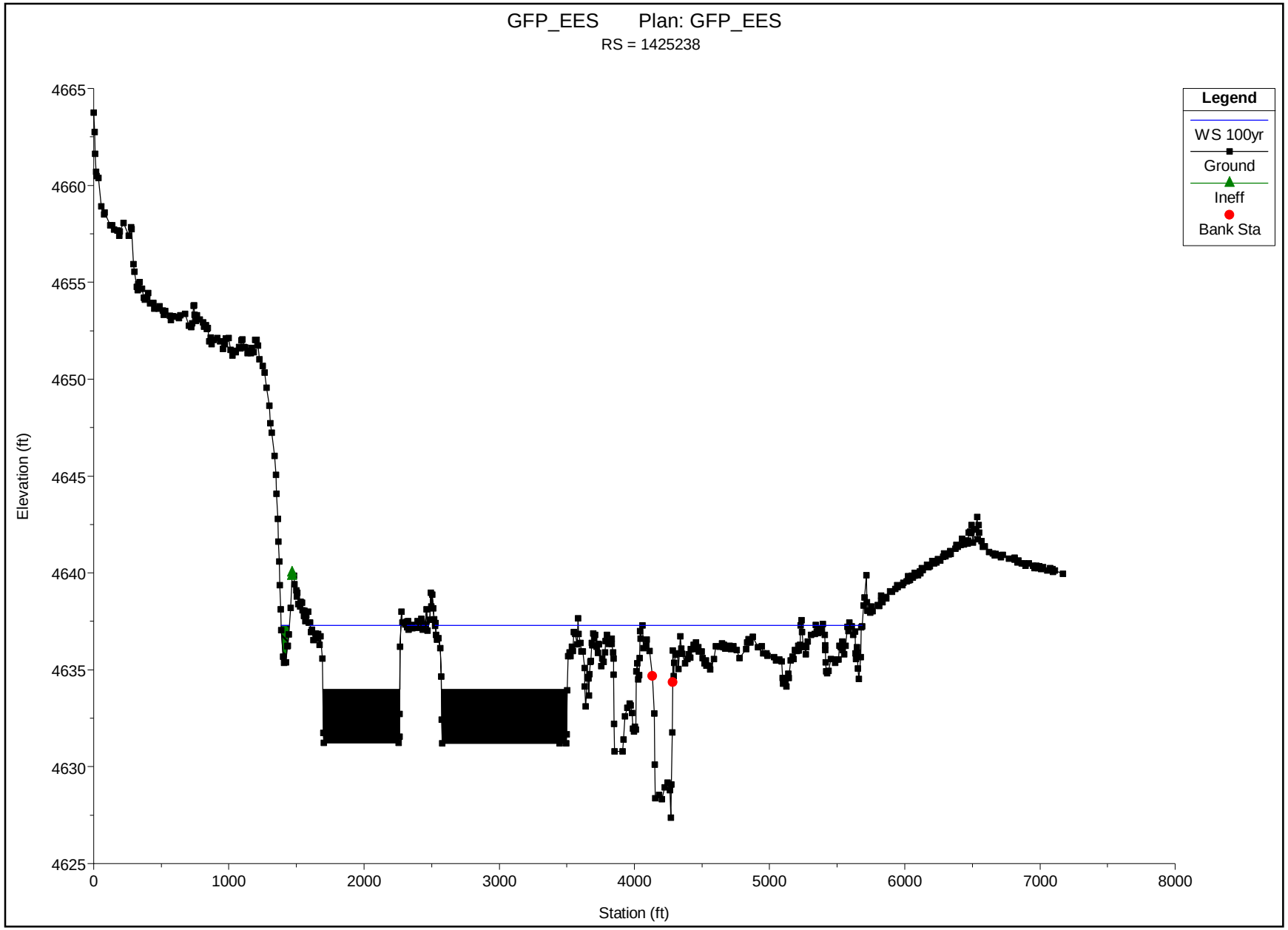
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SP_2	1427934	100yr	36624.00	4630.09	4641.76	4640.97	4642.30	0.002264	7.25	7923.86	3670.89	0.44
SP_2	1427410	100yr	36624.00	4629.78	4641.09	4639.56	4641.27	0.001019	4.63	12344.58	4675.10	0.29
SP_2	1426322	100yr	36624.00	4629.08	4639.20	4638.51	4639.48	0.002624	6.07	10907.55	5059.54	0.41
SP_2	1425238	100yr	36624.00	4627.37	4637.30	4635.88	4637.57	0.001106	4.33	9689.91	3962.26	0.27
SP_2	1424468	100yr	36624.00	4626.75	4636.18	4634.86	4636.40	0.002530	5.36	10939.35	4749.73	0.39
SP_2	1423696	100yr	36624.00	4626.12	4634.68	4633.03	4634.82	0.001489	4.48	13329.27	5549.65	0.30
SP_2	1422633	100yr	36624.00	4625.31	4633.53	4631.49	4633.60	0.000769	3.00	17916.13	5793.73	0.22

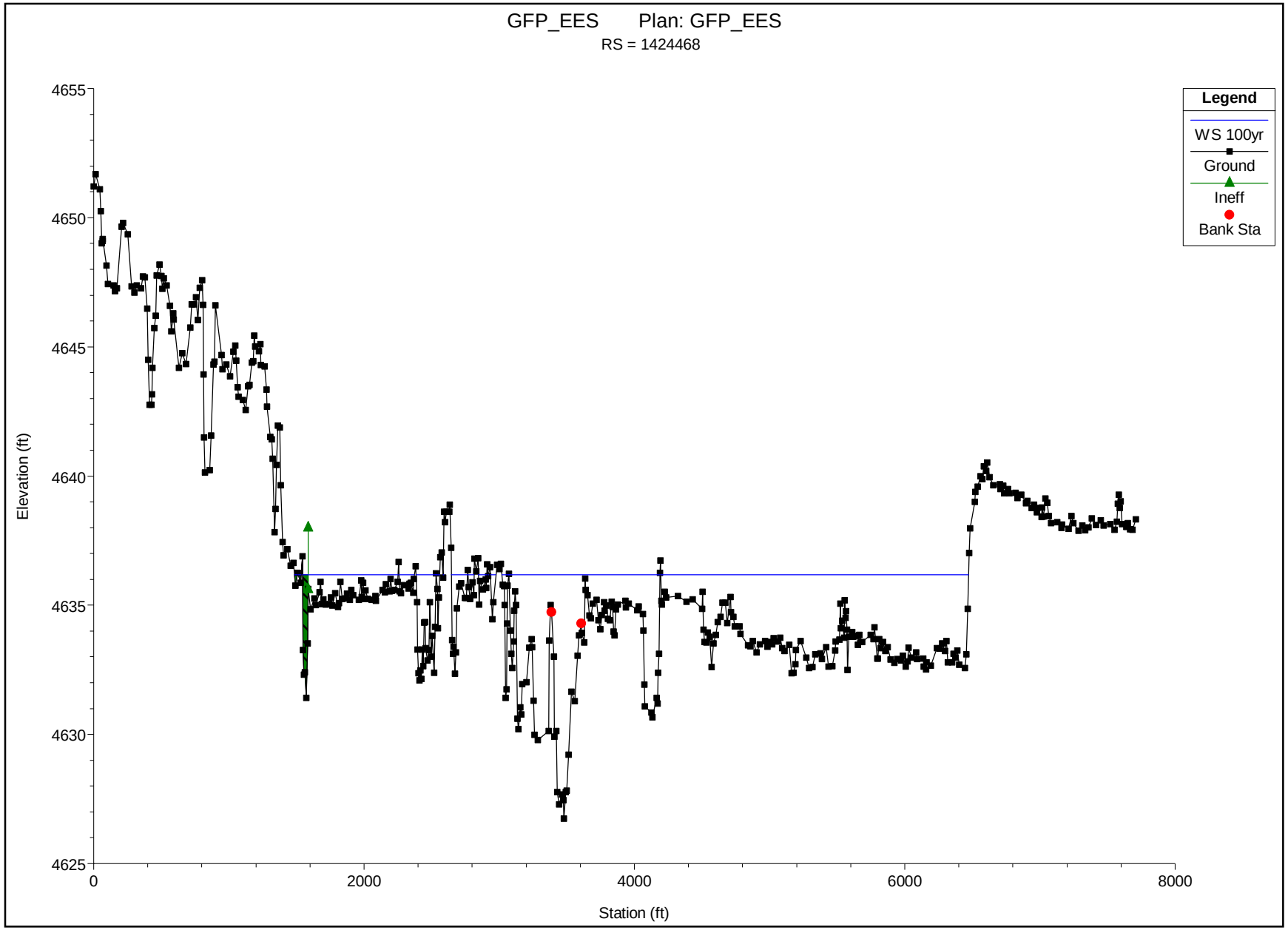

GFP_EES Plan: GFP_EES
SouthPlatteRiver SP_2
Legend
WS 100yr
Ground
Elevation (ft)
Main Channel Distance (ft)
4642
4640
4638
4636
4634
4632
4630
4628
4626
4624
0
1000
2000
3000
4000
5000
6000
1423696
1424468
1425238
1426322
1427410
1427934

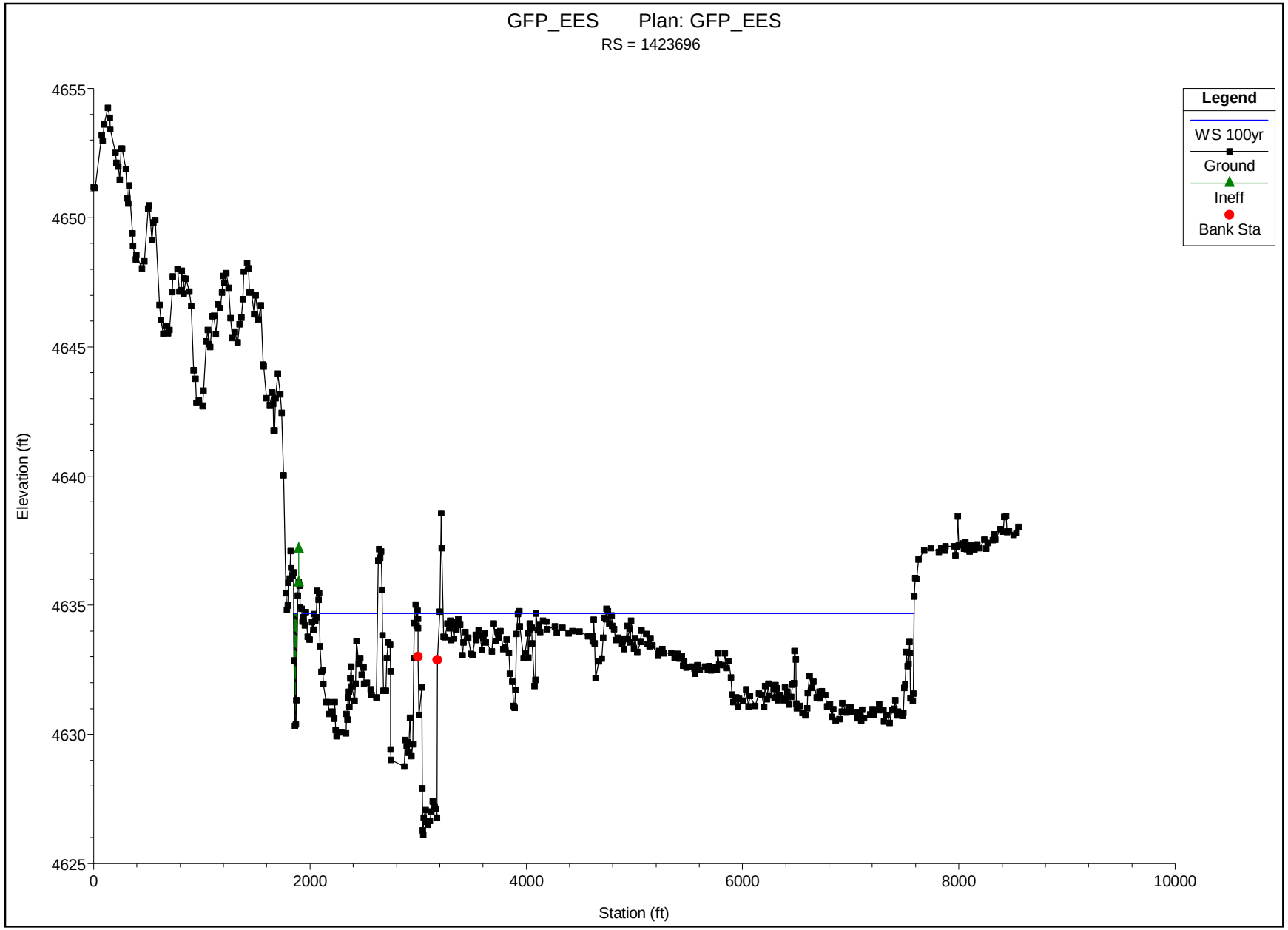

GFP_EES Plan: GFP_EES
RS = 1427934
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
4680
4670
4660
4650
4640
4630
0
2000
4000
6000
8000
10000
Station (ft)

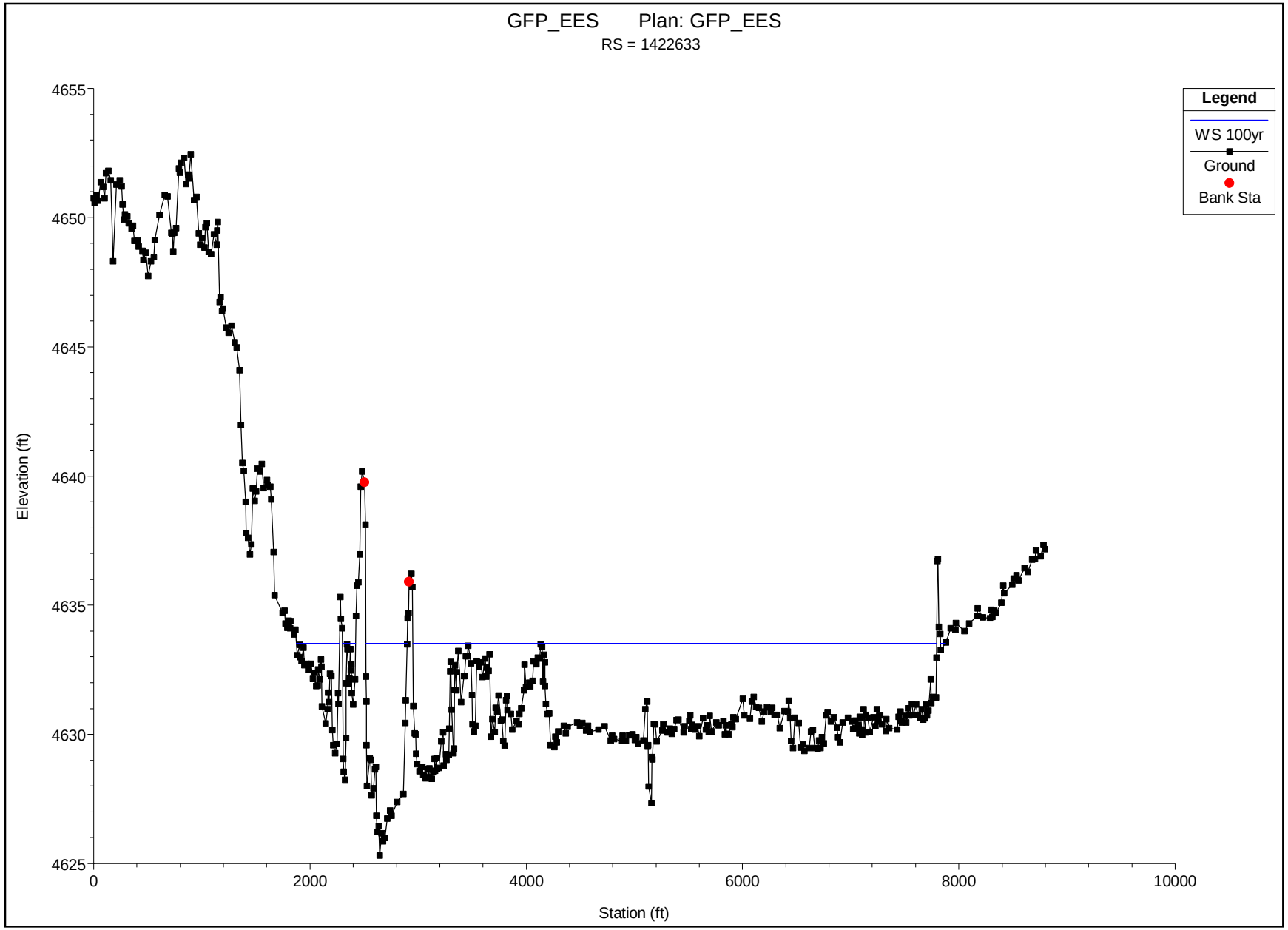

GFP_EES Plan: GFP_EES
RS = 1427410
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
4670
4660
4650
4640
4630
4620
0
2000
4000
6000
8000
10000
Station (ft)


GFP_EES Plan: GFP_EES
RS = 1426322
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4660
4655
4650
4645
4640
4635
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000


GFP_EES Plan: GFP_EES
RS = 1425238
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4665
4660
4655
4650
4645
4640
4635
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000

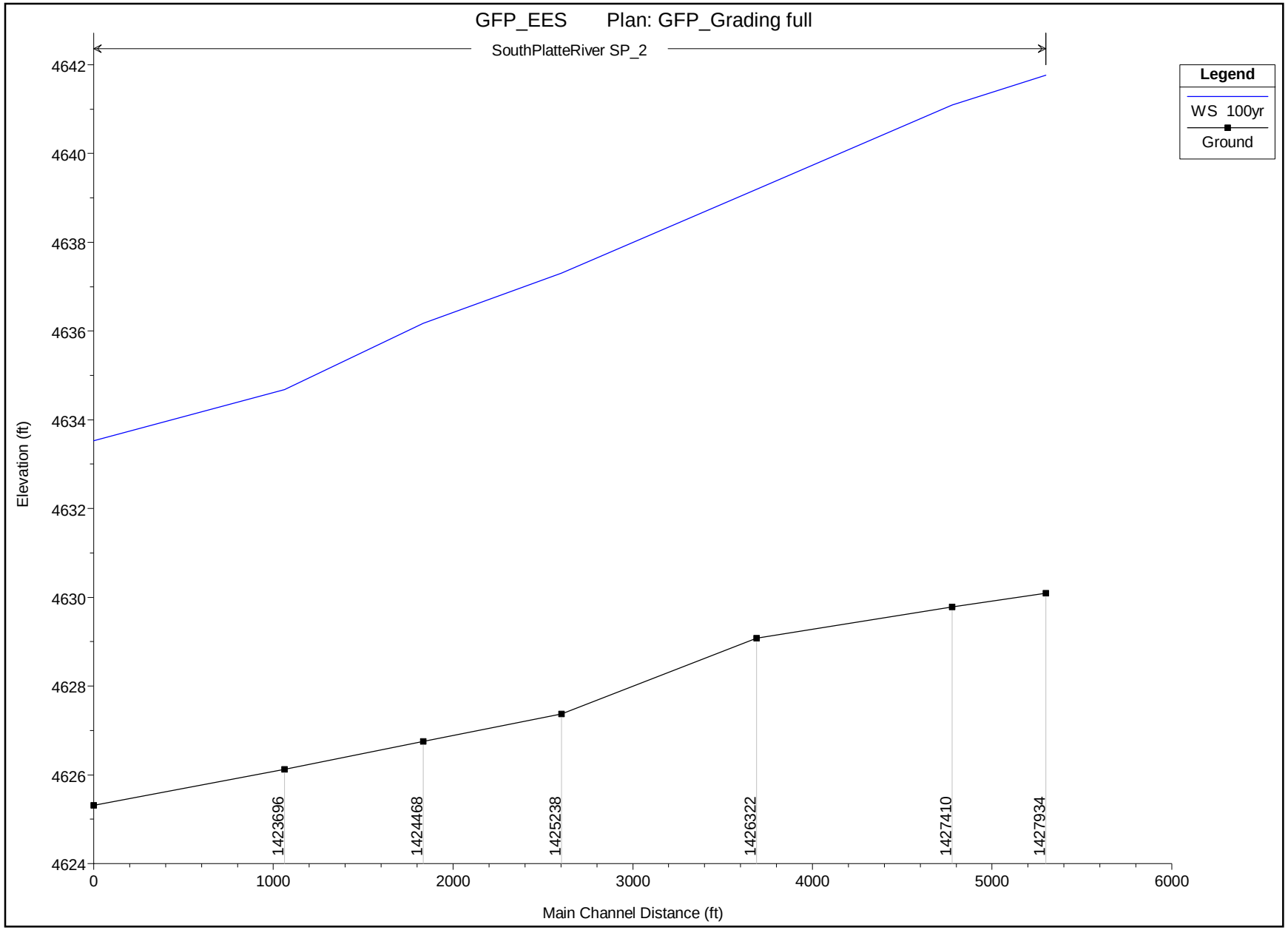

GFP_EES Plan: GFP_EES
RS = 1424468
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000

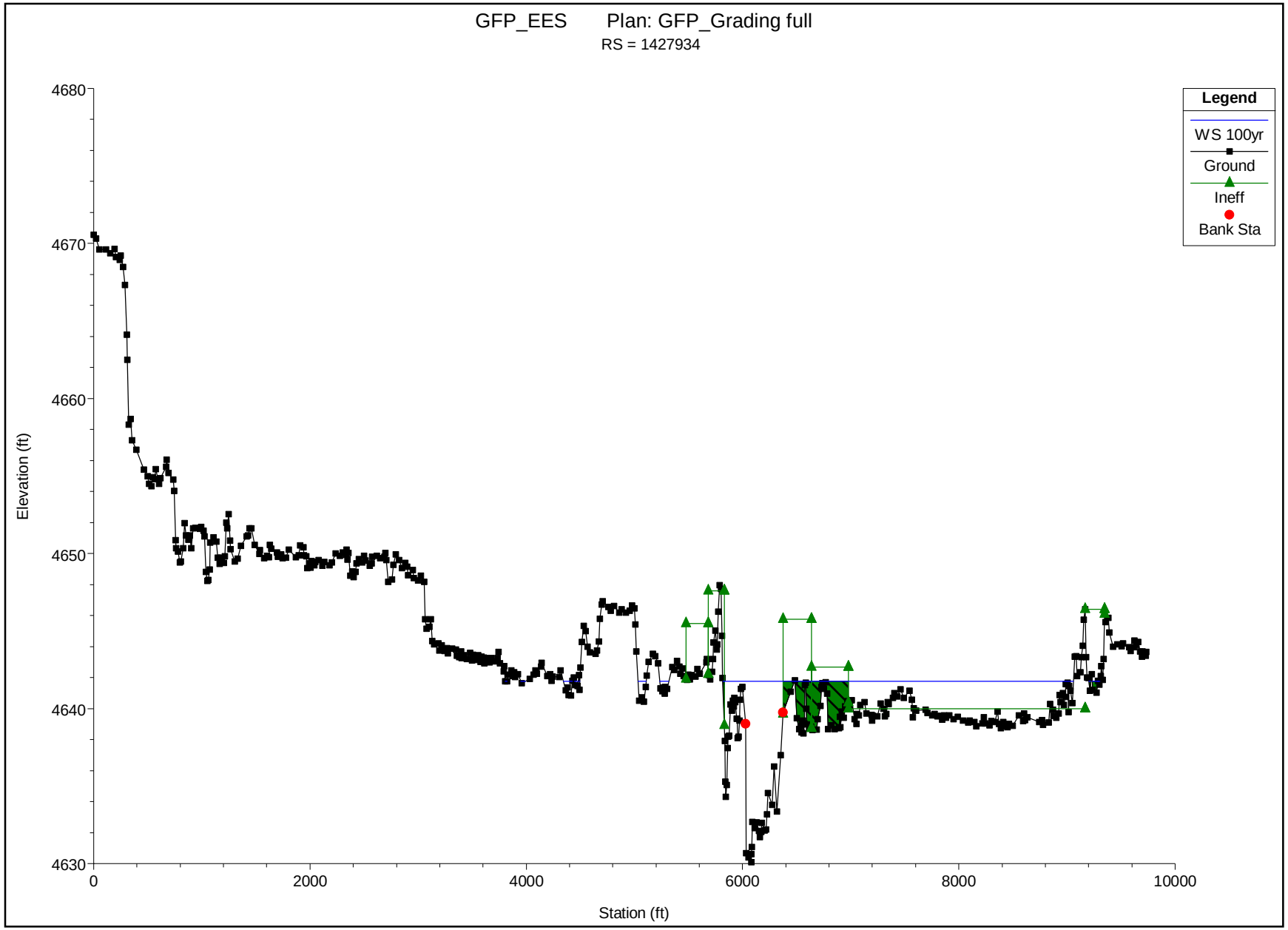

GFP_EES Plan: GFP_EES
RS = 1423696
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000
Station (ft)

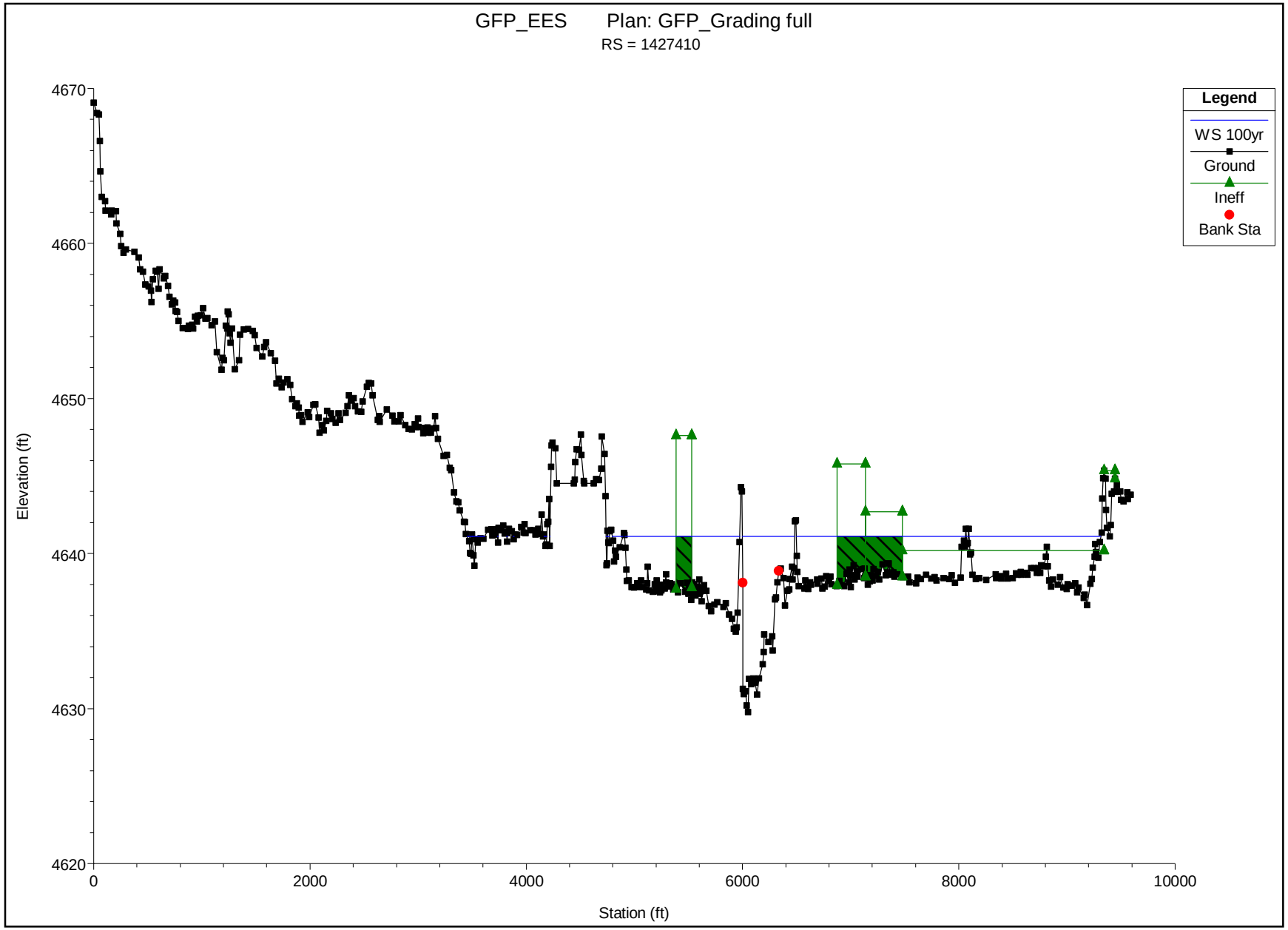

GFP_EES Plan: GFP_EES
RS = 1422633
Legend
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000

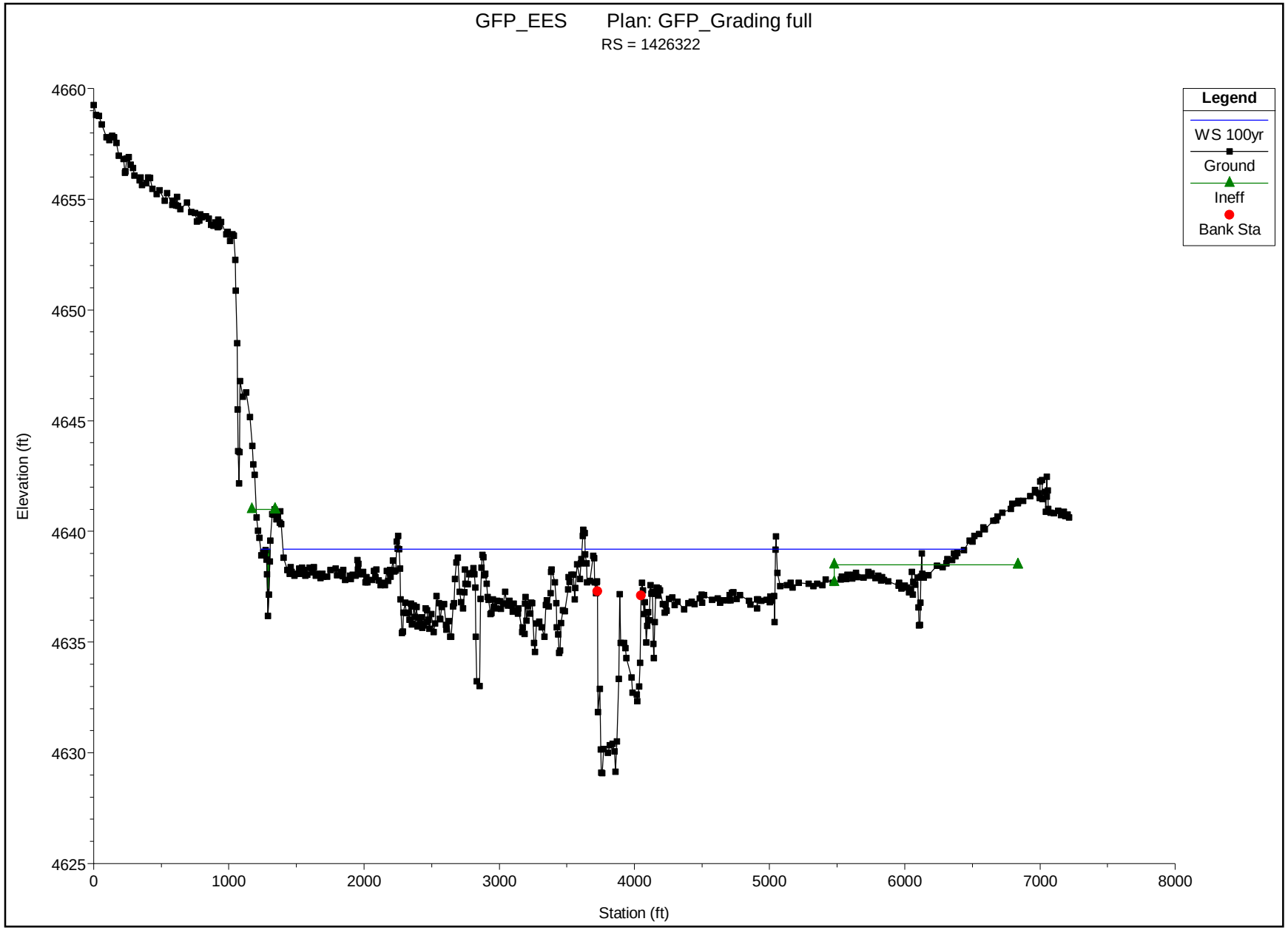
HEC-RAS Plan: GFP_Grad Full River: SouthPlatteRiver Reach: SP_2 Profile: 100yr

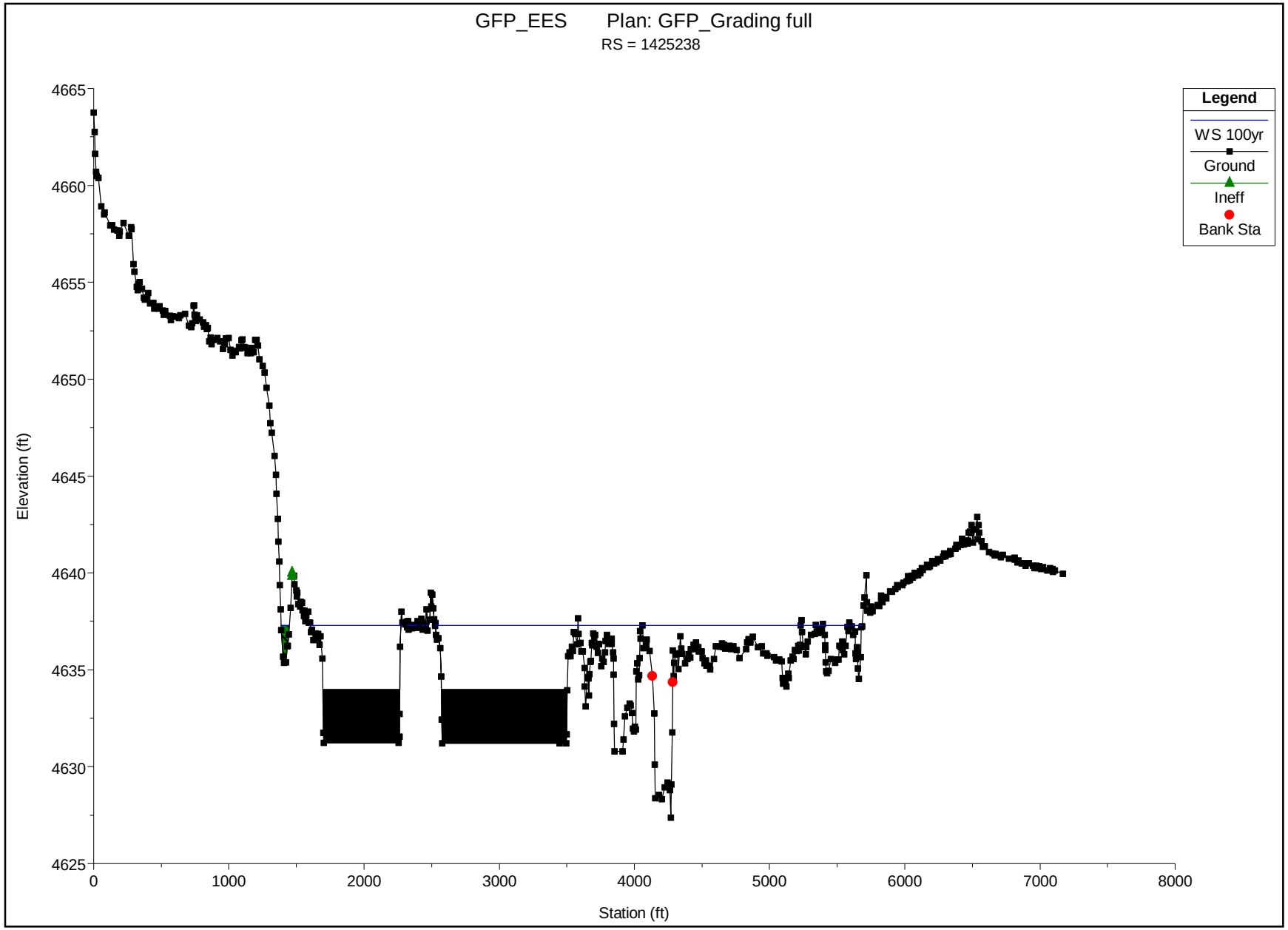
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SP_2	1427934	100yr	36624.00	4630.09	4641.76	4640.97	4642.30	0.002264	7.25	7923.86	3670.89	0.44
SP_2	1427410	100yr	36624.00	4629.78	4641.09	4639.56	4641.27	0.001019	4.63	12344.58	4675.10	0.29
SP_2	1426322	100yr	36624.00	4629.08	4639.20	4638.51	4639.48	0.002624	6.07	10907.55	5059.54	0.41
SP_2	1425238	100yr	36624.00	4627.37	4637.30	4635.88	4637.57	0.001106	4.33	9689.91	3962.26	0.27
SP_2	1424468	100yr	36624.00	4626.75	4636.18	4634.88	4636.40	0.002530	5.36	10863.64	4728.56	0.39
SP_2	1423696	100yr	36624.00	4626.12	4634.68	4633.03	4634.82	0.001489	4.48	13329.27	5549.65	0.30
SP_2	1422633	100yr	36624.00	4625.31	4633.53	4631.49	4633.60	0.000769	3.00	17916.13	5793.73	0.22

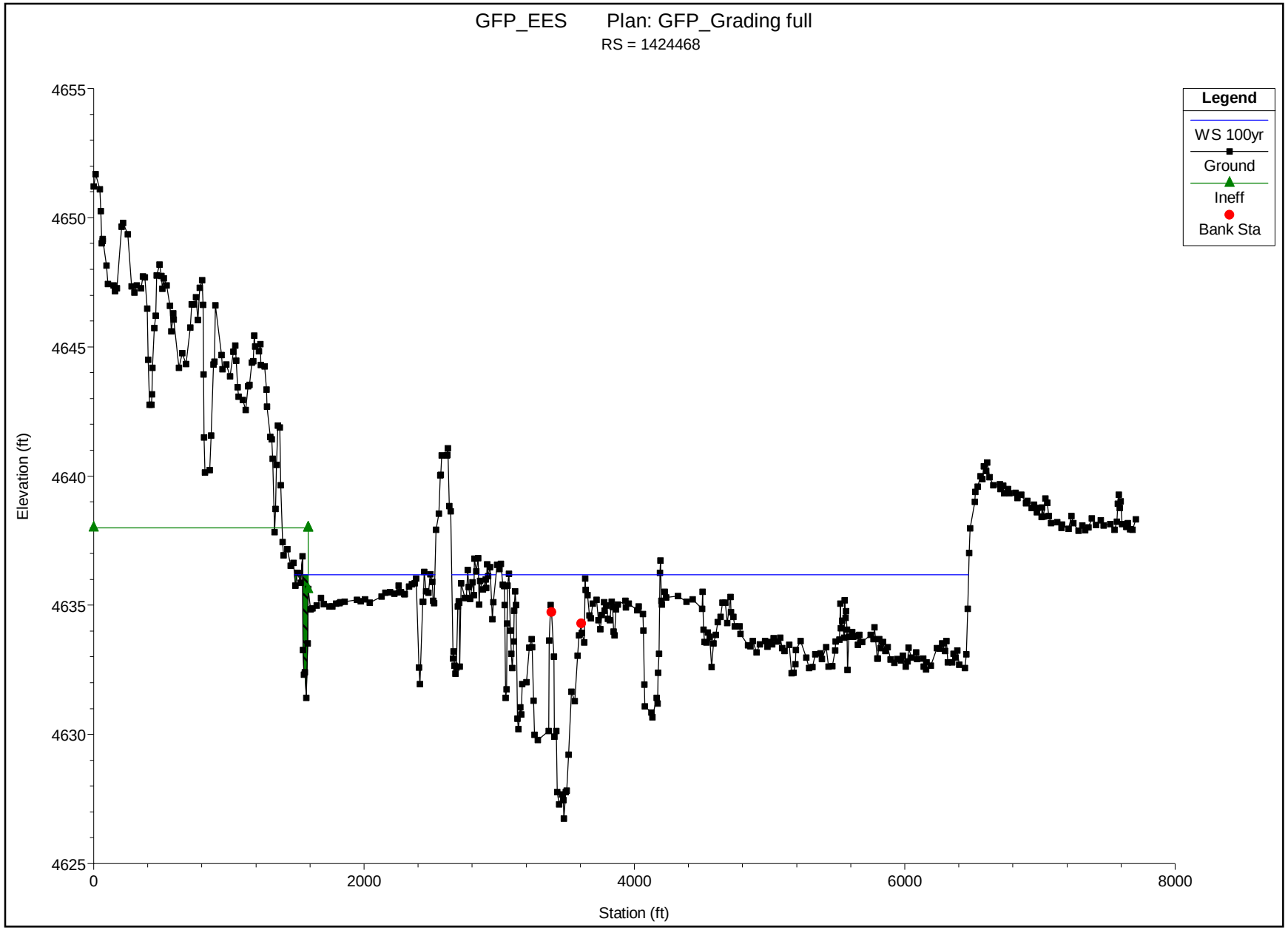

GFP_EES Plan: GFP_Grading full
SouthPlatteRiver SP_2
Legend
WS 100yr
Ground
Elevation (ft)
Main Channel Distance (ft)
4642
4640
4638
4636
4634
4632
4630
4628
4626
4624
0
1000
2000
3000
4000
5000
6000
1423696
1424468
1425238
1426322
1427410
1427934

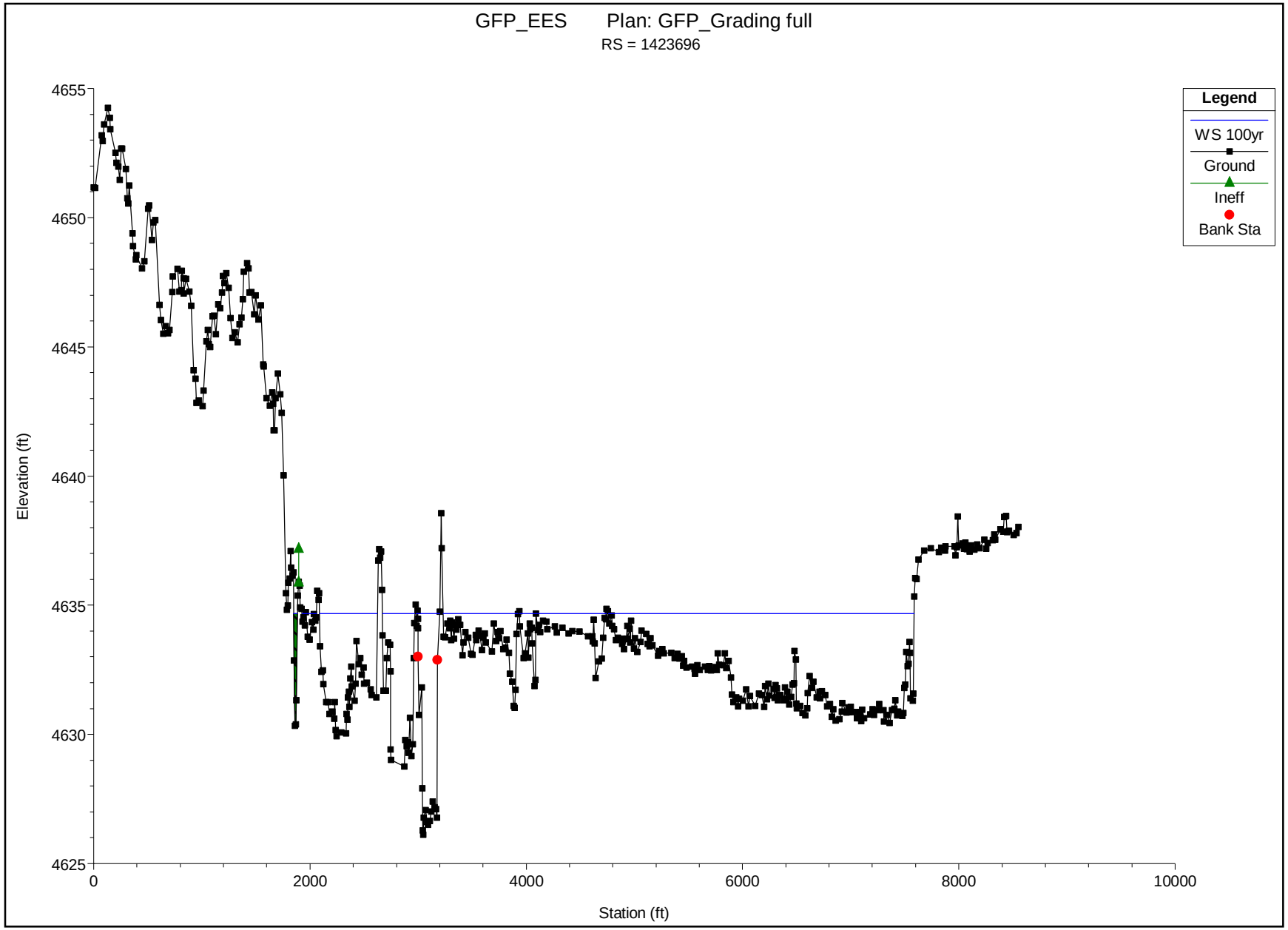

GFP_EES Plan: GFP_Grading full
RS = 1427934
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
4680
4670
4660
4650
4640
4630
0
2000
4000
6000
8000
10000
Station (ft)

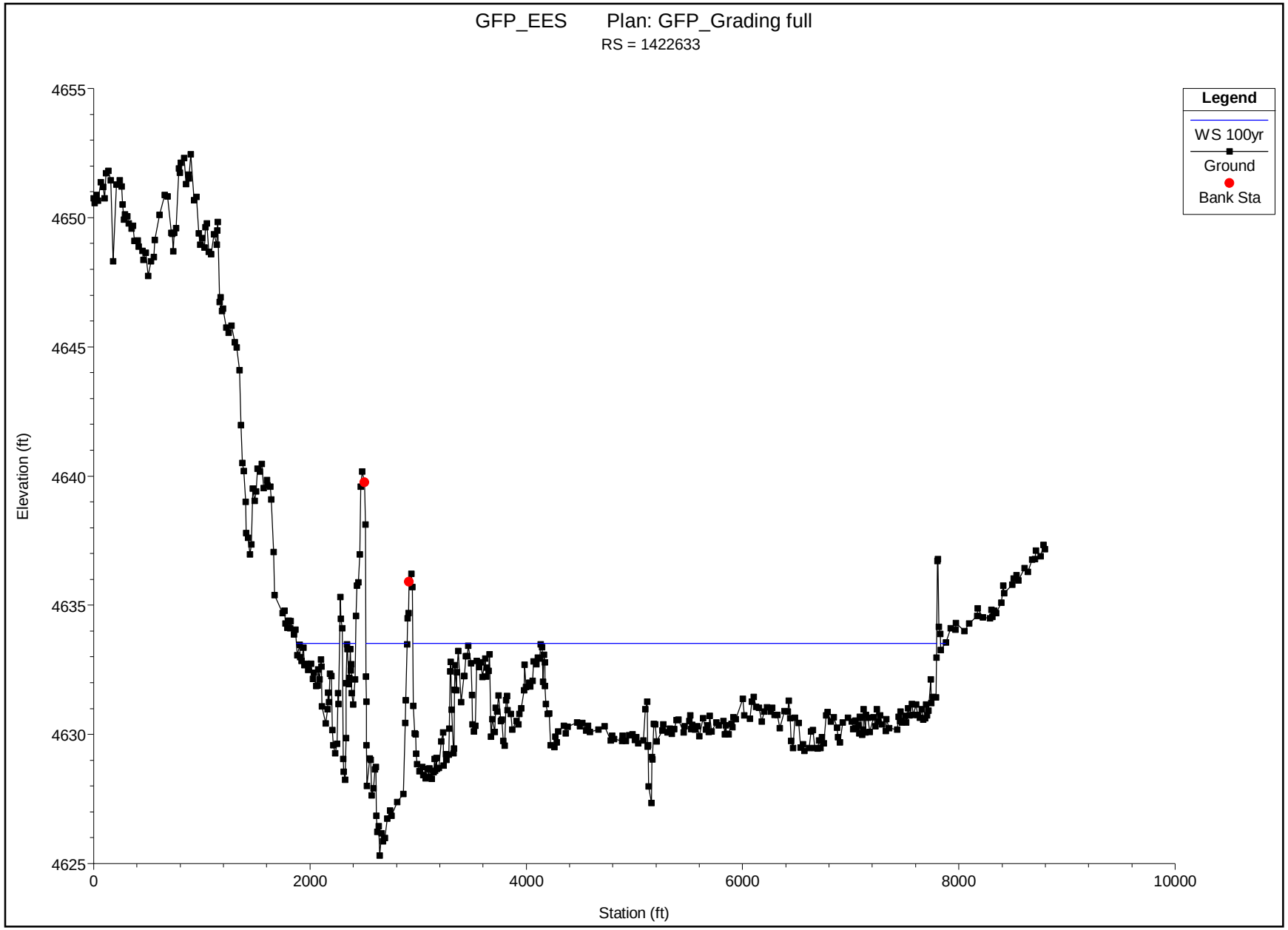

GFP_EES Plan: GFP_Grading full
RS = 1427410
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4670
4660
4650
4640
4630
4620
0
2000
4000
6000
8000
10000


GFP_EES Plan: GFP_Grading full
RS = 1426322
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4660
4655
4650
4645
4640
4635
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000


GFP_EES Plan: GFP_Grading full
RS = 1425238
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4665
4660
4655
4650
4645
4640
4635
4630
4625
0
1000
2000
3000
4000
5000
6000
7000
8000


GFP_EES Plan: GFP_Grading full
RS = 1424468
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
Station (ft)


GFP_EES Plan: GFP_Grading full
RS = 1423696
Legend
WS 100yr
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000

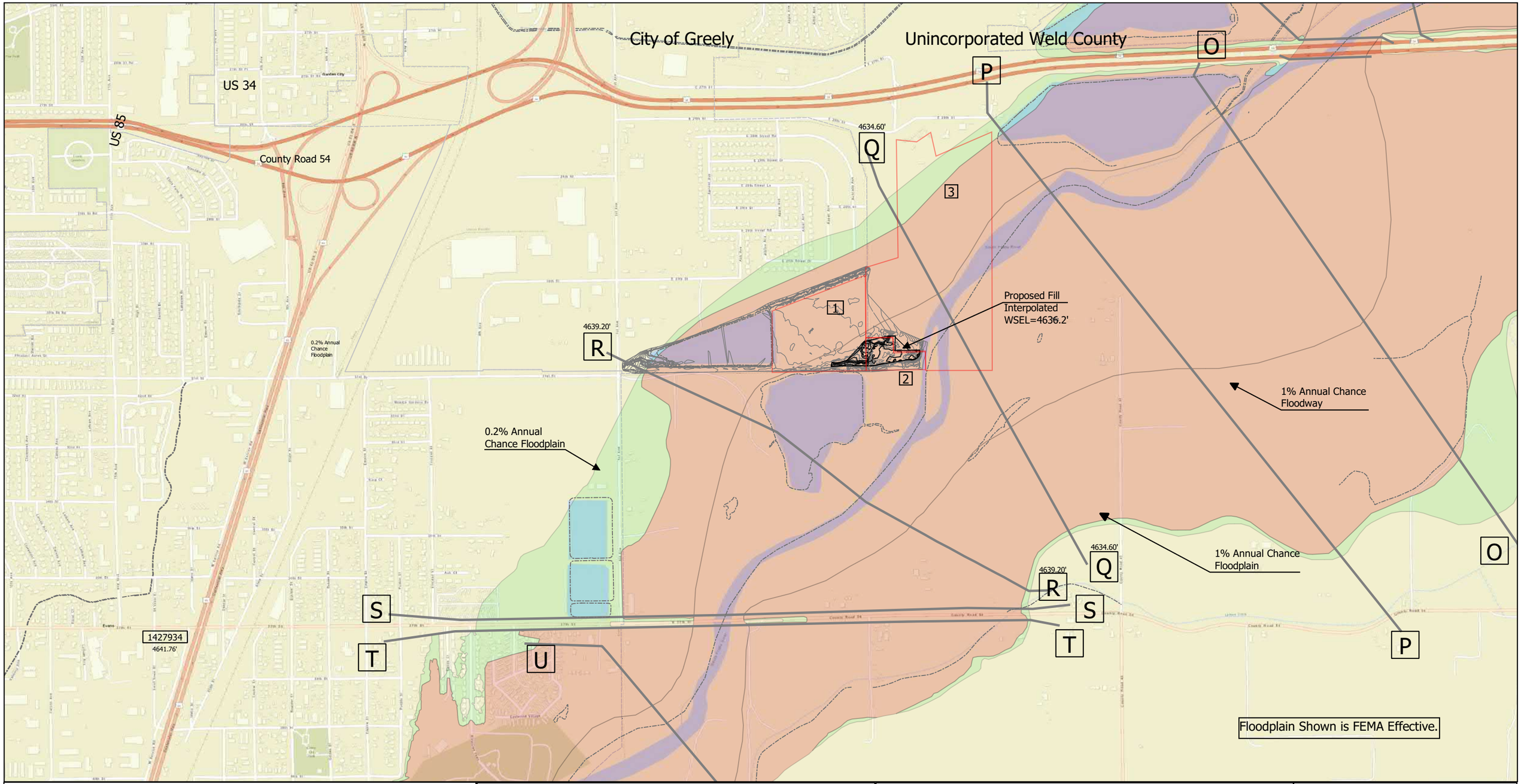

GFP_EES Plan: GFP_Grading full
RS = 1422633
Legend
WS 100yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
4655
4650
4645
4640
4635
4630
4625
0
2000
4000
6000
8000
10000

Greeley Fish Pond WSEL Comparison Table

Plan ID	Cross Section ID					WSEL							WSEL Comparison				Notes
	0	1	2	3	0	1	2	3	4	5	6	7	5-1	5-3	6-5	7-(4 or 2)	
	Effective	SP_2 (1-2)	US34_SP (3-4)	GFP_EES (5-7)	Effective	SP_2	SP_2_FW	US34_SP (LOMR)	US34_SP_FW (LOMR)	GFP_EES (pre-project conditions, un-changed, spliced)	GFP_Grading Full (Proposed Conditions)	GFP_Grading Full FW (Proposed Conditions)					
Section ID		...				...	...										
		1427934		1427934		4641.76	4642.25			4641.76	4641.76	4642.25	0.00	-	0.00	0.00	
		1427410		1427410		4641.09	4641.50			4641.09	4641.09	4641.50	0.00	-	0.00	0.00	
	R *	1426322 *		1426322	4639.0	4639.17	4639.57			4639.20	4639.20	4639.61	0.03	-	0.00	0.04	Change in WSEL due to US34 LOMR changes. This section is upstream of proposed GFP grading.
		1425238	1425238	1425238		4637.17	4637.53	4637.30	4637.70	4637.30	4637.30	4637.70	-	0.00	0.00	0.00	
	Interpolated **	1424468 **	1424468 **	1424468 **	4636.2	4635.99	4636.36	4636.16	4636.56	4636.16	4636.16	4636.56	-	0.00	0.00	0.00	Proposed grading at this section. WSEL lower than interpolated effective elevation.
	Q *	1423696 *	1423696 *	1423696 *	4634.6	4634.67	4635.12	4634.60	4635.10	4634.60	4634.60	4635.10	-	0.00	0.00	0.00	
		...	1422633	1422633		...	...	4633.20	4633.53	4633.20	4633.20	4633.53	-	0.00	0.00	0.00	FW starting WSEL set to 4633.53
			1421522	1421522				4631.96	4632.34				-				
			1421442 (Inl Struct)	1421442 (Inl Struct)				-					-				
			1421237	1421237				4631.92	4632.29				-				
			1420607	1420607				4631.36	4631.82				-				
			1419822 (Lat Struct)	1419822 (Lat Struct)				-					-				
			1419616	1419616				4631.16	4631.58				-				
			1419032	1419032				4631.14	4631.53				-				
			1418715	1418715				4631.13	4631.45				-				
			1418714 (Lat Struct)	1418714 (Lat Struct)				-					-				
			1418452	1418452				4630.67	4630.93				-				
			1418219 (Bridge)	1418219 (Bridge)				-					-				
			1417922	1417922				4629.19	4629.67				-				
			1417280	1417280				4628.38	4628.70				-				
			1416202	1416202				4626.92	4627.23				-				
			1416201 (Lat Struct)	1416201 (Lat Struct)				-					-				
			1415782	1415782				4626.46	4626.79				-				

* Effective and CHAMP cross sections are not located in the same place.

** Interpolated effective cross section coincides with CHAMP cross section 1424468 location.



Parcel Descriptions

1. City of Greely Real Estate Management Ref #096121201023
   Schneider Industrial Park. Section 21, Township 5 N, Range 65 W

2. City of Greely Real Estate Management Ref #09121100029
   Schneider Industrial Park. Section 21, Township 5 N, Range 65 W

3. City of Greely Real Estate Management Ref #096121100030
   Schneider Industrial Park. Section 21, Township 5 N, Range 65 W

N

0 1000 2000 ft

(1" = 1000' at 11" x 17")
NAVD-88 Vertical Datum

A-51

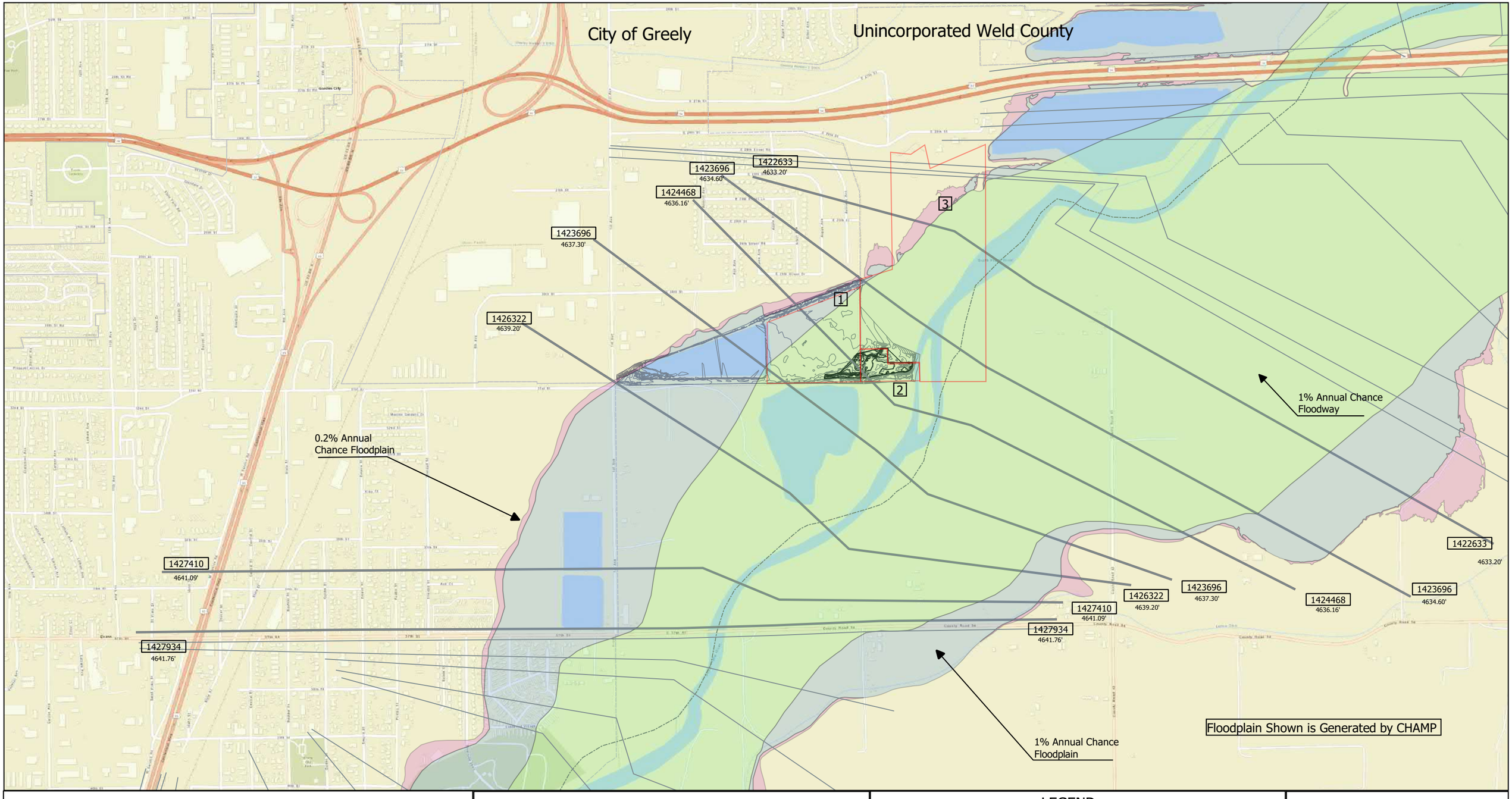
LEGEND

- Cross Sections
- Proposed Contours
- Existing Contours
- Municipal Boundaries
- Parcels
- 1 Parcel Reference No.

FEMA Floodplains

- 0.2% Annual Chance
- 1% Annual Chance

Effective Work Model



Parcel Descriptions

1. City of Greely Real Estate Management Ref #096121201023
   Schneider Industrial Park. Section 21, Township 5 N, Range 65 W

2. City of Greely Real Estate Management Ref #09121100029
   Schneider Industrial Park. Section 21, Township 5 N, Range 65 W

3. City of Greely Real Estate Management Ref #096121100030
   Schneider Industrial Park. Section 21, Township 5 N, Range 65 W

0 1000 2000 ft

(1" = 1000' at 11" x 17")
NAVD-88 Vertical Datum

A-52

LEGEND

CHAMP Floodplains
- 0.2% Annual Chance
- Area of Minimal Flood Hazard
- Floodway
- Other

- Parcels
- [1] Parcel Reference No.
- Cross Sections
- Proposed Contours
- Existing Contours
- Municipal Boundaries

CHAMP/GFP Work Model

APPENDIX E

UPDATED NATURAL RESOURCES ASSESSMENT (TERRACON – AUGUST 2019)

APPENDIX F

MATERIALS MANAGEMENT PLAN (TERRACON – JULY 2019)

MATERIALS MANAGEMENT PLAN

Greeley Fishing Pond

East of 31st Street at 1st Avenue

Greeley, Weld County, Colorado

July 31, 2019

Terracon Project No. 21197001

Prepared for:
City of Greeley
Greeley, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

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MATERIALS MANAGEMENT PLAN
GREELEY FISHING POND
EAST OF 31ST STREET AT 1ST AVENUE
GREELEY, WELD COUNTY, COLORADO
July 31, 2019
Terracon Project No. 21197001

1.0 GENERAL INFORMATION

As part of the State of Colorado Voluntary Cleanup Program (VCP), the City of Greeley is proposing to encapsulate the southeast portion of the Greeley Fishing Pond site consisting of an area of approximately 5 acres with a permanent engineered vegetative cover. Prior investigative environmental field work has determined potential environmental impacts to soil and soil vapor in the southeast portion of the site by solid waste including asbestos containing materials (ACM), regulated asbestos containing soil (RACS), metals, and semi-volatile organic compounds (SVOCs). Terracon Consultant's Inc. (Terracon) has prepared this Materials Management Plan (MMP) for the management of potentially environmentally impacted media encountered during the proposed redevelopment and any future construction activities.

Implementation of the procedures outlined in this document will result in the protection of public health and the environment during the redevelopment activities.

ITEM	DESCRIPTION
Site Address	East of 31st Street at 1st Avenue Greeley, Weld County, Colorado
Site Area	Western Parcel- 16.1375 acres Central Parcel- 18.7185 acres Eastern Parcel- 3.7943 acres Total area – 38.6503 acres
Parcel Number(s)	Western Parcel- 096121217001 Central Parcel- 096121201023 Eastern Parcel- 096121100029
Current Land Use	The project area is currently vacant and unused
Current Zoning	The project area is owned by the City of Greeley and is zoned as Medium Density Industrial (I-M) and Agricultural (A)
Current Ground Cover	Western Parcel- Single dirt access road adjacent to a pond Central Parcel- Open grass area with isolated tree cover Eastern Parcel- Open grass area with limited tree cover

ITEM	DESCRIPTION
Topography	The property is located at an approximate elevation of 4,635 feet above sea level. Surface geology in the area is characterized by alluvial deposits of sand and gravel underlain by claystone, shale, sandy shale, and sandstone of the Cretaceous-era Laramie formation (Colton 1978). According to the U.S. Geological Survey (USGS), depth to the uppermost ground water beneath the property and vicinity is less than 5 feet below ground surface (bgs) (Hillier et al. 1979). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the east-northeast, toward the South Platte River (USGS 2013). Based on the topography and field observations, the expected flow direction of the uppermost ground water is to the east-northeast, toward the South Platte River.
Proposed Construction	The City plans to convert the property to be used as a public park and natural open space with access to the Greeley Fishing Pond and inclusion of newly developed public walking trails. The City of Greeley plans to redevelop and encapsulate the historical solid waste disposal portion of the site with a permanent vegetative cover to allow for future use of the site as public space.
Property Owner	City of Greeley Public Works Department 1001 9th Ave, Greeley, CO 80631

The following sections of the MMP discuss the scope of activities to manage the site soils, solid waste, and groundwater during development:

- Materials of Concern;
- Soil, Solid Waste, ACM and RACS Management; and,
- Plan Implementation.

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. This document was prepared in accordance with the scope of work agreed with you, our client, as reflected in our proposal.

Any approaches, plans, findings, conclusions, and recommendations presented in this MMP are based upon information derived from assessment and survey activities conducted by Terracon and other environmental consultants. Such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during previous assessments conducted for the site by Terracon or others. The data, interpretations, approaches,

plans, findings, and any recommendations are based solely upon data obtained at the time and within the scope of those services.

2.0 PROJECT CONTACTS

Owner's Representative:
Mr. Brian Ward, P.E, P.M.P.
Public Works Project Manager
1001 9th Ave
Greeley, Colorado 80631
(970) 350-9357

Terracon Contact Person and Phone:
Michael Skridulis
Terracon Consultants, Inc.
1831 Lefthand Circle, Ste C
Longmont, Colorado 80501
303-454-5249

3.0 PURPOSE

The purpose of this MMP is to provide a guidance document to manage contaminated materials, if encountered, during site redevelopment. Through implementation of this MMP, the Owner/Owner's Representative will be notified of potential environmental-related incidents pertaining to construction activities at the site. Terracon is not responsible for fulfilling current and/or future Owner's obligations (as Owner of the site) described in any environmental covenants, responsibilities, agreements, or contracts associated with the site, if they exist.

For purposes of this MMP, the site is defined as any area associated with the historical solid waste disposal area of the property defined above and includes surrounding land that requires construction activity related to support of the redevelopment plan. This would include those areas where underground utility installation and connection is required to existing utilities that may not be physically located on the site.

The Plan outlines procedures to protect workers, public health, and the environment during development activities. This MMP also addresses decontamination procedures for equipment and materials. Earthwork operations and decontamination issues are discussed in the context of the procedures to be followed when regulated soil is encountered during construction activities.

4.0 MATERIALS OF CONCERN

Materials of concern were identified based on environmental assessments conducted at the Greeley Fishing Pond site during multiple visits conducted as part of a Limited Site Investigation (LSI) and Hazardous Materials Assessment. Identified materials of concern include soil, soil vapor, solid waste, and ACM.

4.1 Soil

Terracon collected a total of 24 soil and sediment samples at the Greeley Fishing Pond site and analyzed for a combination of metals, SVOCs, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), pesticides, and herbicides during the Site Investigations. Laboratory values were compared to the US Environmental Protection Agency (EPA) Residential and Industrial Regional Screening Levels (RSLs), (May 2016) and the Colorado Department of Public Health and Environment (CDPHE) Groundwater Protection Values (GPV) (March 2014). The following chemicals were detected at the site:

- Arsenic was detected in 10 of the 24 samples. Of the 10 samples with Arsenic detected, 8 exceeded the Industrial RSL (3.0 mg/kg) and 2 were below the Industrial RSL but above the Residential RSL (0.68 mg/kg).
- Five SVOCs were detected above either the EPA Residential RSL or Industrial RSL. Benzo(a)anthracene and benzo(b)fluoranthene were detected above the Residential RSL (0.16mg/kg) in SB-01(4-8), SB-02(4-8), and SB-04(4-8). Benzo(a)pyrene was detected above the Industrial RSL (0.29 mg/kg) in SB-01(4-8) and below the Industrial RSL but above the Residential RSL (0.016 mg/kg) in SB-02(4-8), SB-02(8-12), SB-04(4-8), and SB-05. Dibenz(a,h)anthracene was detected above the Industrial RSL (0.29 mg/kg) in SB-01(4-8), SB-02(4-8), SB-04(4-8) and below the Industrial RSL but above the Residential RSL in SB-02(8-12) and SB-05. Indeno(1,2,3-cd)pyrene was detected above the Industrial RSL (2.9 mg/kg) in SB-01(4-8), SB-02(4-8) and below the Industrial RSL but above the Residential RSL (0.16 mg/kg) in SB-01(8-12), SB-02(8-12), SB-04(4-8), SB-04(8-12), and SB-05.
- Investigation results have also shown the presence of surficial and buried solid waste from historical dumping activities. Solid waste encountered may be handled by selective picking surface waste to be disposed of at an offsite facility or will remain onsite and be covered during implementation of remedial activities.

Remaining constituents analyzed in the soil samples collected at the Greeley Fishing Pond site were either not detected above laboratory method detection limits or were detected below the CDPHE GPV or EPA Residential RSLs. Site redevelopment may require intrusive activities for site grubbing, site grading, soil placement, compaction, and other ancillary construction activities. As a result, workers may be exposed to arsenic and/or SVOC impacted soils, ACM, and solid waste. Soil analytical results are summarized in Table 1.

4.2 Soil Vapor

Based on the LSIs, depth to groundwater ranged from approximately 8.0 feet below ground surface (bgs) to 11.30 feet bgs across the site. Five soil vapor samples were collected from soil vapor points the installed next to the monitoring well locations MW-01 through MW-04, and MW-07 (SVP-01 through SVP-04, and SVP-07). The soil vapor points were installed to confirm previously completed soil vapor sampling results from Quantum Environmental (Quantum) and to facilitate additional soil vapor sampling for delineation of potential soil vapor concerns. An additional soil vapor point sample, SVP-02R, was collected to confirm the sampling results of SVP-02. Additionally, soil vapor sample SVP-02RB was collected as a field blank for quality control checks of the subcontracted laboratory. Laboratory analysis detected the presence of the following VOCs:

- Chloroform was reported from the soil vapor samples collected from SVP-03 (33 µg/m^3) and SVP-02R (6.13) exceeding the EPA vapor intrusion screening level (VISL) of 4 µg/m^3.
- Tetrachloroethene ([PCE] 652 µg/m^3) was reported at concentrations exceeding EPA VISL of 367 µg/m^3 for the soil vapor sample collected from SVP-02R.
- Trichloroethene (TCE) was reported from the soil vapor samples collected from SVP-02 (32.4 µg/m^3) and SVP-02R (47.8 µg/m^3) exceeding the EPA VISL of 16 µg/m^3.

4.3 Asbestos-Containing Materials

ACM surveys were conducted from March 7 through 9, 2018 by a Certified Asbestos Building Inspector (CABI). 69 bulk material samples were collected from suspect materials within the 5-acre historical solid waste disposal area on the southeast portion of the site. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in other concealed or buried areas.

- Laboratory analysis detected greater than 1% asbestos in 21 of the bulk samples (asbestos-containing material [ACM]). Of the 21 samples, 8 were determined to be “friable” based upon the judgement of the CABI. Friable ACM and non-friable ACM with a high probability of fiber release during soil disturbing activities or through weathering is referred to as RACS by the CDPHE.

Additionally, an Interim Stabilization Plan (ISP), Plan dated June 5, 2018 for the ACM identified during the initial site surveys was prepared for the property. Terracon conducted additional ACM sampling within the designated ISP area of the site on July 3, 2018. The purpose of the inspection was to further delineate the extent of the previously identified friable ACM within the approximate 55-foot by 45-foot area outlined in the ISP. Terracon confirmed the two general locations of the friable ACM roofing outlined in the ISP and determined the size of the areas to be covered during the implementation of the ISP could be diminished. Terracon verified the exact locations for implementation of the ISP and submitted the addendum to CDPHE.

On July 25 and 27, 2018, Terracon conducted oversight of the implementation of the ISP by Region 8 Environmental (R8). Terracon was responsible for oversight of the stabilization and/or removal of RACS identified in the ISP and Addendum #01 to the ISP. Stabilization activities were conducted by R8 Enviro and included:

- Warning fence and signage.
- Silt fences.
- Removal of RACS Friable ACM Areas outlined in the ISP.
- Install geotextile over Friable ACM Areas outlined in the ISP.
- Fill/cover installed geotextile with six inches of soil Friable ACM Areas outlined in the ISP.

Based on Terracon's final visual inspection performed on July 27, 2018, fill dirt was placed over the geotextile in RACS locations I15-1, J17-2 & J17-3, H10-5 and O28-2 in accordance with the ISP. Terracon confirmed that at least six inches of fill soil was placed over the geotextile in each location.

Terracon conducted a supplemental limited asbestos assessment at the property on July 24, 25, and August 6, 2018. The purpose of the investigation was to confirm the findings of previous ACM surveys performed on the property. The results are summarized below:

- Survey activities were initiated with visual observation of the property (within the property line boundary but excluding the previously identified areas surveyed by Quantum/Spirit in the ISP). A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.
- Terracon inspectors walked all accessible areas of the property and visually assessed and documented any suspect asbestos-containing building material (ACBM) debris on the property and obtained bulk samples for analysis.
- Terracon collected 30 bulk samples from 10 homogeneous areas of suspect ACM. Laboratory analysis confirmed the following asbestos-containing non-friable materials: Red Flooring Material, Gray Mastic, Black Roofing Tar and Felt associated with Gray Mastic, Black Mastic with Silver Coating and Paint, Black Roofing Tar and Felt associated with Black Mastic.
- Based on observations, Terracon considers the ACM debris to be non-RACS. According to CDPHE Solid Waste Regulations, non-friable ACM debris that has not been rendered friable or has deteriorated due to weathering, historical mechanical impact or fire damage is considered non-RACS and is therefore exempt from Section 5.5 of the Solid Waste regulations but is subject to the requirement for proper disposal as non-friable asbestos waste.

Site redevelopment may require intrusive activities for site grubbing, site grading, soil placement, compaction, and other ancillary construction activities. As a result, workers may be exposed to

ACM material. Currently identified stabilized ACM areas are outlined on figures provided in the Site Specific design and specifications package.

5.0 MATERIALS OF CONCERN MANAGEMENT

If environmentally-impacted soil, solid waste, or ACM are encountered during redevelopment or remedial activities, then that material will be managed in accordance to the following criteria.

5.1 Soils Management

Environmentally-impacted soil may or may not be readily distinguishable using visual methods. A qualified environmental professional shall be present, as appropriate, for site grubbing, site grading, subsurface excavation, cover soil placement, or other intrusive activities to evaluate and mitigate potential worker exposure impacts. Disturbed soil will be evaluated for impacts using visual and olfactory senses and through the use of environmental monitoring equipment such as a photo-ionization detector. Soil is not currently planned to be removed from the site. Impacted soil encountered during remedial efforts may be relocated to assist in grading areas to be contained under the vegetative soil cover. Workers and nearby residents may be exposed to impacted soil through inhalation of fugitive dust. The use of water and/or reduced construction vehicle speeds to control dust during construction will be used to suppress any airborne dust. If the removal of impacted soil is required, excavated soil that is found to be impacted will be direct loaded into haul trucks when possible to reduce the handling and dust generation. Environmentally-impacted soil within the beds of the haul trucks will be covered during transportation of impacted soil to the appropriate disposal facility, if required.

If environmentally-impacted soil is encountered that requires offsite disposal, and if the landfill determines that the soil does not meet the facility's requirements for characterization as non-hazardous waste, hazardous waste generator identification will be obtained and the non-conforming material will be transported to an appropriately permitted disposal facility.

Documentation regarding the quantities and disposition of soil will be summarized and reported as part of the Completion Report prepared for the CDPHE at the conclusion of the on-site soil disturbance activities, if applicable.

In the event that Regulated Asbestos Containing Soil (RACS) as defined in the CDPHE 6 CCR 1007-2 Part 1 – Regulations Pertaining to Solid Waste Sites and Facilities, Section 1.2 Definitions, effective January 14, 2015; are encountered during remedial activities, it will be relocated to areas to be contained under the vegetative soil cover. If RACS is required to be removed from the site, it will be removed in compliance with the CDPHE 6 CCR 1007-2 Part 1 – Regulations Pertaining to Solid Waste Sites and Facilities and Section 5.5 (Management of RACS), effective January 14, 2015.

5.1.1 Grading

The site redevelopment activities will generally involve the use of earthmoving machinery that may engage in soil grading, relocation, or other potentially intrusive activities. Any soil and debris generated during site redevelopment will either be reused on-site, or characterized and managed as waste for disposal.

5.1.2 Dust Mitigation

The purpose of implementing dust mitigation activities are to minimize:

- Generation of visible dust;
- Off-site migration of fugitive dust; and,
- Worker and public exposure.

The Owner/Owner's Representative/General Contractor and/or excavation subcontractor will conduct dust mitigation activities as a part of the best management practices (BMP). Periodic water spraying will be the primary method used for controlling fugitive dust during excavation, re-grading, and any other intrusive activities at the site. Water used for dust control will be free from salts, oil, and other deleterious materials. Dust control water will be obtained from fire hydrants or spigots within close proximity to the work area or trucked onto site from an approved source.

Areas to be excavated and/or re-graded will be wetted using various techniques. The work areas will also be lightly sprinkled during excavation activities (as necessary) to minimize airborne dust. Dust control measures will be increased (more frequently wetting and sprinkling) during the excavation/stockpiling of dry materials and/or observation of visible dust from site activities.

Trucks and equipment leaving the site will adhere to the City of Greeley's requirements to minimize soil that may inadvertently fall or be tracked onto adjoining street surfaces.

5.2 Groundwater Management

Groundwater is currently not anticipated to be encountered during site remedial activities. However, if groundwater is generated, groundwater samples will be analyzed for dissolved metals, VOCs, SVOCs, and any other additional parameters required by the City, County, or State construction dewatering guidance, and the laboratory results compared to the CDPHE's basic standards for groundwater (December 2016). If small quantities are encountered, the groundwater will be removed with a vacuum truck and transported to the appropriate disposal facility. If large quantities of impacted groundwater are encountered, construction site dewatering will be implemented. The anticipated discharge point for produced groundwater has not been determined. A construction dewatering permit with site specific monitoring parameters is required before treatment, if needed, and discharge can occur.

5.3 Asbestos Management

Site redevelopment activities may require the movement, removal, or general disturbance of ACM and should be conducted in compliance with CDPHE Air Quality Control Commission's Regulation No. 8, Part B, 5 CCR 1001-10, Part B.

Intentionally running over Category I non-friable ACM with tracked vehicles as a means of segregation or compaction, is considered grinding the material making it friable RACM and subject to the asbestos NESHAP.

EPA states that waste consolidation efforts which involve the use of jack hammers or other mechanical devices such as grinders to break up asbestos-containing concrete or other materials covered or coated with Category I non-friable ACM, are subject to the regulation. Such materials adhering to the concrete if removed before such waste consolidation then the waste consolidation is not subject to NESHAP.

OSHA 29 CFR 1926.1101 requires that workers performing construction-related activities be protected from asbestos fibers in excess of the permissible exposure limit of 0.1 f/cc of air. Contractors must comply with applicable provisions of OSHA 29 CFR 1926.1101 during construction activities.

Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in voids or in other concealed areas.

Non-friable ACM located outside of the historical solid waste area of the site will be relocated to the assist in grading areas to be contained under the vegetative soil cover, or removed from the site.

5.3.1 Training

Personnel overseeing, directing, inspecting and/or handling soil (known or suspected of containing asbestos) will have, at a minimum and as appropriate to the work activity, the following training and experience:

1) Individuals performing soil-disturbing activities in areas where asbestos has not been identified, but where there is reason to believe that asbestos may be encountered, are required to complete on-the-job ACS awareness training. The training must provide information necessary to perform their duties in a way that ensures compliance with the requirements of Section 5.5 of the Colorado Solid Waste Regulations, and must be conducted by a person trained in asbestos identification and management procedures and who has a minimum of six (6) months experience in ACS management;

2) Individuals performing soil-disturbing activities in an area that ACS is known to exist are required to complete, at the minimum, on-the-job asbestos-contaminated soil awareness

training discussed above, and the OSHA asbestos awareness training set forth at 29 CFR 1926.1101(k)(9)(vii);

3) Individuals performing inspection and identification of asbestos in soil must have current Colorado-certified Asbestos Building Inspector (CABI) certification in accordance with Air Quality Control Commission (AQCC) Regulation No. 8 (5 CCR 1001-10, Part B), and must have a minimum of six months experience in asbestos-contaminated soil inspections; and,

4) Individuals performing air monitoring must have a current Air Monitoring Specialist (AMS) certification in accordance with AQCC Regulation No. 8 (5 CCR 1001-10, Part B).

In addition, individuals performing soil-disturbing activities in ACS, in which the use of personal protective equipment (PPE) is required, will be trained in the proper usage of respiratory protection and have a current annual physical with a medical release/respirator usage form.

Personnel without asbestos training that are working on the site will be advised and directed to not disturb areas (other than CABIs conducting asbestos observations) where known or suspected asbestos is present. Personnel driving onto the site will be notified of known or suspected asbestos locations, if encountered, and directed to not drive on those areas.

5.3.2 Suspect ACS and/or ACM

This section applies to soil disturbing work in areas in which ACS or ACM is known or suspected to be present.

The CDPHE will be notified at least 10-days prior to any planned soil-disturbing activity in areas of known ACM and/or ACS. The CDPHE can be notified by using the Notification Form attached to this plan and faxed to 303-759-5355, or can be e-mailed to comments.hmwmd@state.co.us. Notification forms are provided in Attachment A to this plan.

Prior to conducting any soil disturbance, subsurface utilities will be identified. The contractor will contact the Utility Notification Center of Colorado prior to any subsurface work as necessary.

Important: Unless authorized by the City of Greeley or their representative, personnel will not enter an excavation without the proper safety precautions. Substantial local, state, and federal regulations and Site-specific health and safety requirements apply for entry into excavations. The City of Greeley or their designated representatives' Health and Safety Officer must be notified prior to any activity involving entry of personnel into excavations.

Soil-disturbing activities to be performed on the site are anticipated to include minor excavation, grubbing, grading, and landscaping improvements.

Soil Disturbance in areas where asbestos has not been identified, but where there is reason to believe that asbestos may be encountered, will be performed by properly trained personnel and under the observation of a CABI consistent with the applicable portions of Section 5 of the Solid Waste Regulations. Soil-disturbing oversight activities will be performed by a CABI with at least six months of asbestos-contaminated soils experience.

Site personnel, equipment, and materials required to implement any required engineering controls will be contracted by the City of Greeley (Owner) or their designated representative. Site safety, including traffic control of vehicles directly or indirectly related to ACS management, will also be the responsibility of the City of Greeley or their designated representative.

The CABI must be present during all soil disturbing activities in areas where there is known ACS or ACM or a reasonable suspicion that ACS or ACM may be encountered. As the excavation advances, the CABI shall inspect the bucket for asbestos debris as the soils are removed from the excavation and, if not directly loaded into trucks, in the staging area.

Upon discovery of any suspect non-friable ACM by the CABI, all soil-disturbing activities shall immediately stop. Properly trained personnel shall remove the suspect non-friable ACM from the soil and approximately three (3) inches of surrounding soil and properly manage disposal (refer to Section 4.6). The CABI will visually confirm that the non-friable material(s) have been removed and soil disturbing activities will be allowed to resume. If soil with non-friable materials will be hauled off site, the work practices in Section 4.4 of this plan shall be followed.

Upon discovery of any suspect friable ACM by the CABI, all soil-disturbing activities shall immediately stop. Properly trained personnel shall take actions necessary to assure that the suspect friable ACM is not disturbed including demarcating area and covering with an impermeable tarp and posting signs to warn other contractors on site to avoid that area until directed otherwise.

The CABI will conduct an inspection to assess the presence and extent of suspect friable ACM and associated soil. The CABI will document and collect samples of suspect friable ACM and suspect friable ACS. Samples will be submitted to a laboratory for polarized light microscopy (PLM) analysis.

At a minimum, appropriate PPE must be worn when doing asbestos inspections/sampling or otherwise accessing an area known or suspected to contain asbestos. At a minimum, CABIs performing the inspection and/or pickup of suspect friable ACM and associated soil must wear disposable Tyvek® booties and rubber gloves, which should then be discarded as asbestos waste prior to exiting the Site.

5.3.3 Site Control

Public access to the site will be maintained by security fencing and controlled by the City of Greeley or their designated representative.

5.3.4 Site Preparation

Upon confirmation of friable ACS or ACM, a General Abatement Contractor (GAC) will establish a Regulated Work Area (RWA) and access will be restricted by demarcating ACS area with barrier tape and signs identifying the presence of asbestos and allowing access to authorized personnel only. Wind fencing will be erected around the RWA boundaries. This action is recommended for large scale (greater than 100 square feet) non-friable ACM or non-friable ACM that will be mechanically removed/managed.

ACS or ACM will be adequately wetted by the GAC prior to ACS management. Water to be used to wet the ACS or ACM, control emissions and decontamination, will be obtained from fire hydrants adjacent to the Site or from water trucks importing water from off-site approved sources.

Dust control measures will be increased significantly during soil disturbing activities in areas of known ACS or ACM. Dust control during soil disturbing activities will be continually assessed and modified as needed to best accommodate changing site conditions. Visible dust emissions will not be generated at any time during any soil disturbing activities.

5.3.5 Work Practices

Upon discovery of asbestos, as described in Section 4.1, the following procedures shall be followed unless exempted under 6 CCR 1007-2, Part 1, Section 5.5.2:

1) The air monitoring requirements specified under Section 4.8 will be followed during soil disturbing activities of areas exceeding a volume of one (1) cubic yard of soil or greater using low-emission excavation methods such as hand-held tools or smaller excavating equipment;

2) Wind speed measurements will be taken with a hand held wind meter at least every 30 minutes, and during wind gusts, throughout the duration of soil removal or disturbance activities. All inspection and excavation procedures within 100 feet of friable ACS or ACM, including non-friable that have been or have the potential to be rendered friable, in this plan must cease when any of the following wind stoppage criteria are met, in order to limit potential exposure to workers and airborne emissions of asbestos from the site. The following wind stoppage criteria will be followed:

    i. Any wind gust reaches or exceeds 20 miles per hour (mph) as determined by a hand-held meter;

    ii. Sustained wind speeds reach or exceed 12 mph averaged over a period of 10 minutes;

    iii. Winds produce visible emissions or create movement of dust or debris in or near the work area; or,

iv. Winds impact the ability of engineering controls to work as designed.

Soil removal/disturbance operations may resume after all of the following four conditions have been met:

i. Wind gust readings, for a period of 10 minutes, drop below 20 miles per hour as determined by hand-held instruments;

ii. Sustained wind speeds are below 12 miles per hour averaged over a period of 10 minutes;

iii. Winds are no longer producing visible emissions or creating movement of dust or debris in or near the removal/disturbance area; and,

iv. Winds are not impacting the ability of engineering controls to work as designed.

3) Appropriate PPE must be worn when accessing an area known or suspected to contain asbestos. At a minimum, authorized personnel accessing the RWA for purposes other than soil management work must wear disposable Tyvek® booties and rubber gloves, which should then be discarded as asbestos waste prior to exiting the RWA.

   Personnel performing soil management work in the RWA must wear disposable Tyvek® coveralls and Tyvek® booties and disposable gloves which should then be discarded as asbestos waste prior to exiting the RWA. Respiratory protection will follow OSHA 29 CFR 1910.134. Additional PPE requirements may be required as determined by the GAC's Health and Safety Officer. Refer to Section 4.5 for personnel and equipment decontamination procedures.

4) Prior to soil disturbance, the GAC will adequately wet the first lift of soil to prevent visible emissions. During excavation, the GAC will use a mister on the excavator bucket and/or front-end loader and/or hand-operated misters/sprayers to ensure that the soil and any suspect asbestos material are adequately wet to prevent visible emissions. Use of both is dependent on the size of excavation and ambient conditions (weather and/or asbestos potential) dependent;

5) The GAC will carefully excavate layers of soil remaining by limiting the quantity of soil so that it can be adequately wetted and contained within each scoop of the bucket. The CABI will conduct a visual inspection for asbestos material as excavation proceeds and inspect the soil during removal by the GAC;

6) Excavated ACS or ACM, not directly loaded into trucks or roll-offs for disposal, will be placed on 10-mil polyethylene sheeting. In the event that soil needs to be stockpiled, measures to prevent disturbance, erosion, emissions, and cross-contamination will be taken including posted signs, berms, tarping at the end of the work shift, and using water and/or stabilizing agents. ACS will not be stockpiled for more than seven (7) calendar days.

7) During loading, the excavator or front-end loader or equivalent, moving the soils into the haul truck or roll-off will have the sprayer bar operating to wet the material being loaded. A ground-based sprayer will also spray/wet the bucket as it is unloaded into the truck;

8) The truck, or disposal container, will be placed on 10-mil polyethylene sheeting while being loaded so that any over-spill can be picked up. Any over-spill material will be cleaned up before the truck is allowed to leave the loading area to prevent possible cross-contamination. Additionally, the 10-mil polyethylene sheeting in the loading area will be decontaminated (in accordance with Section 4.5) or changed as needed to prevent possible cross-contamination. The excavator operator, the person operating the spray unit, the CABI, and any other personnel in the area immediately helping the soil operation within the RWA will be in disposable Tyvek® coveralls, and respirators. Exposure monitoring will be performed per OSHA requirements. This requirement does not apply to haul truck drivers as long as they are directed to keep their windows rolled up and shut-off air delivery systems (fans on air conditioning and heating systems) until they leave the area of active soil disturbance;

9) All reasonable efforts will be made to confine ACS management to the RWA. Truck loading and decontamination stations will be carefully monitored by the GAC performing soil management work and the CABI. Should a spill or leak occur outside the RWA, excavation work will cease and spills will be promptly contained and cleaned up. Contained water will be filtered at the truck decontamination station. The spill/leak areas where clean-up occurred will be visually inspected by the CABI. Work may resume following a successful visual inspection by the CABI.

10) At the conclusion of excavation activities, an exit visual inspection for suspect material will be performed by the CABI.

11) Excavated ACS and ACM will be placed in designated containers labeled for asbestos in accordance with the Colorado Solid Waste Regulations. The ACS and ACM will be loaded using the necessary procedures to prevent visible emissions. These include misting/wetting during the loading process, keeping the bucket as close as possible to the interior of the container before dumping, and slow dumping to allow adequate wetting. Use of leak tight containers and other disposal requirements will be in accordance with Section 5.5.7 of the Colorado Solid Waste Regulations (e.g., burrito wrap, single- or double-lined with 6-mil polyethylene sheeting);

12) If trucks are used, soil with visible non-friable ACM, or ACS with no visible asbestos debris, will be loaded in to single-lined (with 6-mil polyethylene sheeting) trucks. Soil with visible friable ACM will be loaded into double-lined trucks;

13) If the excavation will be left open overnight, access to the area must be restricted and any exposed portions of the excavation or soil piles containing known or suspect visible asbestos or ACS must be covered or otherwise stabilized; and,

14) ACS that is stockpiled or placed in roll-offs will be covered with 10-mil polyethylene sheeting and/or treated with a chemical stabilizing agent and inspected daily to ensure sheeting is intact. It should be noted that while both covering with polyethylene sheeting and treating with a chemical stabilizing agent are acceptable options for stabilization, the chemical stabilization is preferential because of the fact that windy conditions can create problems with stabilization through the use of polyethylene sheeting (e.g. wind blowing polyethylene sheeting off stabilized materials, wind creating bellowing effect with polyethylene sheeting that may lead to asbestos fiber release, etc.).

5.3.6 Equipment and Worker Decontamination

The purpose of this protocol is to specify decontamination procedures that must be followed when performing asbestos inspections, excavations and other soil disturbing activities.

IN GENERAL, EVERY EFFORT WILL BE TAKEN TO AVOID DRIVING IN CORRIDORS OR AREAS THAT ARE KNOWN TO CONTAIN ASBESTOS OR HAVE THE POTENTIAL TO CONTAIN ASBESTOS.

5.3.7 Equipment Decontamination

To minimize decontamination requirements, areas of ACS may be covered prior to vehicle access. Covering will consist of either 6 inches of clean fill (crushed concrete, gravel, soil, or similar type material) or 10-mil polyethylene sheeting. For haul trucks being loaded with ACS for off-site disposal, the truck will be driven onto 10-mil polyethylene sheeting and loaded with care being taken to minimize spillage. After loading, soil and debris that has spilled onto the polyethylene sheeting must be removed prior to the truck being allowed to roll forward.

Removal of soil and debris (which should already be adequately wet) will be conducted with shovels, brooms, or squeegees. If necessary, the polyethylene sheeting may be replaced or hosed down, however, care should be taken to ensure that decontamination water does not leave the immediate work area, or that it is collected and filtered as described in 8) below. The polyethylene sheeting must be visually clean, or replaced, before the next haul truck enters the loading area.

In cases where vehicles or larger equipment (such as backhoes) must be used at the site to conduct subsurface excavations or earthmoving activities access is subject to the following conditions:

1) No driving is allowed on any area of known or suspect ACS or ACM during the excavation or earthmoving activities;
2) The CABI will do a limited clearance of an area to allow vehicle crossing. For areas containing friable asbestos, the area must be confirmed clean by soil sampling prior to allowing access;

3) Prior to driving in the area, the established access route must be clearly demarcated in the field using flagging, tape, stakes, signs, etc.;

4) Rubber-tired vehicles will be used to the maximum extent feasible;

5) Vehicles entering the area will avoid causing the release of fugitive dust. Vehicle operators will be observant by driving in a slow, cautious manner;

6) The CABI must be in front of the vehicle to guide the vehicle from driving across any visible asbestos material. Should the CABI observe any known or suspect asbestos materials, the operator/driver will alter course to avoid them;

7) Vehicle access routes may be required to be wetted as needed to make the ground surface damp so that fugitive dust is not generated when driven on. Determination if wetting is required will be made by the CABI;

8) For the purposes of decontamination, the wheels of vehicles exiting the area will be thoroughly rinsed as each vehicle exits the area determined to have asbestos present on the surface. The driver will then move vehicle onto a polyethylene tarp and re-rinse the wheels. A 60-mil or greater liner may be used multiple times, or 10-mil polyethylene sheeting may be used for a single decontamination event. If 10-mil polyethylene sheeting is used, care must be used to prevent it from tearing. Rinsate water must be collected, filtered with a 5-micron filtration system, and then disposed in a sanitary sewer. The filtered rinsate may be re-used in an asbestos area. The water must not run-off an asbestos area onto a non-contaminated area or toward any surface water feature. The 60-mil or greater liners may be decontaminated for reuse and one-time use 10-mil polyethylene sheeting will be disposed as asbestos waste; and,

9) Also for the purposes of decontamination and to the extent feasible, the excavator/front end loader or equivalent will operate on clean areas. 10-mil polyethylene sheeting or liner material can be used to drive onto contaminated areas. When moving from one location to another, the bucket that came into contact with the ACM/ACS will be wrapped in 10-mil polyethylene sheeting to prevent spreading fibers to non-contaminated areas. When it is finished loading, the bucket will be decontaminated over the last dump truck prior to closing the 10-mil polyethylene sheeting liner/burrito wrap. If the excavator, or other large pieces of equipment, was required to work on contaminated soil, the piece of equipment will be decontaminated as described in 8) above.

Sampling equipment, backhoe buckets, wheelbarrows, vehicles, and other equipment that comes in contact with soil known to contain, or to potentially contain asbestos will be decontaminated with water or by wet wiping between each sample, hole, or excavation to avoid potential cross-contamination, and before leaving the site. The rinsate will be managed as stated above.

5.3.8 Worker Decontamination

During soil-disturbing activities in areas with friable asbestos, a fully functioning decontamination unit or trailer will be available on-site for worker decontamination. The decontamination unit will be located as near the removal as practical. The decontamination unit will consist of three (3)

chambers and has fully operational hot and cold running water for the shower. For soil-disturbing activities in areas with non-friable asbestos, a portable decontamination station consisting of a primary washing, rinsing, PPE doffing and disposal stations that transition from the Restricted Work Area (RWA) can be used with approval from Terracon.

At the beginning of each day, or each time the RWA is to be entered, workers that will be in the area of active ACS disturbance will don disposable Tyvek® coveralls, disposable Tyvek® boot covers (excluding truck drivers, as long as they are directed to keep their windows rolled up, shut-off air delivery systems and do not exit the vehicle while in the RWA), and disposable gloves. Worker decontamination will be conducted each time a worker leaves the work area. For most projects, worker decontamination may consist of removal of disposable coveralls, boot covers, and gloves, which should then be containerized and disposed as asbestos waste. Any non-disposable personnel items must be decontaminated with water or by wet wiping.

All contaminated disposable personnel protective equipment will be containerized and disposed as asbestos waste. Water from the decontamination unit will be filtered to 5 microns and disposed of in the sanitary sewer.

5.3.9 Disposal

Disposal of ACS will be conducted in accordance with the following requirements, in accordance with Section 5.5.7 of the Colorado Solid Waste Regulations:

1) ACS containing visible friable asbestos shall be disposed of in a leak tight container as friable asbestos waste in accordance with the requirements of Section 5.3 of the Solid Waste Regulations. Documentation stating that the ACS originating from the site shall not be used as daily cover or sold as clean fill accompany each load of ACS removed from the site;
2) ACS containing only visible non-friable asbestos that has not been rendered friable shall be disposed of as non-friable asbestos in accordance with Section 5.2 of the Solid Waste Regulations. Documentation stating that the ACS originating from the site shall not be used as daily cover or sold as clean fill accompany each load of ACS removed from the site;
3) ACS containing no visible asbestos shall be disposed as non-friable asbestos waste, as described in Section 5.2 of the Solid Waste Regulations. Documentation stating that the ACS originating from the site shall not be used as daily cover or sold as clean fill shall accompany each load of ACS removed from the Site;
4) Soils that are not asbestos-contaminated, based on analysis showing no detectable amounts of asbestos, may be replaced into the disturbed area as needed, used as fill, disposed of as solid waste, any other approved use.

ACM and ACS waste will be disposed of at a landfill permitted to accept asbestos waste. The landfill will be contacted to determine the type of asbestos waste they will accept, friable or non-friable. The GAC or Excavation Contractor for non-friable ACM will notify the landfill of the type

of asbestos waste they are disposing of and each load will be accompanied by a non-hazardous Special Waste & Asbestos Manifest.

5.3.10 Remaining ACS and/or ACM

In the event that ACS is left in place following the conclusion of excavation activities, the GAC or Excavation Contractor will:

1) Document the condition and location of remaining ACS. Documentation may include GPS, land survey, and/or photographic documentation.
2) The remaining ACS will be covered with an appropriate engineered fabric; and,
3) The remaining ACS will be covered with a least one-foot of clean fill.

The specific engineered fabric used will be will be approved of by Terracon prior to application.

5.3.11 Air Monitoring

Personal and area air sampling will be conducted by a Colorado-certified AMS during ACM and ACS management activities for areas exceeding a volume of one (1) cubic yard of soil or greater using low-emission excavation methods such as hand-held tools or light excavating equipment. The purpose of the air sampling is to determine the adequacy of engineering and environmental controls employed at the Site.

Personal air monitoring will be performed for 25 percent of the workers, with no fewer than two (2) different workers, who are expected to have the worst-case exposure to asbestos during ACS disturbing activities. The personal air monitoring will not be performed on workers inside closed cabbed equipment. The GAC performing ACS disturbing activities is responsible for performing personal air sampling for workers in accordance with OSHA requirements.

Area air sampling will consist of collecting samples at four compass points around the perimeter of the RWA. Air samples will be analyzed for total fibers using phase contrast microscopy (PCM) analysis by submitting to an American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) and National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory at the end of each work day. The two samples with the highest fiber concentrations by PCM will be further analyzed by transmission electron microscopy (TEM) for asbestos fibers by a National Institute of Standards and Technology (NIST) NVLAP accredited laboratory. In addition, any sample with fiber counts greater than 0.01 fibers per cubic centimeter (f/cc) of air, determined by PCM analysis, will be further analyzed by TEM to determine if asbestos is present.

Verbal results will be made available to the AMS by the start of the next business day or as soon as practical after the start of the next business day, and written results will be made available on-site within 24 hours from the time the verbal result is received.

In the event asbestos fibers are detected in the air samples analyzed by TEM, the following will occur:

1. Excavation will immediately cease;
2. CDPHE will be immediately notified by fax or e-mail as described in Section 4.1;
3. The source(s) of emissions identified; and,
4. Engineering controls will be re-evaluated to ensure that additional fiber releases do not occur.

If asbestos fibers are detected in air samples collected on subsequent days:

1. All soil-disturbing activities will immediately cease,
2. The source(s) of emissions will be identified;
3. A control plan will be prepared and submitted to CDPHE for review; and,
4. Soil disturbance will not continue until CDPHE approves the control plan and provides written authorization to proceed.

After one (1) week of monitoring the same type of field operation and if the initial one (1) week of required TEM analysis did not have any detection of asbestos fibers, the frequency of TEM analysis can be reduced to a random twice a week analysis, with the remaining samples being analyzed by PCM. The two samples with the highest fiber concentrations by PCM will be further analyzed by TEM to determine if asbestos is present. The AMS will choose the random days. However, any sample with fiber counts greater than 0.01 f/cc, detected by PCM analysis, will be further analyzed by TEM to determine if asbestos is present.

If conditions or engineering controls change substantially, the initial air monitoring procedures will be repeated for three additional days or until air monitoring results demonstrate that the new or modified engineering controls are adequate.

6.0 MONITORING PLAN IMPLEMENTATION

This section outlines the activities that will be conducted to conform to the material management strategies described above.

6.1 Project Health and Safety Plan

The risks associated with the on-site activities consist primarily of worker protection during construction. Workers, superintendents and/or project managers associated with intrusive site activity will be required to undergo a one-time health and safety orientation meeting at the start of the project. A site-specific Health and Safety Plan (HASP) will be prepared for the planned

construction work related to Terracon employees. The Owner/Owner's Representative/General Contractor should create a hazard communication program as part of the normal construction activity during site preparation, grading, and soil placement phases of construction.

6.2 Materials Management Plan Oversight

The oversight of construction activities at the site will be conducted by trained environmental professionals capable of executing the requirements of this MMP during the construction work. The Environmental Management Coordinator (EMC) shall have experience in the recognition, characterization, handling and disposition of the materials of concern previously identified at the site. The EMC shall be responsible for overseeing intrusive remedial activities at the site. This person shall document the types of soil materials encountered, the location, and the handling procedures used in proper relocation or disposal or groundwater management as may be necessary.

6.3 Contingency Plan for Unanticipated Materials

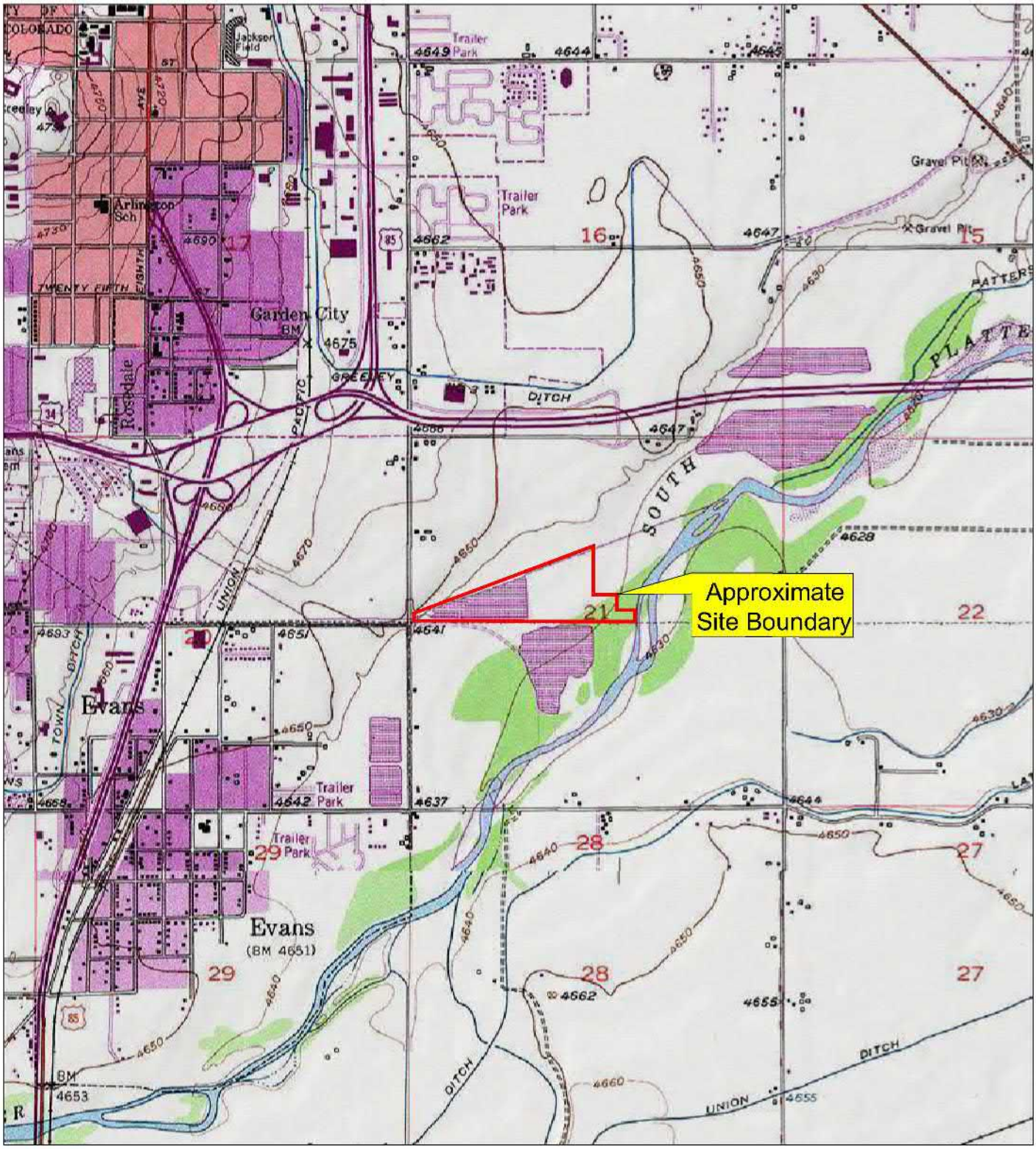
Due to the location and history of the site, the possibility exists that contaminated materials may be encountered other than those identified and specified for special management within this MMP. Therefore, the following contingency procedures will be enacted in the event such materials are encountered:

If other hazards are detected during excavation work, the EMC shall contact the Owner/Owner's Representative/General Contractor and the appropriate CDPHE personnel to discuss the nature and extent of the hazard. Following this consultation, additional characterization, excavation, and/or analyses may be required, which are beyond the scope of work of this plan.

If uncharacterized, potentially-impacted soil is encountered (based on appearance, odors, field screening, or other indications), the General Contractor and Owner/Owner's Representative will be notified immediately. The waste will be left in-place and sampled to evaluate the potential environmental impacts and determine the proper handling and management strategy for the material.

In the event that soils are characterized as environmentally-impacted, the soils will be managed in accordance with the criteria outlined in this plan. Any waste materials encountered during the project which are not specifically addressed within this MMP will be managed in accordance with local, state, and federal requirements.

EXHIBITS



0 .5 1 MILES

1000 0 1000 2000 3000 4000 5000 FEET

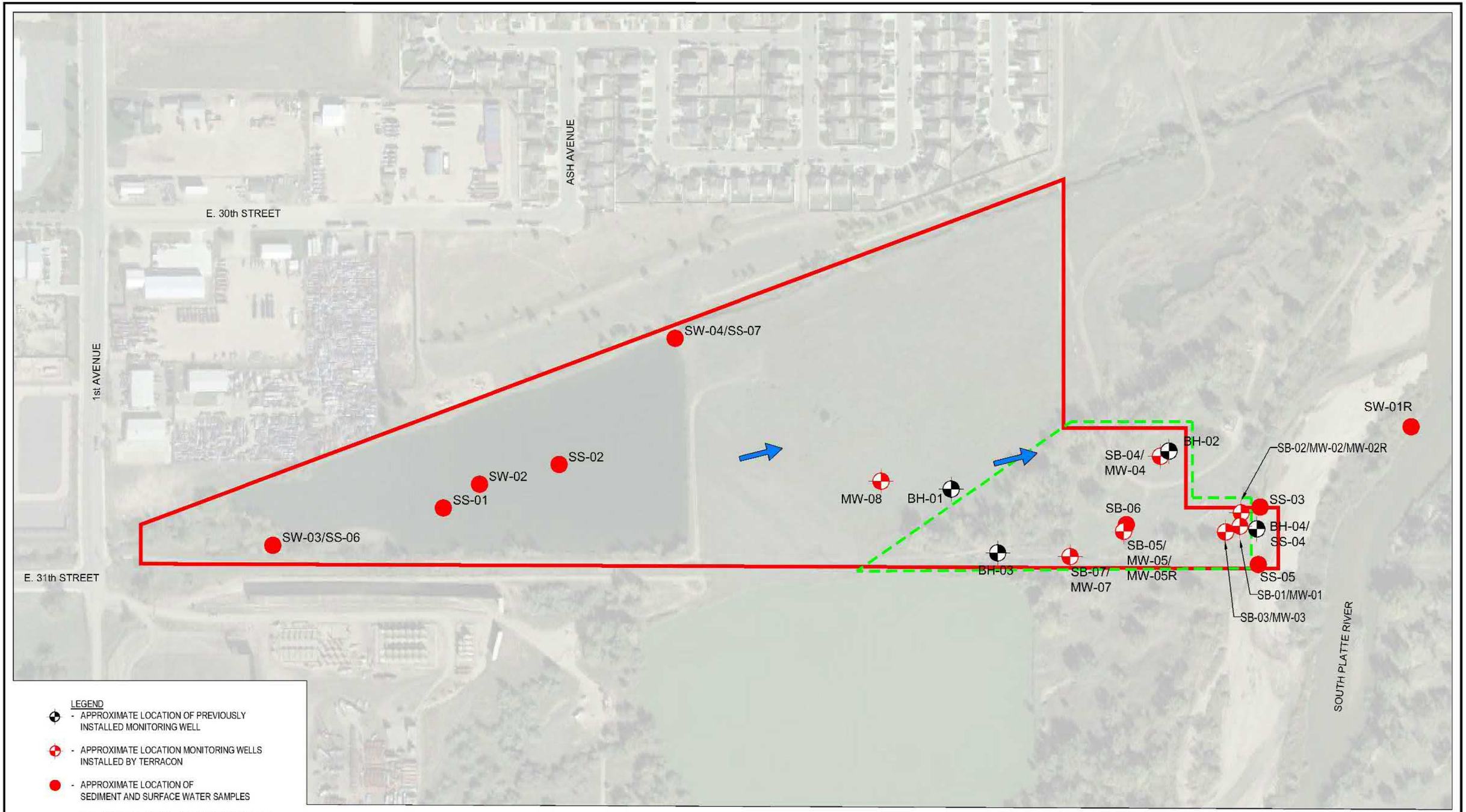
1 .5 0 KILOMETERS 1

1000 0 METERS 1000

APPROXIMATE SCALE

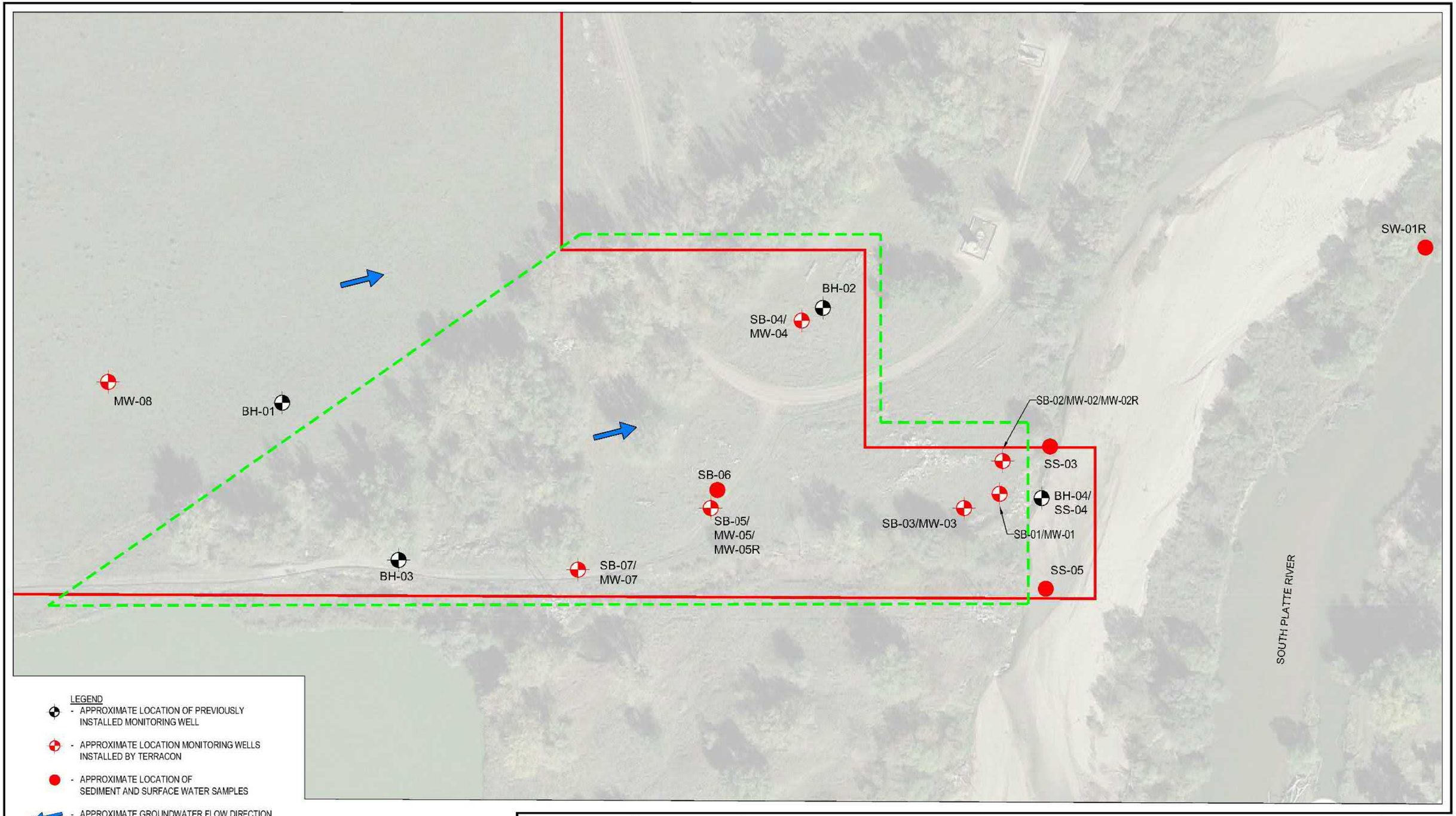
Topographic map image courtesy of the U.S. Geological Survey
Quadrangle includes Greeley, CO (1978)

Project Mngr: MJS	Project No.: 21187023	Terracon Consulting Engineers and Scientists	TOPOGRAPHIC MAP
Drawn By: JAS	Scale: AS-SHOWN	1289 1st Avenue Greeley, CO 80631	GREELEY FISHING POND CITY OF GREELEY 31st STREET AND 1st AVENUE GREELEY, COLORADO
Checked By: MJS	File No.: 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8539	FIG. No. 1
Approved By: JCG	Date: NOVEMBER_2018		



Project Mngr: MJS	Project No. 21187023	Terracon Consulting Engineers and Scientists	SITE DIAGRAM - A
Drawn By: JAS	Scale: AS-SHOWN	1289 1stAvenue Greeley, CO 80631	GREELEY FISHING POND
Checked By: MJS	File No. 7023-FIGURES	PH. (970) 351-0460 FAX. (970) 353-8639	CITY OF GREELEY
Approved By: JCG	Date: NOVEMBER_2018		31st STREET AND 1st AVENUE
			GREELEY, COLORADO

FIG. No. 2



LEGEND

- APPROXIMATE LOCATION OF PREVIOUSLY INSTALLED MONITORING WELL
- APPROXIMATE LOCATION MONITORING WELLS INSTALLED BY TERRACON
- APPROXIMATE LOCATION OF SEDIMENT AND SURFACE WATER SAMPLES
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BOUNDARY OF HISTORICAL SOLID WASTE AREA

N

0 100'

SCALE

Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

Terracon
Consulting Engineers and Scientists
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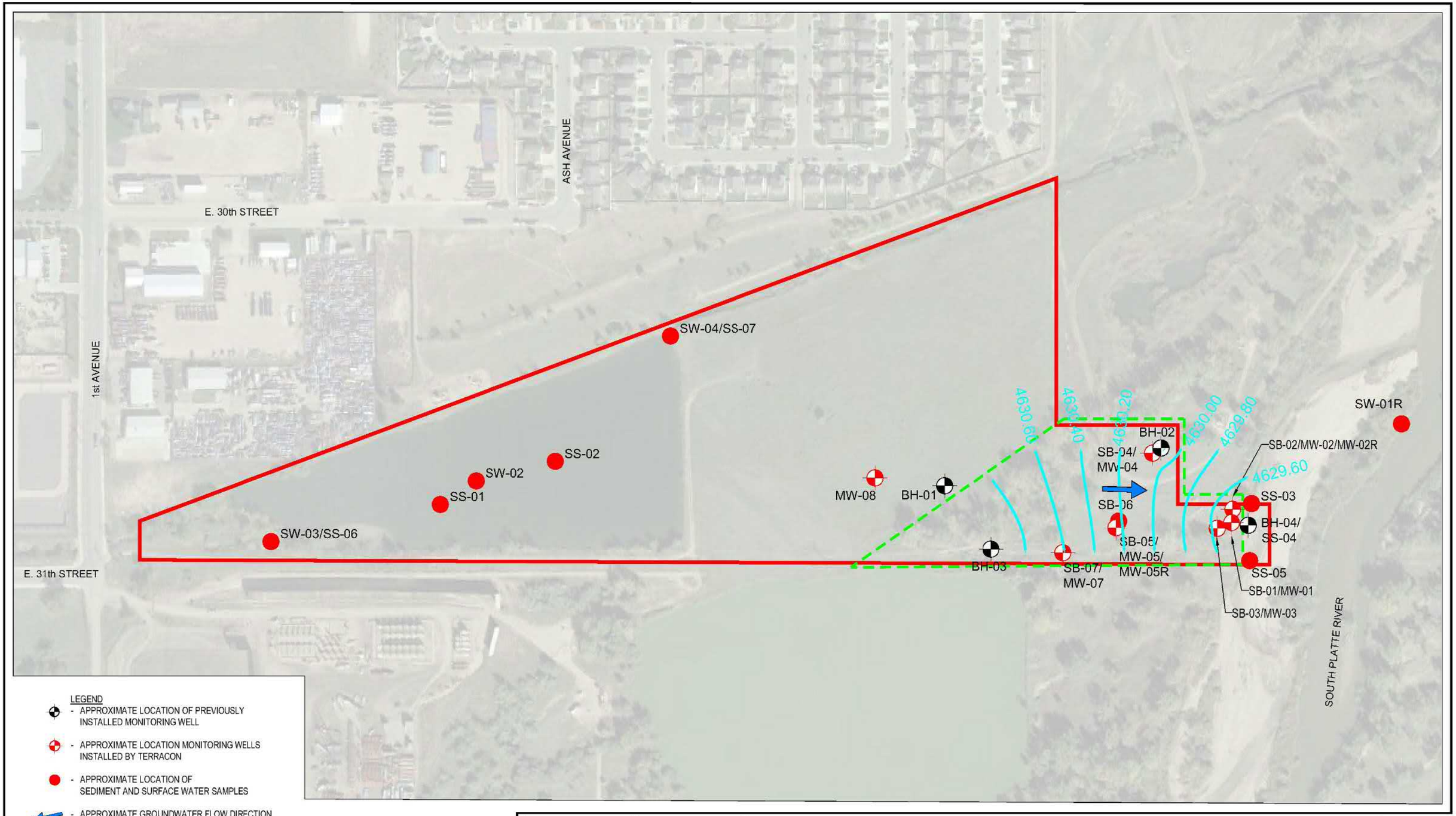
SITE DIAGRAM - B

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 3



Project Mngr:	MJS
Drawn By:	JAS
Checked By:	MJS
Approved By:	JCG

Project No.	21187023
Scale:	AS-SHOWN
File No.	7023-FIGURES
Date:	NOVEMBER_2018

Terracon
Consulting Engineers and Scientists
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GROUNDWATER CONTOUR MAP

GREELEY FISHING POND
CITY OF GREELEY
31st STREET AND 1st AVENUE
GREELEY, COLORADO

FIG. No. 4

TABLES

Table 1
Summary of Soil Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID and Depth				SB-01 (4-8)	SB-01 (8-12)	SB-02 (4-8)	SB-02 (8-12)	SB-03 (4-8)	SB-03 (8-12)	SB-04 (4-8)	SB-04 (8-12)	SB-05	SB-06	SB-07 (4-8)	SB-07 (8-12)	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SB-02R (0-4)	SB-02R (4-8)	SB-05R (0-4)	SB-05R (4-8)	SB-08 (0-4)
Collection Date				8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/30/18	8/23/18	8/23/18	8/30/18	8/30/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	9/7/18	10/5/18	10/5/18	10/5/18	10/5/18	10/5/18
Parameter	**Residential RSL**	**Industrial RSL**	**CDPHE GPV**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RCRA Metals (6010B / 7471)																											
Arsenic[1]	0.68	3.0	NE	**2.63**	<0.200	**6.74**	<0.200	<0.200	<0.200	**4.71**	**4.6**	**2.51**	**3.93**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**4.05**	**3.42**	**3.66**	**5.94**	<2.00
Barium	15,000	220,000	NE	**26.9**	**9.44**	**55.3**	**12**	**15.4**	**14.7**	**121**	**77.5**	<0.5	<0.5	**29.7**	**74.4**	**76.6**	**82.9**	**17.5**	**30**	**13.6**	**9.17**	**29.5**	**57.3**	**62.7**	**173**	**104**	**153**
Beryllium	16	230	NE	NA	NA	NA	NA	NA	NA	NA	NA	**0.398**	**0.415**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	71	980	NE	<0.5	<0.5	**0.675**	<0.5	<0.5	<0.5	**0.553**	**0.663**	<0.5	**0.635**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.676**	**0.803**	<0.5
Chromium	NE	NE	NE	**3.27**	**1.33**	**7.14**	**1.88**	**15.4**	**1.96**	**14.3**	**9.81**	**11.2**	**9.98**	**4.29**	**11.5**	**13.2**	**11.8**	**1.55**	**1.84**	<1.0	**1.71**	**4.58**	**6.32**	**7.68**	**11.3**	**9.69**	**20.7**
Lead	400	800	NE	**25.4**	**1.37**	**64.3**	**9.77**	**16**	**7.65**	**120**	**92**	**82.7**	**43.9**	**5.8**	**7.59**	**13.3**	**12.8**	**3.68**	**4.9**	**2.89**	**4.29**	**4.49**	**39.2**	**45.9**	**61.9**	**47.1**	**12.3**
Mercury	11	46	NE	**0.132**	**0.0208**	**0.0939**	**0.024**	**0.044**	**0.0223**	**0.0783**	**0.143**	**0.0339**	**0.165**	<0.02	**0.0763**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.146**	**0.121**	**0.152**	**0.106**	**0.152**
Silver	390	5,800	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**8.97**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	3,100	47,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**11.4**	**52.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,500	22,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**7.25**	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	350,000	NE	NA	NA	NA	NA	NA	NA	NA	NA	**85.3**	**132**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B) - Not Detected																											
Acetone	61,000	670,000	32	**0.0259**	<0.025	**0.0368**	**0.0539**	<0.025	**0.0334**	**0.0593**	**0.0865**	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	**0.0773**	<0.025
Chlorobenzene	280	1,300	5.3	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00922**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00389**	<0.0025
1,4-Dichlorobenzene	2.6	11	7.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.0219**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	5.8	25	100	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.00278**	<0.0025	**0.0109**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
2-Butanone (MEK)	27,000	190,000	18	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.306	<0.0025
Tetrachloroethene	24	100	1.9	<0.0025	<0.0025	**0.00283**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Toluene	4,900	47,000	50	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.00702**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Xylenes, Total	580	2,500	75	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	**0.00799**	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065	<0.0065
SVOCs (8270C)																											
Acenaphthene	3,600	45,000	1000	**0.0838**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Anthracene	18,000	230,000	1000	**0.146**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)anthracene	0.16	2.9	1000	**0.86**	<0.033	**0.189**	**0.0339**	<0.033	<0.033	**0.156**	<0.033	**0.0429**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(b)fluoranthene	0.16	2.9	1000	**1.06**	<0.033	**0.247**	**0.0459**	<0.033	<0.033	**0.192**	<0.033	**0.08**	<0.033	<0.033	<0.033	<0.033	**0.0373**	<0.033	<0.033	<0.033	**0.0359**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(k)fluoranthene	1.6	29	1000	**0.3**	<0.033	**0.103**	<0.033	<0.033	<0.033	**0.0517**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(g,h,i)perylene	NE	NE	NE	**0.274**	<0.033	**0.154**	**0.0349**	<0.033	<0.033	**0.0935**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Benzo(a)pyrene	0.016	0.29	1000	**0.796**	<0.033	**0.22**	**0.0394**	<0.033	<0.033	**0.149**	<0.033	**0.0522**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Chrysene	16	290	1000	**0.945**	<0.033	**0.231**	**0.0372**	<0.033	<0.033	**0.171**	<0.033	**0.0475**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Dibenz(a,h)anthracene	0.016	0.29	1000	**2.74**	<0.33	**1.15**	**0.259**	<0.33	<0.33	**0.743**	<0.33	**0.207**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Fluoranthene	2,400	30,000	1000	**1.37**	<0.033	**0.331**	**0.0724**	<0.033	<0.033	**0.308**	<0.033	**0.0763**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0513**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Indeno(1,2,3-cd)pyrene	0.16	2.9	1000	**8.46**	**0.188**	**4.08**	**0.904**	<0.033	<0.033	**2.41**	**0.162**	**0.556**	<0.033	<0.033	**0.309**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenanthrene	NE	NE	NE	**0.586**	<0.033	**0.115**	**0.0574**	<0.033	<0.033	**0.131**	<0.033	**0.0472**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Pyrene	1,800	23,000	1000	**1.42**	<0.033	**0.346**	**0.0706**	<0.033	<0.033	**0.286**	**0.0364**	**0.0783**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	**0.0512**	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033
Phenol	19,000	250,000	47	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.67	**1.25**	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
Only detected analytes shown (detected concentrations are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
SVOC = Semivolatile Organic Compounds
PCB = Polychlorinated Biphenyl
NA = Not Analyzed

Table 2
Summary of Groundwater Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID		MW-01	MW-02	MW-03	MW-04	MW-05	MW-07	SW-1R	SW-2P	SW-3P	SW-4P	MW-02R	MW-05R	MW-08
Collect Date		8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/24/18	8/23/18	8/24/18	8/24/18	8/24/18	10/9/18	10/9/18	10/9/18
Parameter	CDPHE Reg. 41 Groundwater Standard[1]	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dissolved RCRA Metals (6010B/7470A)														
Arsenic	**10**	<10	<10	<10	<10	**4.8**	<10	<10	<10	<10	<10	<10	<10	<10
Barium	**2,000**	**126**	**114**	**122**	**55.1**	NA	**198**	**65.4**	**52.3**	**57.4**	**53.5**	**112**	**92.9**	**46.9**
Cyanide	**200**	NA	NA	NA	NA	**12.8**	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	**50**	**13.9**	<10	<10	<10	<10	**12.6**	<10	<10	<10	<10	<10	<10	<10
Zinc	**5,000**	NA	NA	NA	NA	**422**	NA	NA	NA	NA	NA	NA	NA	NA
VOC (8260B)														
Chlorobenzene	**100**	<1.0	<1.0	<1.0	<1.0	**1.77**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	**140**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	**9.99**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
PAHs (8270)														
Dibenz(a,h)anthracene	**0.0048**	<1.0	**5.29**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Indeno(1,2,3-cd)pyrene	**0.0048**	<1.0	**28.3**	<1.0	<1.0	**1.03**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Additional Parameters - mg/L														
Dissolved Solids	**400[2]**	NA	NA	NA	NA	NA	NA	**755**	**379**	**405**	**384**	NA	NA	NA
Suspended Solids	**NE**	NA	NA	NA	NA	NA	NA	**31**	**15.6**	**51.2**	**6.83**	NA	NA	NA
Hardness	**<180[3]**	NA	NA	NA	NA	NA	NA	**427**	**238**	**200**	**279**	NA	NA	NA
Alkalinity	**150**	NA	NA	NA	NA	NA	NA	**204**	**125**	**130**	**127**	NA	NA	NA
Nitrate-Nitrite	**100**	NA	NA	NA	NA	NA	NA	**3.42**	**0.265**	**0.647**	**0.28**	NA	NA	NA
Total Phosphorus	**NE**	NA	NA	NA	NA	NA	NA	**0.352**	<0.1	**0.16**	<0.1	NA	NA	NA

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (December 30, 2016)
2) 400 mg/L or 1.25 times background level, whichever is least restrictive
3) <180 mg/L is considered "very hard" water
Only detected analytes shown (detected concentrations are **bold**)
NE = Not Established
RCRA = Resource Conservation and Recovery Act
VOC = Volatile Organic Compounds
PAH = Polynuclear Aromatic Hydrocarbons
NA = Not Analyzed

Table 3
Summary of Soil Gas Analytical Results
Greeley Fishing Pond Hazardous Materials Assessment
Greeley, Colorado
Terracon Project No. 21187023

Sample ID			BH-01	BH-02	BH-03	BH-04	SVP-01	SVP-02	SVP-03	SVP-04	SVP-07	SVP-02R	SVP-02RB
Collect Date			3/6/2018	3/6/2018	3/6/2018	3/6/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	10/9/2018	10/9/2018
Parameter	**Residential RSL**	**Residential VISL[1]**	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
VOC (TO-15)													
TPH (GC/MS) Low Fraction	**31**	**1,033**	<1.9	<1.9	<1.9	<1.9	**789**	**599**	**418**	**1,580**	<413	NA	NA
Acetone	**32,000**	**1,066,667**	<19	<20	**22**	**30**	**43.4**	**14.1**	**17.9**	**56**	**15.2**	**9.28**	**7.81**
Benzene	**0.36**	**12**	<1.9	<1.9	<1.9	<1.9	**1.86**	<1.28	<1.28	**7.16**	<1.28	<1.28	<1.28
Carbon disulfide	**73**	**2,433**	<1.9	<1.9	<1.9	<1.9	**2.8**	<1.24	**7.23**	**10.2**	<1.24	<1.24	<1.24
Chloroform	**0.12**	**4**	<1.9	2	<1.9	<1.9	<1.95	**3.78**	**33**	**3.4**	<1.95	**6.13**	<1.95
Chloromethane	**94**	**3,133**	<1.9	<1.9	<1.9	<1.9	<0.826	<0.826	<0.826	**2.66**	<0.826	<0.826	**0.916**
Cyclohexane	**630**	**21,000**	<1.9	<1.9	<1.9	<1.9	**3.23**	<1.38	<1.38	<1.38	<1.38	<1.38	<1.38
1,3-Dichlorobenzene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<2.40	<2.40	<2.40	**2.63**	<2.40	<2.40	<2.40
cis-1,2-Dichloroethene	**NE**	**NE**	<1.9	<2	<1.9	2	<1.59	**1.99**	<1.59	<1.59	<1.59	**3.04**	<1.59
trans-1,2-Dichloroethene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.59	**3.26**	<1.59	<1.59	<1.59	**5.39**	<1.59
1,4-Dioxane	**0.56**	**19**	<1.9	<1.9	<1.9	<1.9	<1.44	<1.44	<1.44	**3.46**	<1.44	<1.44	<1.44
Ethanol	**NE**	**NE**	<19	<20	**47**	**80**	**73.4**	**21.1**	**16.3**	**23.1**	**9.45**	**7.26**	**7.44**
Ethylbenzene	**1.1**	**37**	<1.9	<1.9	<1.9	<1.9	**3.12**	**1.87**	**12.9**	**29.1**	<1.73	<1.73	<1.73
4-Ethyltoluene	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	<1.96	<1.96	<1.96	**4.23**	<1.96	<1.96	<1.96
Trichlorofluoromethane	**NE**	**NE**	<1.9	**5.7**	<1.9	**2.7**	**6.49**	**6.92**	**9.68**	**4.6**	<2.25	**12.4**	<2.25
Dichlorodifluoromethane	**100**	**3,333**	**2.1**	**27**	<1.9	**7.4**	**7.73**	**32.9**	**6.01**	**9.43**	**12.9**	**19.6**	**2.06**
1,2-Dichlorotetrafluoroethane	**NE**	**NE**	<1.9	**8.3**	<1.9	**4.9**	**106**	**567**	**127**	**10.4**	<2.80	**110**	<2.80
Heptane	**NE**	**NE**	<1.9	<1.9	<1.9	<1.9	**4.65**	<1.64	<1.64	<1.64	<1.64	<1.64	<1.64
n-Hexane	**730**	**24,333**	<1.9	<1.9	<1.9	<1.9	**5.86**	**2.62**	**5.87**	**4.3**	<1.41	<1.41	**1.58**
Isopropylbenzene	**420**	**14,000**	<1.9	<1.9	<1.9	<1.9	<1.97	<1.97	**2.5**	**5.32**	<1.97	<1.97	<1.97
Methylene Chloride	**100**	**3,333**	**15**	<1.9	<1.9	<1.9	**28.1**	**25.3**	**17.2**	**16.6**	**2.47**	**1.54**	**4.65**
2-Butanone (MEK)	**5,200**	**173,333**	<1.9	<1.9	<1.9	<1.9	**7.65**	<10.2	<10.2	**11.9**	<10.2	<10.2	<10.2
2-Propanol	**210**	**7,000**	<19	<20	<19	**26**	**26.4**	**8.94**	<6.15	**23.4**	**8.4**	<6.15	<6.15
Propene	**3,100**	**103,333**	<1.9	<1.9	<1.9	<1.9	**3.7**	<1.38	**11.6**	**2.96**	<1.38	<1.38	<1.38
Styrene	**1,000**	**33,333**	<1.9	<1.9	<1.9	<1.9	**3.98**	**1.82**	**11**	**66.9**	<1.70	<1.70	<1.70
Tetrachloroethylene	**11**	**367**	<1.9	**45**	<1.9	**84**	**70.2**	**348**	**46.3**	**117**	<2.72	**652**	<2.72
Tetrahydrofuran	**2,100**	**70,000**	<1.9	<1.9	<1.9	<1.9	**5.1**	<1.18	<1.18	**3.63**	<1.18	<1.18	<1.18
Toluene	**5,200**	**173,333**	<1.9	<1.9	**2.2**	**6.7**	**20.7**	<1.51	**2.79**	**24.9**	<1.51	<1.51	<1.51
1,1,1-Trichloroethane	**5,200**	**173,333**	<1.9	**41**	<1.9	<1.9	<2.18	<2.18	<2.18	**6.23**	<2.18	<2.18	<2.18
Trichloroethylene	**0.48**	**16**	<1.9	<1.9	<1.9	**9.8**	<2.14	**32.4**	**3.08**	<2.14	<2.14	**47.8**	<2.14
1,2,4-Trimethylbenzene	**7.3**	**243**	<1.9	<1.9	<1.9	<1.9	**2.22**	<1.96	<1.96	**4.93**	<1.96	<1.96	<1.96
m&p-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<3.47	<3.47	**4.88**	**19.4**	<3.47	**6.34**	<3.47
o-Xylene	**100**	**3,333**	<1.9	<1.9	<1.9	<1.9	<1.73	<1.73	**1.84**	**8.2**	<1.73	**2.21**	<1.73
Fixed Gasses by D1946 (%)													
Methane	**NE**	**NE**	NA	NA	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Carbon Monoxide	**NE**	**NE**	NA	NA	NA	NA	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Carbon Dioxide	**NE**	**NE**	**0.438**	**2.01**	**0.592**	**0.974**	<0.5	<0.5	<0.5	**0.972**	<0.5	<0.5	<0.5
Oxygen	**NE**	**NE**	**21.9**	**20.3**	**21.7**	**21.4**	**16.7**	**16.8**	**16.4**	**16.8**	**16.8**	NA	NA

1) VISL - Vapor Intrusion Screening Level (calculated by dividing the RSL for residential indoor air by the State approved 3% [0.03] attenuation factor).
RSL = USEPA Indoor Air Regional Screening Level (HQ=0.1 June 2017)
ASC = CDPHE Air Screening Concentrations, Remediation Goals (January 2016)
ND = Not Detected
NE = Not Established
NA = Not Applicable
Only detected analytes shown (detected concentrations are **bold**)