FORMER LOBELL REFINERY EXPANDED INVESTIGATION AND UST EXCAVATION/IN-SITU ABANDONMENT REPORT

Former Lobell Refinery-Orphan
Site Remediation Program (OSRP)
File 57.004
CASPER, WYOMING

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1.0 INTRODUCTION

The purpose of this Expanded Investigation and Underground Storage Tank (UST) Excavation/In-Situ Abandonment Report is to present the detailed descriptions of investigation activities for the Former Lobell Refinery (Site) Investigation and UST Removal Project to the Wyoming Department of Environmental Quality (WDEQ), Solid and Hazardous Waste Division, Orphan Site Remediation Program (OSRP). Given that the area of investigation has expanded beyond the original footprint of the former Lobell Refinery, the term "Site" in this document includes not only the original footprint of the former Lobell Refinery but also the areas surrounding the original footprint. This document was prepared by Stantec Consulting Services Inc. (Stantec) to detail the field execution of the excavation and in-situ abandonment of the USTs located north and adjacent to the Casper Dry Cleaners and the field activities associated with the Former Lobell Refinery Expanded Investigation (the Project) including drilling and installation of sampling points, and the collection of soil, groundwater and vapor samples. A Site location map is presented as Figure 1. A Site map, showing a detail of the Site including the location of sampling points, is presented as Figure 2.

1.1 PROJECT OBJECTIVES

The objectives of the Project are to:

- Decommission historical underground storage tanks (USTs)
- Further define the extent and nature of tetrachloroethylene (PCE) and degradation products in soil, groundwater and soil vapor
- Evaluate potentially impacted structures through indoor air and soil vapor sampling
- Develop an accurate site conceptual model

1.2 PROJECT TASKS

The scope of work for the investigation included the following tasks:

- Pre-field activities including Site reconnaissance
- UST excavation and in-situ abandonment activities
- Site investigation activities
- Preparation of investigation and UST abandonment report

A detailed description of work for the Project is included in Sections 3, 4, and 5.

2.0 BACKGROUND AND SITE HISTORY

The following section contains background information that was adapted from Tetra Tech, Inc. (Tetra Tech) historical reports (Tetra Tech, 2010), (Tetra Tech, 2011), (Tetra Tech, 2012), and (Tetra Tech, 2013) for the Project.

The former Lobell Refinery area has been occupied by a number of different businesses and companies since the late 1800s. Pennsylvania Oil and Gas Company built and operated a petroleum refinery on the site from 1895 to 1903. The refinery was then purchased by Lobell, who operated it from 1903 until 1911. Sanborn Maps from that period indicated several tanks were located within the footprint of the former Lobell Refinery which extended across Wolcott Street. Historical documents indicate there was an open oil storage pit located somewhere on the site, which was later filled in by the City of Casper because it was deemed a public health hazard.

Historical records also show that from 1911 to present time, the former Lobell Refinery was owned and/or occupied by several different owner/operators, including but not limited to Midwest Refining Company, Stanolind Oil and Gas Company, Standard Oil Company, Chicago Northwestern Railway Company, and the Goodstein Property Trust. An electricity generation plant was once present on the northwest corner of the former Lobell Refinery, which was fueled first by coal and later by fuel oil. Northern Utilities also operated a warehouse located along the southern edge of the property.

According to historical records, a railroad siding ran in an east/west direction between East Midwest Avenue and, what is now, East Collins Drive. The railroad siding was removed in the area of the Site between 1961 and 1967 and is now a pedestrian pathway as part of the "Rails to Trails" initiative to convert former railways into recreation areas.

Several site assessments and limited environmental site investigations have been performed since 1995 to characterize the contamination at the Site. The environmental studies conducted at the Site have included projects completed under the direction of WDEQ, United States Environmental Protection Agency (EPA), and private entities. These investigations are briefly summarized below.

- In 1995, two railroad tank car underground storage tanks beneath the northwest portion of the Site were emptied, cleaned and abandoned in place under the Wyoming Underground Storage Tank Program, Facility No. 4176.
- In 1997, URS Operating Services, Inc. (URS) on behalf of the EPA investigated reports of seeps of viscous liquids rising to the ground surface through cracks in the sidewalks at the Site. Eight polynuclear aromatic hydrocarbon (PAH) compounds were detected from the viscous liquids seeps at the Site. A report from URS (Denver, CO), entitled, "November 1997: Analytical Results Report for Focused Site Inspection, J.H. Lobell Refinery Site, Casper, Wyoming, CERCLIS ID# WY0001654391," was submitted to EPA Region VIII under Contract No. 68-W5-0031.

- In 2003, a limited environmental site assessment was conducted by Inberg Miller Engineers (IME). The report entitled, "Subsurface Exploration Service, 421 South Center Street Property, Casper Wyoming," reported the presence of total petroleum hydrocarbon diesel range organics (TPH-DRO) in both shallow and deep soils in the eastern portions of the Site.
- In 2004, an additional site assessment was performed by Gene R. George & Associates, Inc. (GRGA). Activities included subsurface soil borings. Results confirmed the occurrence of weathered TPH-DRO in concentrations above the Wyoming Department of Environmental Quality Voluntary Remediation Program (WDEQ-VRP) soil cleanup levels (ranging from 2,410 milligrams per kilogram [mg/kg] to 8,200 mg/kg) in the soil. The source of the weathered hydrocarbons was attributed to the former refinery operations from over 100 years ago. Concentrations of PCE and trichloroethylene (TCE) were also found in groundwater at the site, with maximum levels of 340 micrograms per liter (µg/L) and 16 µg/L, respectively.
- From 2010 to 2011, limited site characterization studies were conducted at the Site by Tetra Tech and included subsurface soil sampling, direct push borings, test pit sampling, and assessment of the surface and subsurface acidic hydrocarbon seep material at Wolcott Street. Data collected was used to assess the vertical distribution of impact in proximity to potential release source areas.
- From July 30, 2012, through September 19, 2012, Tetra Tech performed acid sludge excavation and remediation, followed by restoration at the Site. Approximately 9,300 square feet of asphalt/concrete road surface and 668 square feet of sidewalk were removed from the remedial area to expose the acidic waste/soil for excavation and subsequent treatment by neutralization. An estimated total of 835 cubic yards of acidic waste/soil and native soil was excavated from the remedial area. Approximately 805 cubic yards of acidic waste/soil was successfully pH neutralized on-site and transported to the Casper Regional Landfill for final disposal as petroleum contaminated soil. In the areas excavated, the removal of the source of acidic hydrocarbon seep material effectively eliminated the surface exposure pathway and the subsequent potential public exposure to surface seeps.
- After acid sludge remediation, residual impacts of PCE remained in the groundwater monitoring wells. Additional investigation of tanks indicated that six small USTs are present in an area directly north and adjacent to the Casper Dry Cleaners.

3.0 SITE INVESTIGATION AND FIELD ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

Stantec prepared the applicable planning documents for the site investigation and field activities including the Investigative Work Plan (IWP) (Stantec, 2013b), a Quality Assurance Project Plan (QAPP) and Sampling and Analysis Plan (SAP) (Stantec, 2013b) and a site health and safety plan (HASP). The HASP was prepared in accordance with Occupation Safety and Health Administration (OSHA) requirements. Stantec also conducted several Site reconnaissance visits to coordinate with subcontractors and meet with One Call of Wyoming to locate and identify all public utilities prior to drilling and UST excavation field activities. A traffic control plan was prepared, submitted, and approved by the City of Casper prior.

3.2 UST EXCAVATION AND IN-SITU ABANDONMENT

UST excavation activities were initiated on October 5, 2013. After clearing the proposed excavation area for underground utilities, a small excavator was used to remove the concrete sidewalk and soil on top of the USTs. The tops of the USTs were encountered at approximately 36-inches below ground surface (bgs). A map showing the location of the excavation and USTs is presented as Figure 3. A total of four USTs were identified and included:

- One, 500-gallon, horizontal tank (Tank #1), and
- Three 400 to 500-gallon, vertical tanks (Tank #2, Tank #3, and Tank #4).

Review of historical Sanborn maps suggested that there were up to six USTs located in this area. During excavation activities, it seemed that one or two of the historical USTs could have been located near or under the natural gas line on the eastern limit of the excavation (east of Tank #4). Several capped pipes were observed leading to this location from the Casper Dry Cleaners' foundation wall and fill material in this area was observed to have a slight odor, indicating the possible location(s) of the former UST(s).

During excavation activities, ambient air around the work area was screened using a Mini RAE 3000 photoionization detector (PID) with a 10.6 electrovolt (eV) lamp. Standard operating procedures were followed to monitor for explosive hazards prior to accessing each tank. Access to each tank was accomplished by using a reciprocating saw to cut a hole in the top of the tanks. Liquids and sludge were then pumped out using a vacuum truck. The tanks were then cleaned using a power washer and residual liquids were removed via vacuum truck. The four USTs appeared to be in good to fair condition. The liquids and sludge, including tank wash water, were containerized in 250-gallon Department of Transportation (DOT) approved plastic tote containers after removal from the tanks, and stored in a designated storage area until they were ready for transport to the appropriate treatment, storage, and disposal facility (TSDF). Waste management and disposal activities are detailed below in Section 4.0.

Piping associated with the USTs including supply, return, and vent piping were first drained and then removed using a reciprocating saw. The remaining open piping passing through the Casper Dry Cleaners foundation wall were filled with expanding foam and sealed will rubber Fernco® caps.

Due to the location of the USTs and their proximity to a power pole located to the northwest of the excavation and the Casper Dry Cleaners' building foundation to the south, the WDEQ representative, Stantec personnel, and the excavation subcontractor agreed that for safety reasons and the structural integrity of the building, it would be more practical to abandon the tanks in place. The in-situ abandonment of the four USTs consisted of filling each tank with a slurry flowfill material.

Prior to backfilling the excavation, five temporary, 4-inch outside diameter (OD) polyvinyl chloride (PVC) pipes were installed vertically from the bottom of the excavation to several feet above ground surface. The temporary PVC pipes were installed as conductor casings to utilize for the collection of soil samples by direct push drilling techniques to obtain soil analytical date from below the USTs. The excavation was then backfilled with ¾-inch gravel from approximately 36-inches to 6-inches bgs. A concrete pad was poured on top of the gravel to match the surrounding sidewalk surface. A layout of the USTs and excavation are presented on Figure 3 and a photographic log is presented in Appendix A.

3.3 GROUNDWATER MONITORING WELL INSTALLATION AND DEVELOPMENT

Groundwater monitoring wells MW-101 through MW-106 were installed on October 6, 7, and 8, 2013 to further define the extent of groundwater impacts at the Site. Groundwater monitoring well locations are shown on Figure 2.

Prior to drilling activities, all borehole locations were cleared to approximately five feet bgs using hydrovac or hand auger soft digging methods. Borehole locations were drilled using eight-inch, OD hollow stem augers. During drilling activities, soil cores were collected every five feet for soil logging and field screening using a two-inch diameter, two foot long split spoon sampler.

Soils were visually evaluated and soil stratigraphy was classified using the Unified Soils Classification System (USCS) as a guide. Field screening was performed by placing a portion of each soil core into a plastic bag, sealing the bag and allowing the headspace to equilibrate (typically about five minutes). The headspace of the bag was then screened using a Mini RAE 3000 PID with a 10.6 eV lamp. PID measurements did not indicate impacts during drilling and no soil samples were submitted for laboratory analysis. Soil borings logs are presented in Appendix B.

The groundwater monitoring wells were installed to approximately 30 feet bgs and were constructed of two-inch diameter Schedule 40 PVC. Each monitoring well included a 0.01-inch slotted well screen installed from approximately 30 feet bgs to 20 feet bgs and a riser from approximately 20 feet bgs to just below the ground surface. The monitoring wells were completed with 10/20 washed silica sand from the bottom of the bore hole to approximately 18 feet bgs and hydrated bentonite chips from approximately 18 feet bgs to two feet bgs. A cement seal with a seven-inch diameter flush mount steel well vault was then

installed level with surface grade. Soil boring logs and well completion details are presented in Appendix B. A summary of the groundwater monitoring well construction details are included in Table 1.

Drill cuttings generated during the monitoring well installation process were containerized, stored, transported, and ultimately disposed of as detailed in Section 4.0.

At least 24 hours after installation, each of the newly installed groundwater monitoring wells were developed. Well development was performed on October 8 and 9, 2013 by purging and removing groundwater using a disposable hand bailer. Development continued until the turbidity of the purged groundwater was visibly low or until at least 10 casing volumes of groundwater had been removed. In most cases, at least 10 casing volumes of groundwater were removed because the turbidity of the purged groundwater remained visibly high throughout the development process.

3.4 SOIL VAPOR POINT INSTALLATION

Seven soil vapor points (VP-11R and VP-101 through VP-106) were installed on October 7 and 8, 2013, to further define the extent of soil vapor impacts. VP-11R was a replacement point for VP-11, which had previously been destroyed. Soil vapor point locations are presented on Figure 2.

Prior to drilling activities, all soil vapor point locations were cleared to approximately five feet bgs using hydrovac or hand auger soft digging methods. Shallow soil vapor points VP-103 and VP-104 were installed to an approximate depth of five feet bgs. Deep soil vapor points VP-11R, VP-101, VP-102, VP-105, and VP-106 were extended approximately two feet below the known or perceived depth of the adjacent building basement. Boreholes for the deeper vapor points were installed using direct push drilling techniques. In each of the soil vapor point locations, a two foot undisturbed soil sample was collected in a polyethylene sleeve using direct push drilling techniques for physical analysis (i.e., bulk dry density, total and water filled porosity). These soil samples were generally collected from a location close to the soil vapor point screened interval. Soil vapor point completion details are summarized in Table 2.

Each soil vapor point was constructed of a six-inch stainless steel screen connected to a section of ¼-inch OD Teflon® tubing. The tubing was placed from the top of the stainless steel screen to ground surface. A filter sand pack consisting of 10/20 washed silica sand was placed in the annular space around the stainless steel screen from the bottom of the borehole to approximately six inches above the top of the screen such that the screen was centered in the midpoint of the sand pack. Hydrated bentonite chips were then placed in the annular space above the sand filter pack and allowed to hydrate and swell for approximately one hour. The end of the tubing was then fitted with a Swagelok® fitting. Each soil vapor point was then completed with a flush mount traffic rated well vault set in a concrete apron.

3.5 PASSIVE SOIL GAS MODULE INSTALLATION

Ten passive soil gas modules (PSG-1 through PSG-10) were placed in the subsurface on October 7, 2013, near utility lines identified within East Collins Drive and East 5th Street. Each passive soil gas module

was installed in a one inch diameter hole approximately 15 to 20 inches deep. Holes were drilled in the asphalt street using a commercial grade rotary hammer drill fitted with a one-inch diameter carbide tip drill bit. After each hole was drilled, a retrieval string was attached to the soil gas module and it was inserted into the hole. The hole was then sealed with a cork which was hammered so it was flush with street surface. The modules remained in-place for approximately 60 hours before retrieval and were removed on October 10, 2013. The passive soil gas modules locations are presented on Figure 2.

3.6 SUB-SLAB VAPOR POINT INSTALLATION

Four sub-slab soil vapor points (SSG-1 through SSG-4) were installed on October 15, 2013, using a commercial grade rotary hammer drill fitted with a 5/8-inch diameter carbide tipped drill bit. Each hole was advanced through the building's basement concrete slab and approximately three inches into the underlying material. A stainless steel soil vapor pin fitted with a section of ¼-inch OD Teflon® tubing was then inserted into the hole. The area surrounding the vapor pin was sealed with caulking which contained no volatile organic compounds (VOCs) and allowed to cure to prevent ambient air leakage. The sub-slab vapor point locations are presented on Figure 2.

3.7 SITE SURVEY

Site groundwater monitoring wells, vapor points, and passive soil gas module locations were surveyed by a Wyoming certified surveyor as required by Wyoming Statutes § 33-29-124 (Wyoming Statutes 2012). Location coordinates were surveyed in accordance with NAD1983. The Site Survey is presented in Appendix C.

4.0 WASTE MANAGEMENT AND DISPOSAL

Both solid and liquid wastes were generated during the site investigation and UST excavation field activities. Wastes were sampled, analyzed and characterized as either non-hazardous or hazardous and stored on-site in the designated waste storage area until transport to the appropriate TSDF. A summary of wastes generated are included below.

4.1 UST EXCAVATION AND SOIL SAMPLING WASTE

Approximately 5.5 cubic yards of concrete side-walk was removed from the tank excavation area and placed in a covered roll-off container. The roll-off container was lined with a six-millimeter (mil) plastic liner to minimize any seepage of moisture from the container. This waste was profiled as a non-hazardous waste and stored in a temporary waste storage area until it was transported to the appropriate TSDF. The waste was removed from the storage area, transported by Clean Harbors, and disposed of at the Clean Harbors Deer Trail Landfill located in Deer Trail, Colorado. Waste manifests are presented in Appendix D.

Approximately 14 cubic yards of soil was removed from the tank excavation and placed in a covered roll-off container. The roll-off container was lined with a six-mil plastic liner to minimize any seepage from moist soils placed in the container. This waste was sampled and profiled as a Hazardous Waste with a F002 waste code. This waste was stored in a temporary 90-day hazardous waste storage area until it was transported by Clean Harbors and disposed of at the Clean Harbors Kimball, Nebraska Incinerator. Waste characterization sample analysis is presented in Appendix E and waste manifests are presented in Appendix D.

4.2 UST LIQUIDS AND SLUDGE

Approximately 600 gallons of liquid/sludge waste, including rinse water, was removed from the four USTs and stored in three 250-gallon DOT approved plastic tote containers. The waste removed from the USTs was sampled and profiled as Hazardous Waste with a F002 waste code. This waste was stored in a temporary 90-day hazardous waste storage area until it was transported by Clean Harbors and disposed of at the Clean Harbors Kimball, Nebraska Incinerator. Waste characterization sample analysis is presented in Appendix E and waste manifests are presented in Appendix D.

4.3 GROUNDWATER MONITORING WELL AND SOIL VAPOR POINT INSTALLATION SOIL CUTTINGS

Approximately three cubic yards of soil generated from groundwater monitoring well and soil vapor point installation were containerized in 13 55-gallon DOT approved steel drums. This waste was sampled and profiled as a non-hazardous waste. This waste was stored in a temporary waste storage area until it was transported by Clean Harbors and disposed of at the Clean Harbors Deer Trail Landfill located in Deer

Trail, Colorado. Waste characterization sample analysis is presented in Appendix E and waste manifests are presented in Appendix D.

4.4 DRILLING DECONTAMINATION WATER AND GROUNDWATER MONITORING WELL DEVELOPMENT AND SAMPLING PURGE GROUNDWATER

Approximately 650 gallons of drilling decontamination water and groundwater produced during groundwater monitoring well development and sample purging was generated and containerized in 250-gallon DOT approved plastic totes. This liquid waste was grouped in with the liquid/sludge waste, manifested and disposed of as hazardous waste with a F002 waste code. This waste was stored in a temporary waste storage area until it was transported by Clean Harbors and disposed of at the Clean Harbors Kimball, Nebraska Incinerator. Waste manifests are presented in Appendix D.

5.0 SAMPLING

5.1 UST EXCAVATION SOIL BORINGS

Because the USTs were abandoned in-situ, collection of soil samples directly under each tank was not feasible. In order to obtain soil analytical data from around the USTs, soil borings were advanced in the UST excavation area using direct-push techniques. Soil core field screening was performed using a Mini RAE 3000 PID with a 10.6 eV lamp. Field screening was conducted by placing a portion of each soil core into a plastic bag, sealing the bag and allowing the headspace to equilibrate (typically about five minutes). The bag headspace was then screen with the PID. A soil sample for laboratory analysis was collected from each soil boring at a location which exhibited the highest PID measurement. PID measurements ranged from 0.9 to 182 parts per million by volume (ppm-v). Soil samples were placed in laboratory-provided containers, labeled, stored on ice, and transported under chain-of-custody (COC) procedures to ChemSolutions in Centennial Colorado for analysis of VOCs and TPH-DRO using EPA Method 8260 and 8015, respectively. The excavation soil sample laboratory analytical report is presented in Appendix E.

5.2 GROUNDWATER MONITORING WELLS

After the installation and development of the six new groundwater monitoring wells, a groundwater sampling event was conducted for new and existing monitoring wells at the Site. Sampling of the new wells was not initiated until a minimum of 24 hours after well development. Monitoring wells were gauged for depth to groundwater relative to the top of the well casing before sampling. A water quality meter was lowered into the well to measure field parameters prior to purging/groundwater sampling including:

- Conductivity,
- Dissolved oxygen,
- Temperature, and
- Oxygen reduction potential.

The water level indicator and water quality meter were decontaminated with environmental grade detergent and rinsed with potable water between wells. The depth to water and water quality measurements were recorded on a field log.

Groundwater samples were collected in laboratory-provided containers, labeled, stored on ice, and transported under COC procedures to ChemSolutions for analysis. Groundwater samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), TPH-DRO, using EPA Methods 8260B, 8270C, and 8015B, respectively and total metals using EPA Methods 7470 and 6010. The groundwater laboratory analytical report is presented in Appendix E.

5.3 SOIL VAPOR POINTS

After the installation of the seven new soil vapor points, a sampling event was conducted utilizing the new and existing soil vapor points at the Site. An air pump was used to purge stagnant air from each vapor point prior to sample collection. Each soil vapor point was sampled using a shroud containing helium (He) for real-time leak testing. Samples were collected in laboratory-provided one-liter stainless steel, batch-certified canisters with regulators allowing a flow rate of approximately 50 milliliters per minute (ml/min). Soil vapor sample containers were labeled and transported under COC procedures to Eurofins Air Toxics in Folsom, California for analysis. Soil vapor point samples were analyzed for VOCs (EPA Method TO-15), oxygen (O_2), nitrogen (N_2), carbon dioxide (CO_2), and methane (CH_4), as well as He to indicate ambient air leakage. The soil vapor point laboratory analytical report is presented in Appendix E.

5.4 PASSIVE SOIL GAS MODULES

Ten passive soil gas modules remained in-place for approximately 60 hours before removing the cork and retrieving the modules. The passive soil gas modules were packaged and shipped under COC procedures to the Amplified Geochemical Imaging, LLC (AGI) laboratory in Elkton, Maryland. Analysis was completed using US EPA Method 8260B. The passive soil gas modules laboratory analytical report is presented in Appendix E and the passive soil gas modules mapping report is presented in Appendix F.

5.5 SUB-SLAB VAPOR POINTS

Four sub-slab vapor samples were collected in laboratory-provided one-liter stainless steel, batch-certified canisters with regulators allowing a flow rate of approximately 50 ml/min. Sub-slab vapor sampling was accompanied by use of a shroud containing He for real-time leak testing. Each sub-slab sample point was purged of approximately 400 milliliter (ml) of air prior to sample collection using a 40 ml syringe. Samples were collected in laboratory-provided canisters, labeled and transported under COC procedures to Eurofins Air Toxics in Folsom, California for analysis. Soil vapor samples were analyzed for VOCs (EPA Method TO-15), O_2, N_2, CO_2, CH_4, as well as the leak check gas He to evaluate ambient air leakage. The sub-slab vapor laboratory analytical report is presented in Appendix E.

5.6 INDOOR AIR

Six indoor air samples (IA-1, IA-2, and IA-6 through IA-9) and one ambient air sample (AA-1) were collected at the locations presented on Figure 2. Each sample interval was 24 hours in duration and corresponded to the normal building occupancy patterns. Indoor air samples were collected in laboratory-provided six-liter individually certified stainless steel canisters fitted with laboratory-calibrated flow controllers. Indoor air sample canisters were labeled and transported under COC procedures to Eurofins Air Toxics in Folsom California for analysis. Due to very low indoor air screening levels, analysis was performed using EPA Method TO-15 in the Selective Ion Mode (SIM). The indoor air laboratory analytical report is presented in Appendix E.

6.0 RESULTS

Although standard EPA analytes were analyzed and reported during this investigation, based on identified use, storage and potential release of chlorinated solvents, PCE and daughter products, specifically TCE, cis-1,2-Dichloroethene (cis-DCE), and vinyl chloride (VC) were considered the primary contaminants of concern. With the exception of shallow soil vapor (>5 feet below the ground surface) all results were compared to cleanup and/or screening levels for the various media (effective June 30, 2009) provided in Table 1 of the SAP (Stantec, 2013). Screening levels for shallow soil vapor were established subsequent to preparation of the SAP (Stantec, 2013), and are included in the data summary tables of this report.

6.1 UST EXCAVATION SOIL BORINGS

Four soil samples were collected from the direct-push cores that were advanced in the excavation on October 7, 2013, to represent soil from under the USTs. The PCE concentrations in the soil samples collected from TE-101-15', TE-104-15', and TE-105-15' [0.0042, 0.0072 and 0.0038 mg/kg, respectively] were greater than the Migration to Groundwater Value of 0.0021 mg/kg calculated by the WDEQ-VRP, which became effective in October 2013. Concentrations of TCE, cis-DCE, and VC in the soils samples were less than the WDEQ Migration to Groundwater values. The UST Soil Sample Analytical Summary is presented on Table 3.

6.2 GROUNDWATER

The groundwater monitoring and sampling event was conducted on October 9 and 10, 2013. Before sample collection, groundwater levels were collected and recorded to the nearest +0.01 foot using a water level indicator. Groundwater was encountered at depths ranging from 19.21 to 25.53 feet below top of casing (TOC). During the October 2013 monitoring and sampling event, the groundwater flow direction was generally to the north-northwest. The hydraulic gradient around the Site varies significantly. The measured hydraulic gradient between monitoring wells MW-106 and MW-02 (south end of the Site) is 0.011 feet per foot (ft/ft) and the measured hydraulic gradient between monitoring wells MW-02 and MW-105 (north end of the Site) is 0.0027 ft/ft. Groundwater elevations are presented on Table 4 and Figure 4.

Groundwater samples were collected from the 16 wells, MW-01 through MW-11 (with the exception of MW-5) and MW-101 through MW-106 during the October 2013 monitoring and sampling event. For the following list of contaminants of concern, Groundwater Standards established in Table 1 of the QAPP and SAP (Stantec, 2013) were exceeded in groundwater samples collected in October 2013 from monitoring wells:

- PCE: MW-01, MW-02, MW-04, MW-06, MW-07, MW-10, MW-104, and MW-105
- TCE: MW-04 and MW-06
- cis-DCE: MW-06

- VC: None

Of the monitoring wells that exceeded the Groundwater Standards, PCE concentrations ranged from 18 to 800 µg/L. TCE was detected in groundwater from the listed wells at concentrations ranging from 56 to 79 µg/L. Cis-DCE was detected in groundwater from monitoring well MW-06 (130 µg/L). Monitoring wells MW-07 and MW-10 had TCE and VC concentrations in groundwater below the laboratory detection limits but above the WDEQ water cleanup levels. This variation in the data is due to the lab dilution of these samples to account for the concentrations of PCE in the groundwater samples. Concentrations of PCE, TCE, cis-DCE, and VC were not detected above the WDEQ water cleanup levels in monitoring wells MW-03, MW-08, MW-09, MW-11, MW-101, MW-102, MW-103, and MW-106. The Groundwater Sample Analytical Summary is presented as Table 5 and the PCE, TCE, cis-DCE, and VC Concentrations in Groundwater Maps are presented as Figures 5, 6, 7, and 8, respectively.

6.3 SOIL VAPOR

Soil vapor sampling was conducted on October 17 and 18, 2013. Soil vapor samples were collected from 20 vapor points, VP-01 through VP-10, VP-11R, VP-12 through VP-15, and VP-101 through VP-106. PCE was detected in soil vapor from all vapor points sampled with the exception of VP-103. Detected PCE concentrations in soil vapor ranged from 13 to 93,000 micrograms per cubic meter (µg/m^3). TCE was detected in soil vapor from vapor points VP-01, VP-02, VP-06, VP-09, VP-11R, and VP-14 at concentrations ranging from 26 to 160 µg/m^3. The reporting limit for TCE in soil vapor point VP-12 was higher than the soil vapor Action Level[1] of 90 µg/m^3. Concentrations of cis-DCE in soil vapor from all vapor points sampled were less than the laboratory reporting limits, and ranged from <5.1 to <280 µg/m^3. Concentrations of VC in soil vapor from all vapor points sampled were less than the laboratory reporting limits, and ranged from <3.3 to <180 µg/m^3. The reporting limit for VC in soil vapor point VP-11R and VP-12 were higher than the soil vapor Action Level of 28 µg/m^3. For the following list of contaminants of concern, soil vapor exceeded the Action Levels in October 2013 from vapor points:

- PCE: VP-1 VP-2 VP-6 VP-9 VP-11R, VP-12, VP-14, and VP-102
- TCE: VP-11R and VP-14
- cis-DCE: None
- VC: None

The Soil Vapor Point Sample Analytical Summary is presented as Table 6 and the PCE, TCE, cis-DCE, and VC Concentrations in Soil Vapor are presented as Figures 9, 10, 11, and 12, respectively.

[1] Action Level = OSRP Residential Use Screening Level ÷ 0.01 the generic attenuation factor-soil vapor to indoor air.

6.4 PASSIVE SOIL GAS MODULES

AGI presents the results of their analysis using color gradations based on estimated soil gas concentrations. Due to the variability in absorption rates using passive soil gas modules, comparison of their approximate soil gas concentrations to screening or action levels for soil gas is not appropriate. The highest concentrations of PCE and TCE are depicted in similar locations: near the northeast corner of the Casper Dry Cleaners and near the northwest corner of the 12-24 Club. Conversely, the highest concentrations of BTEX are depicted along East Collins Drive, to the southwest and away from the dry cleaner, but very near the location with the highest reported concentration of PCE near the 12-24 Club (along East Fifth Street). The Passive Soil Gas Module Mapping Report is presented in Appendix F.

6.5 SUB-SLAB SOIL VAPOR

The sub-slab vapor sampling event was conducted on October 16, 2013. Sub-slab vapor samples were collected from four locations within the Casper Dry Cleaners building and the 12-24 Club building. Vapor samples were collected from SSG-1 through SSG-4. For the following list of contaminants of concern, sub-slab vapor was detected in October 2013 from sub-slab vapor locations:

- PCE: SSG-1, SSG-2, SSG-3, and SSG-4
- TCE: SSG-3
- cis-DCE: None
- VC: None

PCE concentrations in sub-slab vapor for the listed vapor samples ranged from 3,900 to 11,000 µg/m^3. The TCE concentration in soil vapor from SSG-3 was 93 µg/m^3. The Sub-Slab Vapor Point Sample Analytical Summary is presented as Table 7 and the PCE, TCE, cis-DCE, and VC Concentrations in Soil Vapor, Sub-Slab Vapor and Indoor Air Maps are presented as Figures 9, 10, 11, and 12, respectively.

6.6 INDOOR AIR

The indoor air sampling event was conducted on October 15 and 16, 2013. Indoor air samples were collected from five locations, along with one ambient outdoor air sample collected outside of the 12-24 Club building. Air samples were collected from IA-1 and IA-2 located within the 12-24 Club building and IA-7 through IA-9 in the Salvation Army building. Laboratory analysis identified concentrations above the OSRP Residential Use Screening Levels of the following compounds and samples as follows:

- PCE: IA-1, IA-2, IA-6, IA-7, IA-8, and IA-9 (All samples)
- TCE: IA-1, and IA-2

PCE concentrations in indoor air samples from the listed locations ranged from 49 to 140 µg/m^3. TCE concentrations in indoor air samples from the listed locations ranged from 0.32 to 3.3 µg/m^3. Benzene was detected in all samples (IA-1, IA-2, IA-6, IA-7, IA-8, and IA-9) at concentrations ranging from 0.51 to

0.78 µg/m^3; however, the indoor air concentrations were essentially the same as observed in the ambient outdoor air sample. The Indoor Air Analytical Summary is presented as Table 6 and the PCE, TCE, cis-DCE, and VC Concentrations in Soil Vapor, Sub-Slab Vapor and Indoor Air Maps are presented as Figures 9, 10, 11, and 12, respectively.

6.7 GEOLOGIC CROSS SECTION

A geologic cross section for the Site is presented as Figure 13. Cross Section A-A' runs the length of the Site from MW-106 (near the 12-24 Club) to MW-104 (near the Bank of the West).

The near surface geology of the Site consists primarily of sand with gravel and sandy gravel. Some sandy clay, silty sand, and sand with gravel/silty sand are also present. A review of groundwater well logs in the area of the Site indicate that the bedrock in the area of the Site consists of shale and is typically located approximately 26 to 35 feet bgs. Shale was identified during drilling of MW-07 at a depth of approximately 26.5 feet bgs. Shale was not observed at any other boring location at the Site; therefore the depth of bedrock has not been verified over most of the Project area.

In addition, groundwater elevations and PCE concentrations for both groundwater and soil vapor collected in October 2013 are shown on the geologic cross section where applicable.

7.0 DATA VALIDATION AND QUALITY CONTROL

7.1 SUMMARY OF DATA VALIDATION AND QUALITY CONTROL

This section summarizes actions taken to verify data quality control by the laboratory. Data packages for air, groundwater, soils, drums and hazardous wastes were validated by Diane Short and Associates, Inc. Samples were submitted to and analyzed for American Society for Testing and Materials (ASTM) D-1946 modified for methane and fixed gasses, EPA Method TO-15 and TO-15 SIM by Air Toxics; EPA SW 846 8015C, 8260C, 8270D and 8270 SIM by ChemSolutions and EPA SW 846 6010B, 7470A and 7471A by ESC.

ChemSolutions data packages STN097, STN098, STN099 and STN101 report organic results for samples collected October 7, 8, and 9, 2013. ESC package L663156/STN101 report metal results for samples collected October 9, 10, and 11, 2013. Air Toxics package 1310418B reports ASTM D-1946 sample results and 1310417, 1310418A and 1310487A report TO-15 and TO-15 SIM results for samples collected October 29, 30, and 31, 2013 and November 1, 4, 5 and 6, 2013.

7.2 DATA VALIDATION

Data validation was performed in accordance with the IWP (Stantec, 2013a) and QAPP and SAP (Stantec, 2013b) for the Site. Data validation was performed to ensure the quality of project data. Nine analytical reports containing the results for field samples, a trip blank, a field blank and equipment blank were validated and reviewed for the following:

- Completeness of data deliverables,
- Sample holding time,
- Blank data (method, trip, equipment and field),
- Gas Chromatograph/Mass Spectrometer performance, calibrations, internal standard and surrogate recoveries,
- Matrix spike/matrix spike duplicate (MS/MSD) recovery,
- Laboratory control sample (LCS) recovery,
- Laboratory duplicate sample precision,
- Field sample duplicate precision, and
- Overall data assessment

The Data Validation Checklists for data collected during the reporting period are presented in Appendix G.

7.3 DATA VALIDATION PRESENTATION AND EVALUATION

The Diane Short and Associates, Inc. data validation form addresses the items required for data validation. The forms include method specific, client and/or laboratory limits. The forms were complete for the most part, only minor clerical errors were observed. These errors do not impact the quality of the data. The validators also included acceptance of "poor responders" as defined by the method and did not flag associated results. Results having acceptable response factors were not qualified for laboratory control or continuing calibration issues.

7.4 LABORATORY QUALITY CONTROLS

The types of laboratory quality control (QC) samples associated with this report include performance evaluation/instrument tune, calibrations, internal standards, surrogates, method blank, LCS, and MS/MSD samples and laboratory duplicates. These QC samples were used to measure analytical method precision and accuracy. The method blank was used to assess laboratory contamination.

Representativeness of data was evaluated through review of analysis holding times and laboratory blank data in accordance with EPA analytical method guidelines. The holding time criteria for samples were met during the reporting period.

7.4.1 Laboratory Method Blank Samples

All method blanks were free of contamination.

7.4.2 Laboratory Control Samples

LCSs were analyzed with each sample delivery group (SDG) for each analytical method. LCS spike recoveries reported at concentrations above or below specific control limits resulted in qualification of those analytes in the associated field samples. The LCS data were used in conjunction with the matrix spike recovery data and the system monitoring compound recoveries to evaluate the accuracy of the analytical data.

7.4.3 Four data packages reported laboratory control percent recoveries (%Rs) above limits for contaminants of concern. Associated sample results were non-detect, no qualifying action is required. Matrix Spike Samples

Laboratory MS/MSD samples were analyzed at a frequency of 5 percent if required for each analytical method. MS/MSD sample recoveries were evaluated in conjunction with the other batch QC sample recoveries to evaluate the need for qualification of analytical data. Site specific MS/MSD samples were submitted and analyzed.

Site specific MS/MSD samples reported RPDs above limits for numerous non-target analytes in several data packages. Associated sample results are non-detect, no qualifying action required.

7.4.4 Measurement Monitoring Compounds

Analytical measurement monitoring compounds, also known as internal standards and surrogate spike compounds, were used for EPA Method 8015C, 8260C, 8270D and 8270 SIM analysis to monitor the performance of an individual measurement during sample extraction and analysis. All internal standard and surrogate recoveries are within limits.

7.4.5 Field Quality Controls

Field QC samples for this report were collected in accordance with the IWP (Stantec, 2013a) and QAPP and SAP (Stantec, 2013b). A trip blank was collected with the field samples and analyzed for VOCs to assess the potential for contamination resulting from sample shipping and storage. Analytes were not detected in the trip blank. An equipment blank and field blank were collected in support of monitoring activities. EPA SW 846 Method 8270 SIM analyte Naphthalene was detected in both blanks. No samples were flagged for blank contamination.

7.5 DATA ASSESSMENT AND USABILITY

The Data Validation Checklists summarize issues that were considered for qualification and are presented in this Appendix G. Only minor clerical deficiencies were detected. Additionally, no qualifiers or reasons for action are associated with the data in this data set (Appendix E).

Analytes were not detected in blanks (method and trip) during the reporting period. Laboratory control sample and continuing calibration percent recoveries were within or above limits for several analytical batches. Associated results were either “poor responders” or had acceptable response factors and were not qualified. Surrogate and internal standard recoveries are within limits for all samples. Sample results were not qualified for MS/MSD RPDs out of limits. Eleven of fourteen field duplicate samples RPDs are within limits.

Data were considered “useable” and marked as such in the database provided that it was validated according to the IWP (Stantec, 2013a) and QAPP and SAP (Stantec, 2013b). No data was qualified. The Data Validation Checklists summarize compounds and issues which were considered are presented in Appendix G.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

The following conclusions are based on a review of historical data and data gathered during the 2013 Expanded Investigation and UST Excavation/In-Situ Abandonment field activities.

8.1.1 UST Excavation Soil Borings

PID measurements collected during soil sampling ranged from 0.9 to 182 parts ppm-v. PCE concentrations in the soil samples collected from below the USTs, TE-101-15', TE-104-15', and TE-105-15' [0.0042, 0.0072 and 0.0038 mg/kg, respectively] were greater than the Migration to Groundwater Value of 0.0021 mg/kg. Concentrations of TCE, cis-DCE, and VC in the soils samples were all less than the Migration to Groundwater values.

Although the concentrations of PCE in the UST excavation soil samples were greater than the Migration to Groundwater Value, they do not appear to be sufficient to produce the PCE impacts observed in the VOC groundwater plume. Questions remain as to whether the area in the immediate vicinity of the four USTs is the primary release source for VOC impacts observed in groundwater.

8.1.2 Groundwater

During the October 2013 groundwater monitoring and sampling event, groundwater was encountered at depths ranging from 19.21 to 25.53 feet below TOC. The groundwater flow direction was to the north-northwest. The hydraulic gradient varied significantly from 0.011 ft/ft (south end of the Site) to 0.0027 ft/ft (north end of the Site).

Based on the groundwater sample analyses, the Groundwater Cleanup level for PCE was exceeded in groundwater samples collected from MW-01, MW-02, MW-04, MW-06, MW-07, MW-10, MW-104, and MW-105. The Groundwater Cleanup level for TCE was exceeded in groundwater samples collected from MW-04 and MW-06 and the Groundwater Cleanup level for cis-DCE was exceeded in the groundwater sample collected from MW-06. Only minor detections of petroleum constituents were observed in groundwater. Groundwater impacts are primarily comprised of PCE with the highest concentrations in groundwater located between the Casper Dry Cleaners and the Salvation Army building.

The primary constituent of concern observed in groundwater is PCE, which could indicate one or both of the following:

- The groundwater plume is fast moving and does not allow for sufficient degradation time of PCE to TCE, cis-DCE, and VC
- The observed PCE is from a recent release and sufficient degradation time has not occurred for PCE to degrade to TCE, cis-DCE, and VC

It should also be noted that with few exceptions, the magnitude of groundwater concentrations are lower than the concentrations that would be anticipated to result in the observed higher sub-slab vapor, soil vapor, or indoor air concentrations.

8.1.3 Soil Vapor

Based on the results of current soil vapor sampling and analysis, the highest concentrations of contaminants of concern in soil vapor are located in proximity to the 12-24 Club and the Salvation Army building. The highest concentrations in soil vapor are comprised of PCE which is observed in the 8 through 15 foot bgs interval. As stated above in Section 7.1.2, groundwater concentrations are not consistent with sub-slab vapor or soil vapor concentrations (i.e. no observed correlation of VOCs/concentrations and concentration observed in groundwater, sub-slab vapor, soil vapor, or indoor air). The temporal variability of the current findings will be further evaluated after the scheduled follow-up soil vapor sampling. No soil vapor probes were installed in immediate proximity to the Casper Dry Cleaners as part of this investigation and additional investigation of soil vapor in those areas is recommended.

The highest concentrations of PCE in sub-slab soil vapor were found in the basement of the eastern portion of the Casper Dry Cleaners. All samples at this location exceeded the sub-slab soil vapor screening levels established in the SAP (Stantec, 2013).

Sub-slab soil vapor samples collected in the basement of the 12-24 Club contained PCE, albeit at concentrations well below the sub-slab soil vapor screening level. The results are much lower than reported for a sub-slab soil vapor sample collected in the approximate center of the basement as part of a previous 2010 assessment. The results are notable for two reasons:

- They support observations made by Stantec and others that chemicals in sub-slab soil vapor can vary substantially over short distances (up to 6 orders of magnitude over 50-75 feet); and,

- The currently detected concentrations are not sufficient alone to cause the detections of PCE currently identified in indoor air (zero attenuation through the building slab), indicating that other areas of higher sub-slab concentrations of PCE contribute to indoor air impacts or that previously unidentified direct conduits or preferential pathways from the subsurface may exist.

Unidentified direct conduits or preferential pathways may include sanitary sewer lines or other underground utilities.

8.1.4 Indoor Air

With the exception of sample IA-9 collected near the eastern wall of the Salvation Army building, all indoor air samples contained PCE at concentrations well above the WDEQ screening levels for indoor air. TCE was also detected above its screening level in all samples collected within the 12-24 Club and one sample collected in the Salvation Army building. Based on the lack of observed use or storage of PCE and TCE at these locations and the distribution of these chemicals in sub-slab and soil vapor, Stantec concludes that the presence of these chemicals most likely results from vapor intrusion.

It is noted that screening levels were derived using a very conservative approach which included evaluating chemical concentrations on the basis of residential use properties and extrapolation of these values to soil vapor cleanup levels using generic attenuation factors that may not be realistic. The U.S. EPA Regional Screening Levels for Residential Air (based on no unacceptable excess lifetime cancer risk or non-cancer hazard) were used to derive both soil vapor and sub-slab soil vapor screening levels. As such, exceedance of screening levels does not indicate that actual adverse health effects will occur based on the current commercial use of the properties; only that additional evaluation is warranted. Such evaluation typically includes additional sampling or quantitative evaluation of potential human health inhalation risk.

As stated above in Section 8.1.2, groundwater concentrations are not consistent with indoor air concentrations (i.e. no observed correlation of VOCs/concentrations and concentration observed in groundwater, sub-slab vapor, soil vapor, or indoor air).

8.1.5 Geologic Cross Section

The near surface geology of the Site consists primarily of sand with gravel and sandy gravel. Some sandy clay, silty sand, and sand with gravel/silty sand are also present. Bedrock in the area of the Site likely consists of shale and is located approximately 26 to 35 feet bgs. Shale was identified during drilling of one historical monitoring well (MW-07), but was not observed at any other boring location at the Site and questions remain as to where the bedrock surface is located.

8.2 RECOMMENDATIONS

The following recommendations are based on a review of historical data and data gathered during the 2013 Expanded Investigation and UST Excavation/In-Situ Abandonment field activities. Recommendations are as follows:

- Install additional groundwater monitoring wells north and northeast of the known chlorinated solvent (VOC) plume to fully define the current extent of dissolved phase impact
- Install additional vapor points, both shallow and deep, north of the Casper Dry Cleaners to help define the vertical extent of VOC impacts
- Conduct a soil vapor extraction (SVE) pilot study to include measurement of induced vacuum at select soil vapor and sub-slab soil vapor points and groundwater monitoring wells to understand potential viability as a remedial approach, in addition to an approach to abate VOC vapor intrusion issues
- Conduct a subsurface survey in order to identify possible soil vapor conduits in the areas around the Casper Dry Cleaners to include:
    - Sewer camera survey to understand the location and condition of sanitary sewer lines in the area
    - Ground penetrating radar (GPR) survey to identify other potential release sources in the area of the Casper Dry Cleaners, including other USTs identified on historical Sanborn maps located in the area of the 12-24 Club
    - Basement investigation in the 12-24 Club and the Salvation Army buildings using colorimetric gas detector tubes (e.g. Drager Tubes) for the purpose of detecting low concentrations of PCE in areas that likely allow for infiltration of vapors such as connections to the building from underground utilities
- Conduct Spring 2014 sampling and monitoring to include:
    - Groundwater monitoring and sampling
    - Soil vapor point sampling
    - Indoor air sampling

9.0 REFERENCES

Stantec Consulting Services Inc. (Stantec, 2013a), Investigation Work Plan, Former Lobell Refinery Expanded Investigation and Underground Storage Tank Removal Project, Casper, Wyoming, Former Lobell Refinery Orphan Site Remediation Program (OSRP) File 57.004. September 24, 2013.

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Wyoming Department of Environmental Quality (WDEQ) Solid and Hazardous Waste Division Orphan Site Remediation Program (OSRP), *DRAFT Residential Screening Levels*, 2013.

Wyoming Statutes (Wyoming Statutes 2012) *Tittle 33 – Professions and Occupations Chapter 29-Surveyors and Engineers 33-29-124. Certificate required for the practice of engineering or land surveying*. 2012.

TABLES

TABLE 1
GROUNDWATER MONITORING WELL CONSTRUCTION SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

Well Identification	Date Constructed	Boring Depth (feet bgs)	Well Depth (feet below TOC)	Screened Interval (feet bgs)	TOC Elevation (feet amsl)
MW-01	2/23/2010	30.00	30.00	20.0-30.0	5125.88
MW-02	2/25/2010	30.00	29.50	19.5-29.5	5124.66
MW-03	2/25/2010	30.00	29.50	19.5-29.5	5123.28
MW-04	2/25/2010	33.00	31.00	21.0-31.0	5126.14
MW-05	2/25/2010	26.50	31.00	21.0-31.0	NA
MW-06	2/25/2010	32.00	31.50	21.5-31.5	5127.01
MW-07	10/20/2010	28.00	28.00	18.0-28.0	5123.36
MW-08	10/20/2010	29.00	29.00	19.0-29.0	5123.91
MW-09	10/20/2010	23.00	23.00	13.0-23.0	5125.02
MW-10	10/20/2010	28.00	28.00	18.0-28.0	5123.86
MW-11	10/20/2010	26.50	26.50	16.5-26.5	5124.21
MW-101	10/7/2013	30.00	30.00	20.0-30.0	5124.74
MW-102	10/7/2013	32.00	30.00	20.0-30.0	5125.26
MW-103	10/8/2013	32.00	30.00	20.0-30.0	5126.45
MW-104	10/6/2013	32.00	30.00	20.0-30.0	5127.14
MW-105	10/6/2013	33.00	33.00	23.0-33.0	5125.79
MW-106	10/7/2013	32.00	30.00	15.0-30.0	5125.62

Notes:

bgs: below ground surface
TOC: Top of Casing
amsl: above mean sea level
MW: monitoring well
NA: MW-5 was destroyed prior to October 2013

TABLE 2
SOIL VAPOR POINT CONSTRUCTION SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

Vapor Point Identification	Date Constructed	Ground Elevation (feet amsl)	Total Depth (feet bgs)
VP-01	2/2010	NA	5
VP-02	2/2010	5127.55	5
VP-03	2/2010	5126.73	5
VP-04	2/2010	5126.25	5
VP-05	2/2010	5125.00	5
VP-06	5/2010	5124.89	5
VP-07	NA	NA	NA
VP-08	5/2010	5123.13	5
VP-09	5/2010	NA	5
VP-10	5/2010	5124.69	5
VP-11	NA	NA	NA
VP-11R	10/7/2013	5127.23	15.5
VP-12	5/2010	5124.54	8
VP-13	5/2010	5124.75	8
VP-14	5/2010	5125.65	8
VP-15	5/2010	5124.32	8
VP-101	10/7/2013	5125.81	13
VP-102	10/8/2013	5125.11	15
VP-103	10/7/2013	5125.51	5
VP-104	10/8/2013	5126.96	5
VP-105	10/7/2013	5125.65	13
VP-106	10/7/2013	5125.52	15

Notes:

amsl: above mean sea level
bgs: below ground surface
VP: vapor point
NA: Not Available
VP-7 and VP-11 were destroyed prior to October 2013

TABLE 3
UST EXCAVATION SOIL SAMPLE ANALYTICAL SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

				CVOCs				TPH-DRO
Sample Locations	**Date Sampled**	**Sample Collection Depth (feet bgs)**	**PID (ppm)**	**Tetrachloroethene (PCE) (mg/Kg)**	**Trichloroethene (TCE) (mg/Kg)**	**cis 1,2-Dichloroethene (cis-DCE) (mg/Kg)**	**Vinyl Chloride (VC) (mg/Kg)**	**TPH-DRO (mg/Kg)**
Migration to Groundwater Standard (mg/Kg)				**0.0021**	**0.002**	**0.0175**	**0.00063**	**NE**
TE-101-15'	10/7/2013	15	182	**0.0042**	<0.002	<0.002	<0.002	<5.0
TE-102-15'	10/7/2013	15	91.6	<0.002	<0.002	<0.002	<0.002	<5.0
TE-103-8'	10/7/2013	8	180.1	<0.002	<0.002	<0.002	<0.002	45
TE-104-15'	10/7/2013	15	10.6	**0.0072**	<0.002	<0.002	<0.002	<5.0
TE-105-15'	10/7/2013	15	397.0	**0.0038**	<0.002	<0.002	<0.002	6.1

Notes:

Laboratory Analysis by EPA Method 8260C and 8015C
CVOCs: Chlorinated Volatile Organic Compounds
TPH-DRO: Total Petroleum Hydrocarbon-Diesel Range Organics
bgs: below ground surface
PID: photoionization detector
ppm: parts per million
mg/Kg: milligram per kilogram
NE: Not Established
TE: Tank Excavation
Bold indicates sample results which exceed Standard

TABLE 4
GROUNDWATER ELEVATION SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

Well Identification	Date Measured	TOC Elevation (feet amsl)	Depth to Groundwater (feet below TOC)	Depth to Well Bottom (feet below TOC)[1]	Groundwater Elevation (feet amsl)
MW-01	10/18/2013	5125.88	24.18	28.90	5101.70
MW-02	10/18/2013	5124.66	21.96	27.98	5102.70
MW-03	10/18/2013	5123.28	21.40	29.22	5101.88
MW-04	10/18/2013	5126.14	24.43	29.66	5101.71
MW-06	10/18/2013	5127.01	25.22	30.20	5101.79
MW-07	10/18/2013	5123.36	21.33	27.65	5102.03
MW-08	10/18/2013	5123.91	19.56	27.60	5104.35
MW-09	10/18/2013	5125.02	19.91	22.40	5105.11
MW-10	10/18/2013	5123.86	22.03	27.30	5101.83
MW-11	10/18/2013	5124.21	22.11	26.01	5102.10
MW-101	10/18/2013	5124.74	22.92	29.64	5101.82
MW-102	10/18/2013	5125.26	23.57	29.46	5101.69
MW-103	10/18/2013	5126.45	24.85	29.29	5101.60
MW-104	10/18/2013	5127.14	25.53	29.90	5101.61
MW-105	10/18/2013	5125.79	24.25	32.44	5101.54
MW-106	10/18/2013	5125.62	19.21	28.72	5106.41

Notes:

TOC: Top of Casing
amsl: above mean sea level
MW: monitoring well
MW-5 was destroyed prior to October 2013
[1]Measured during sample collection between October 9 and 11, 2013

TABLE 5
GROUNDWATER ANALYTICAL SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

		CVOCs					VOCs/SVOCs									TPH-DRO
Sample Locations	**Date Sampled**	**Tetrachloroethene (PCE) (µg/L)**	**Trichloroethene (TCE) (µg/L)**	**cis 1,2-Dichloroethene (cis-DCE) (µg/L)**	**trans 1,2-Dichloroethene (trans-DCE) (µg/L)**	**Vinyl Chloride (VC) (µg/L)**	**Benzo[a]anthracene (µg/L)**	**Benzo[a]pyrene (µg/L)**	**Benzo[b]fluoranthene (µg/L)**	**Benzo[g,h,i]perylene (µg/L)**	**bis(2-Chloroethyl)ether (µg/L)**	**bis(2-Ethylhexyl)phthalate (µg/L)**	**Butylbenzylphthalate (µg/L)**	**Dibenz[a,h]anthracene (µg/L)**	**Indeno[1,2,3-cd]pyrene (µg/L)**	**TPH-DRO (µg/L)**
Cleanup Level (µg/L)		**5**	**5**	**70**	**NE**	**2**	**0.117**	**0.2**	**0.117**	**NE**	**0.0773**	**6**	**7290**	**0.0117**	**0.117**	**NE**
MW-01	3/25/2010	4.65	<1.00	<1.00	<1.00	<1.00	**<2.11**	**<2.11**	**<2.11**	<2.11	**<10.5**	**<10.5**	<10.5	**<2.11**	**<2.11**	611
	6/29/2010	**13**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	11/17/2010	4.26	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/24/2011	**8.60**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/10/2013	**18**	<2	<2	<2	<2	**0.52**	0.17	**0.17**	0.12	<0.01	<2.5	<2.5	**0.14**	0.11	0.00092
MW-02	3/18/2010	**74.70**	<1.00	<1.00	<1.00	<1.00	**<2.22**	**<2.22**	**<2.22**	<2.22	<11.1	**<11.1**	<11.1	**<2.22**	**<2.22**	<94.3
	6/29/2010	**44**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	11/17/2010	**26.0**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/24/2011	**46.0**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/10/2013	**51**	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	0.046	4.8	2.8	<0.01	<0.1	<0.0005
MW-03	3/25/2010	<1.00	<1.00	<1.00	<1.00	<1.00	**<2.11**	<2.11	**<2.11**	<2.11	**<10.5**	**<10.5**	<10.5	**<2.11**	**<2.11**	<105
	6/29/2010	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/24/2011	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/9/2013	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	0.028	<2.5	<2.5	**0.026**	<0.1	<0.0005
MW-04	3/25/2010	**1,840**	**56.2**	<1.00	<1.00	<1.00	**<1.89**	**<1.89**	**<1.89**	<1.89	**<9.43**	**<9.43**	<9.43	**<1.89**	**<1.89**	211
	6/29/2010	**1,470**	**33.7**	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	11/17/2010	**833**	**9.09**	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/28/2011	**952**	**16.9**	1.50	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/9/2013	**290**	**56**	54	<2	<2	<0.1	<0.1	<0.1	<0.1	0.043	<2.5	2.8	<0.01	<0.1	<0.0005
MW-05	3/25/2010	<1.00	<1.00	<1.00	<1.00	<1.00	**<1.89**	**<1.89**	**<1.89**	<1.89	**<9.43**	**<9.43**	<9.43	**<1.89**	**<1.89**	512
MW-06	3/25/2010	**1,800**	**296**	40.9	<1.00	<1.00	**<2.22**	**<2.22**	**<2.22**	<2.22	<11.1	**<11.1**	<11.1	**<2.22**	**<2.22**	176
	6/29/2010	**1,700**	**44.8**	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	11/18/2010	**524**	**76.9**	29.4	1.24	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/24/2011	**582**	**52.7**	10.3	2.49	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/9/2013	**260**	**79**	**130**	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	**0.012**	<0.1	<0.0005
MW-07	11/16/2010	**1,170**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/28/2011	**342**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/9/2013	**800**	**<20**	<20	<20	**<20**	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	**0.012**	<0.1	<0.0005
MW-08	11/16/2010	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/28/2011	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/10/2013	2.8	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	<0.01	<0.1	<0.0005
MW-09	11/16/2010	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/28/2011	1.48	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/10/2013	4.3	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	<0.01	<0.1	<0.0005
MW-10	11/17/2010	**712**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/24/2011	**1,010**	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/9/2013	**480**	**<20**	<20	<20	**<20**	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	**0.012**	<0.1	<0.0005
MW-11	11/17/2010	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	2/28/2011	<1.00	<1.00	<1.00	<1.00	<1.00	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA	NDA
	10/10/2013	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	0.020	<2.5	<2.5	<0.01	<0.1	<0.0005
MW-101	10/11/2013	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	<0.01	<0.1	<0.0005
MW-102	10/11/2013	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	3.7	<2.5	<0.01	<0.1	<0.0005
MW-103	10/11/2013	<2	<2	<2	<2	<2	<0.1	**<0.5**	<0.1	<0.5	<0.01	<2.5	<2.5	**0.018**	**<0.5**	<0.0005
MW-104	10/11/2013	**130**	2.2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	<0.01	<0.1	<0.0005
MW-105	10/11/2013	**160**	2.4	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	0.018	<2.5	<2.5	**0.19**	**0.14**	<0.0005
MW-106	10/11/2013	<2	<2	<2	<2	<2	<0.1	<0.1	<0.1	<0.1	<0.01	<2.5	<2.5	<0.01	<0.1	<0.0005

Notes:

Laboratory Analysis by EPA Method 8260C for VOC and 8270D/8270SIM for SVOC
CVOCs: Chlorinated Volatile Organic Compounds
SVOCs: Semi-Volatile Organic Compounds
VOCs: Volatile Organic Compounds
TPH-DRO: Total Petroleum Hydrocarbon-Diesel Range Organics
µg/L: micrograms per liter
NE: Not Established
MW: monitoring well
NDA: No data available

TABLE 6
SOIL VAPOR POINT ANALYTICAL SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

		CVOCs				VOCs																								
Sample Locations	Date Sampled	Tetrachloroethene (PCE) (µg/m³)	Trichloroethene (TCE) (µg/m³)	cis-1,2-Dichloroethene (cis-DCE) (µg/m³)	Vinyl Chloride (VC) (µg/m³)	1,1,1-Trichloroethane (µg/m³)	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) (µg/m³)	1,2,4-Trimethylbenzene (µg/m³)	1,3-Dichlorobenzene (µg/m³)	1,3,5-Trimethylbenzene (µg/m³)	4-Ethyltoluene (µg/m³)	Acetone (µg/m³)	Benzene (µg/m³)	Bromomethane (µg/m³)	Chloroform (µg/m³)	Chloroethane (µg/m³)	Chloromethane (µg/m³)	Cyclohexane (µg/m³)	Dichlorodifluoromethane (Freon 12) (µg/m³)	Ethanol (µg/m³)	Ethyl Benzene (µg/m³)	Hexane (µg/m³)	m,p-Xylene (µg/m³)	Methylene Chloride (µg/m³)	Naphthalene (µg/m³)	o-Xylene (µg/m³)	Tetrahydrofuran (µg/m³)	Toluene (µg/m³)	Trichlorofluoromethane (Freon 11) (µg/m³)
OSRP Residential Use Action Level[1]		810	90	3500	28	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
VP-01	3/18/2010	**27,133**	**107**	<175	**<112.47**	<240.1	<337.23	<216.29	<264.56	<216.31	NDA	NDA	<140.57	<170.87	**<214.85**	<116.11	<227.15	NDA	<217.61	NDA	<191.04	NDA	<191.06	59.06 J	NDA	<191.06	NDA	45.22 J	<247.23
	10/17/2013	**4,400**	30	<9.9	<6.4	<14	<19	<12	<15	<12	<12	<59	<8	<97	<12	<12	<52	<8.6	<12	38	<11	<8.8	<11	<87	NDA	<11	<7.4	210	<14
VP-02	3/18/2010	**1,424**	<1.07	<0.79	<1.02	1.04 J	0.61 J	1.28 J	<2.41	<1.97	NDA	NDA	<1.28	<1.55	<1.95	<1.06	<2.07	NDA	1.68 J	NDA	1.00 J	NDA	2.87	1.49 J	NDA	0.96 J	NDA	34.29	1.8 J
	10/18/2013	**2,500**	38	<5.5	<3.6	<7.6	<11	<6.8	<8.4	<6.8	<6.8	<33	<4.4	<54	<6.8	<15	<29	<4.8	<6.9	12	<6.0	<4.9	<6.0	<48	NDA	<6.0	<4.1	<5.2	<7.8
VP-03	3/18/2010	115	<1.07	<0.79	<0.51	<1.09	0.57 J	1.23	0.72 J	<0.98	NDA	NDA	<0.64	<0.78	0.23 J	<0.53	0.52 J	NDA	0.54 J	NDA	0.52 J	NDA	1.48	1.08 J	NDA	0.52 J	NDA	19.97	1.35
	10/18/2013	310	<7.3	<5.4	<3.5	<7.4	<10	<6.7	<8.2	<6.7	<6.7	<32	<4.3	<53	<6.6	<14	<28	<4.7	<6.7	14	<5.9	<4.8	<5.9	<47	NDA	<5.9	<4.0	73	<7.6
VP-04	3/18/2010	271	4.19	<0.79	<0.51	<1.09	0.51 J	2.51	1.3	0.54 J	NDA	NDA	0.21 J	<0.78	<0.98	<0.53	<1.03	NDA	0.64 J	NDA	1.0	NDA	3.1	1.04 J	NDA	1.09 J	NDA	6.03	1.07 J
	10/18/2013	190	<7.7	<5.7	<3.7	<7.8	<11	<7.1	<8.6	<7.1	<7.1	<34	<4.6	<56	<7.0	<15	<30	<5.0	<7.1	17	<6.2	<5.1	6.20	<50	NDA	<6.2	<4.2	110	<8.1
VP-05	3/18/2010	4	<1.07	<0.79	<0.51	<1.09	0.46 J	2.36	0.84 J	0.54 J	NDA	NDA	0.20 J	<0.78	0.22 J	<0.53	<1.03	NDA	0.69 J	NDA	0.82 J	NDA	2.87	0.90 J	NDA	1.00 J	NDA	3.2	0.73 J
	10/18/2013	45	<7.5	<5.5	<3.6	<7.6	<11	<6.8	<8.4	<6.8	<6.8	110	<4.4	<54	<6.8	<15	<29	<4.8	<6.9	41	<6.0	<4.9	9.3	<48	NDA	<6.0	<4.1	280	370
VP-06	5/24/2010	**814**	8.1	<3.9	<2.56	<5.46	<7.66	<4.92	<6.01	<9.42	NDA	NDA	<3.19	<3.88	<4.88	<2.64	<5.16	NDA	2.57 J	NDA	<4.34	NDA	<4.34	2.4 J	NDA	<4.34	NDA	<3.77	1.63 J
	10/18/2013	**2,100**	26	<5.1	<3.3	<7.0	<9.8	<6.3	<7.7	<6.3	<6.3	<30	<4.1	<50	<6.3	<14	<26	<4.4	<6.4	32	<5.6	<4.5	7.7	<45	NDA	<5.6	<3.8	170	<7.2
VP-07	5/24/2010	**189,930**	**591**	274	**<383.44**	<818.53	<1149.63	<737.36	<901.9	<1113.19	NDA	NDA	<479.20	<582.52	**<732.45**	<395.83	<743.41	NDA	<741.84	NDA	<651.29	NDA	<651.35	267.5 J	NDA	<651.35	NDA	<565.21	<842.82
VP-08	5/24/2010	265	<1.45	<1.07	<0.69	<1.47	0.56 J	0.54 J	<1.62	<2	NDA	NDA	<0.86	0.30 J	<1.32	0.23 J	3.5	NDA	2.67	NDA	0.87 J	NDA	1.26	2.47	NDA	0.48 J	NDA	0.53 J	2.92
	10/18/2013	47	<6.9	<5.1	<3.3	<7.0	<9.8	<6.3	<7.7	<6.3	<6.3	<30	<4.1	<50	18	<14	<26	<4.4	<6.3	26	<5.6	<4.5	7.4	<44	NDA	<5.6	<3.8	200	<7.2
VP-09	5/24/2010	18	<1.07	<0.079	<0.51	<1.09	0.51 J	5.41	<1.2	<1.82	NDA	NDA	<0.64	<0.78	0.73 J	<0.53	0.85 J	NDA	2.47	NDA	1.35	NDA	5.65	0.83 J	NDA	1.82	NDA	0.49 J	1.57
	10/18/2013	**1,500**	8.1	<5.6	<3.6	<7.6	<11	<6.9	<8.4	<6.9	<6.9	<33	<4.5	<54	<6.8	<15	<29	<4.8	<6.9	<10	<6.1	<4.9	6.2	<49	NDA	<6.1	<4.1	160	<7.9
VP-10	5/24/2010	**27,133**	24.2	<91	**<58.79**	<125.51	<176.28	<113.06	<138.29	<113.07	NDA	NDA	<73.48	<89.32	35.65 J	<60.69	<117.71	NDA	<113.75	NDA	<99.86	NDA	<99.87	29.88 J	NDA	<99.87	NDA	<86.67	<129.23
	10/18/2013	540	<7.6	<5.6	<3.6	<7.7	<11	<6.9	<8.5	<6.9	<6.9	37	<4.5	<55	<6.9	<15	<29	<4.8	<7.0	38	6.7	<5.0	11	<49	NDA	<6.1	<4.2	250	<7.9
VP-11	5/24/2010	**12,888**	54	<37.7	<24.28	<51.84	<72.81	<46.7	<57.12	<63.05	NDA	NDA	<30.35	<36.89	<46.39	<25.07	<49.56	NDA	<46.98	NDA	<41.25	NDA	<41.25	41.69 J	NDA	<41.25	NDA	<35.8	12.36 J
VP-11R	10/17/2013	**21,000**	**160**	<53	**<34**	<72	<100	<65	<80	<65	<65	<320	<42	<520	<65	<140	<270	<46	<66	<100	<58	<47	<58	<460	NDA	<58	<39	190	<75
VP-12	10/17/2013	**93,000**	**<380**	<280	**<180**	<380	<540	<340	<420	<340	<340	<1,700	<220	<2700	<340	<740	<1400	<240	<350	<1,300	<300	<250	<300	<2,400	NDA	<300	<210	360	<390
VP-13	10/17/2013	200	<7.2	<5.4	<3.4	<7.4	<10	<6.6	<8.1	<6.6	<6.6	<32	<4.3	<52	<6.6	<14	<28	<4.6	<6.7	<10	<5.9	<4.8	<5.9	<47	NDA	<5.9	<4.0	<5.1	<7.6
VP-14	4/10/2012	**17,500**	NDA	72	NDA	NDA	NDA	NDA	<2.5	NDA	<2.0	4.9	<0.65	<1.6	31.2	<1.1	<0.84	<1.4	<2.0	1.4	<1.8	<1.4	NDA	<1.4	3.3	NDA	NDA	NDA	NDA
	10/17/2013	**13,000**	**130**	<22	<14	<30	<42	<27	<33	<27	<27	<130	<18	<210	<27	<58	<110	<19	<27	<41	<24	<19	<24	<190	NDA	<24	<16	<21	<31
VP-15*	10/17/2013	13	<7.5	<5.5	<3.6	<7.6	<42	<6.8	<8.4	<6.8	<6.8	<33	<4.4	<54	<6.8	<15	<29	<4.8	<6.9	13	<6.0	<4.9	<6.0	<48	NDA	<6.0	<4.1	<5.2	<7.8
VP-101	10/17/2013	570	<7.6	<5.6	<3.6	<7.7	<11	<6.9	<8.4	<6.9	<6.9	<33	<4.5	<54	<6.9	<15	<29	<4.8	<6.9	21	<6.1	6.2	9.2	<49	NDA	<6.1	4.4	140	<7.9
VP-102	10/17/2013	**2,000**	<7.6	<5.6	<3.6	<7.7	<11	<6.9	<8.5	<6.9	<6.9	<33	<4.5	<55	<6.9	<15	<29	<4.8	<7.0	19	<6.1	<5.0	9.5	<49	NDA	<6.1	<4.2	240	<7.9
VP-103	10/18/2013	<9.4	<7.5	<5.5	<3.6	<7.6	<11	12	<8.4	<6.8	12	<33	<4.4	<54	<6.8	<15	<29	<4.8	<6.9	43	8.5	<4.9	38	<48	NDA	11	<4.1	50	<7.8
VP-104	10/18/2013	140	<7.1	<5.3	<3.4	<7.2	<10	<6.5	<8.0	<6.5	<6.5	<32	<4.2	<52	<6.5	<14	<27	<4.6	<6.6	17	<5.8	<4.7	6.1	<46	NDA	<5.8	<3.9	130	<7.5
VP-105	10/18/2013	290	<7.4	<5.5	<3.5	<7.5	<10	15	<8.3	<6.8	18	<33	<4.4	<54	<6.7	<14	<28	<4.8	<6.8	<10	18	<4.9	72	<48	NDA	17	<4.1	78	<7.8
VP-106	10/18/2013	700	<7.7	<5.7	<3.6	<7.8	<11	<7.0	<8.6	<7.0	<7.0	<34	<4.6	<56	<7.0	<15	<30	5.1	<7.1	16	<6.2	6.6	8.1	<50	NDA	<6.2	<4.2	160	<8.0
MW-02	5/24/2010	**128,881**	**279**	<278	**<178.94**	<381.98	<536.49	<344.1	<420.89	<344.13	NDA	NDA	<223.63	<271.84	**<341.81**	<184.72	<371.71	NDA	<346.19	NDA	<303.93	NDA	<303.96	208.44 J	NDA	<303.96	NDA	<263.77	<393.32

Notes:

Laboratory Analysis by TO-15
CVOCs: Chlorinated Volatile Organic Compounds
VOCs: Volatile Organic Compounds
µg/m³: Micrograms per cubic meter
[1] Orphan Site Remediation Program (OSRP) Residential Use Screening Level ÷ 0.01 (generic attenuation factor-soil vapor to indoor air)
NE: Not Established
VP: Vapor Point
NDA: No data available
J: Estimated Result (Result is less than Reporting Limit)
Shaded Cells: Results converted from parts per billion volume per volume (ppb [v/v])
Bold indicates sample results which exceed Screening Level
*When VP-15 was sampled on 10/17/2013 the sample was labeled as VP-11, but it has been corrected on this table.

TABLE 7
SUB-SLAB VAPOR ANALYTICAL SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

		CVOCs				VOCs													
Sample Locations	**Date Sampled**	**Tetrachloroethene (PCE) (µg/m^3)**	**Trichloroethene (TCE) (µg/m^3)**	**cis 1,2-Dichloroethene (cis-DCE) (µg/m^3)**	**Vinyl Chloride (VC) (µg/m^3)**	**1,2-Dichloroethane (µg/m^3)**	**1,2-Dichloropropane (µg/m^3)**	**2-Butanone (Methyl Ethyl Keytone) (µg/m^3)**	**2-Propanol (µg/m^3)**	**4-Ethyltoluene (µg/m^3)**	**4-Methyl-2-pentanone (µg/m^3)**	**Acetone (µg/m^3)**	**Benzene (µg/m^3)**	**Ethanol (µg/m^3)**	**Ethyl Benzene (µg/m^3)**	**m,p-Xylene (µg/m^3)**	**o-Xylene (µg/m^3)**	**Styrene (µg/m^3)**	**Toluene (µg/m^3)**
SSG-1	10/16/2013	320	<7.4	<5.5	<3.5	11	15	34	19	<6.8	18	45	6.3	190	20	33	8.7	<5.9	870
SSG-2	10/16/2013	78	<7.1	<5.2	<3.4	13	18	49	32	6.8	22	120	7.6	270	26	46	12	6.6	1,100
SSG-3	10/16/2013	11,000	93	<24	<15	<24	<27	<70	<58	<29	<24	<140	<19	100	<26	<26	<26	<25	360
SSG-4	10/16/2013	3,900	<12	<8.9	<5.7	<9.1	<10	<26	74	<11	<9.2	<53	7.6	190	<9.7	14	<9.7	<9.5	360

Notes:

Laboratory Analysis by EPA Method TO-15 Full Scan
CVOCs: Chlorinated Volatile Organic Compounds
VOCs: Volatile Organic Compounds
µg/m^3: Micrograms per cubic meter
SSG: Sub-slab gas

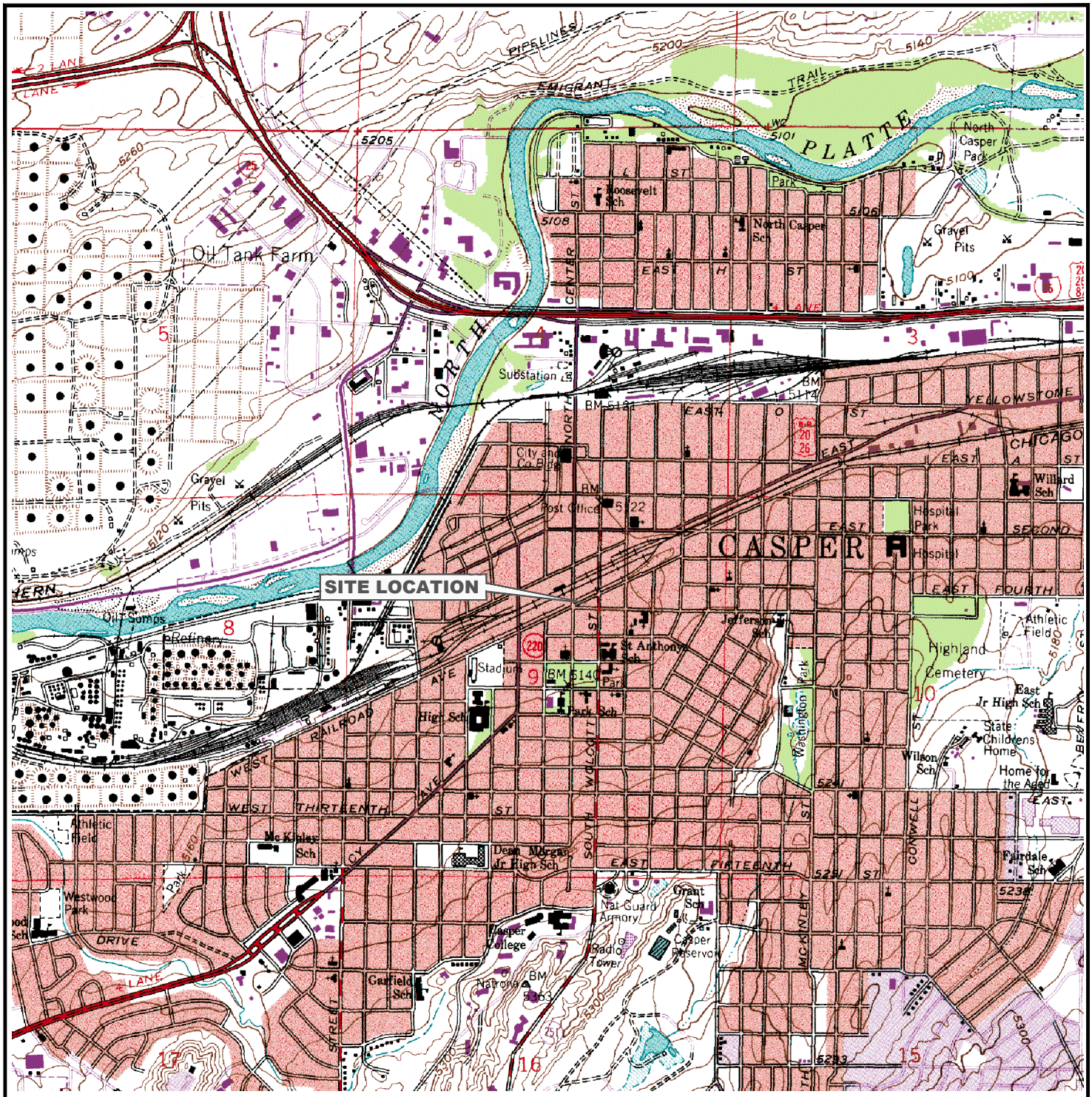
TABLE 8
INDOOR AIR ANALYTICAL SUMMARY
Former Lobell Refinery-Orphan Site Remediation Program (OSRP) File 57.004
Casper, Wyoming
Stantec Project NO. 212205045

		CVOCs				VOCs						
Sample Locations	**Date Sampled**	**Tetrachloroethene (PCE) (µg/m^3)**	**Trichloroethene (TCE) (µg/m^3)**	**cis-1,2-Dichloroethene (cis-DCE) (µg/m^3)**	**Vinyl Chloride (VC) (µg/m^3)**	**1,1,1-Trichloroethane (µg/m^3)**	**1,2-Dichloroethane (µg/m^3)**	**Benzene (µg/m^3)**	**Ethyl Benzene (µg/m^3)**	**m,p-Xylene (µg/m^3)**	**o-Xylene (µg/m^3)**	**Toluene (µg/m^3)**
OSRP Residential Use Screening Level[1]		**8.1**	**0.9**	**35**	**0.28**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
AA-1	10/16/2013	3.4	<0.23	<0.17	<0.054	<0.23	<0.17	0.38	<0.18	0.44	<0.18	0.94
IA-1	10/16/2013	**130**	**3.3**	2.5	<0.049	<0.21	0.35	0.52	0.88	3.3	1.4	6.8
IA-2	10/16/2013	**120**	**3.3**	2.4	0.063	<0.20	0.35	0.51	0.91	3.2	1.3	7.1
IA-6	10/15/2013	**49**	<0.21	<0.15	<0.050	<0.21	0.16	0.68	0.38	1.1	0.41	2.1
IA-7	10/15/2013	**140**	0.32	<0.14	<0.044	0.36	<0.14	0.78	0.44	1.4	0.50	6.2
IA-8	10/15/2013	**74**	<0.21	<0.16	<0.050	0.25	<0.16	0.62	0.28	0.88	0.34	1.8
IA-9	10/15/2013	0.70	<0.17	<0.13	<0.041	<0.17	<0.13	0.58	0.22	0.74	0.28	1.4

Notes:

Laboratory Analysis by Modified EPA Method TO-15 SIM
CVOCs: Chlorinated Volatile Organic compounds
VOCs: Volatile Organic compounds
µg/m^3: micrograms per cubic meter
[1]Orphan Site Remediation Program (OSRP) Residential Use Screening Level
NE: Not Established
AA: ambient air
IA: Indoor Air
Bold indicates sample results which exceed Screening Level

FIGURES



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; CASPER, WYOMING

Stantec 3995 SOUTH 700 EAST, SUITE 300 SALT LAKE CITY, UTAH PHONE: (801) 261-0090 FAX: (801) 266-1671	FOR: FORMER LOBELL REFINERY- ORPHAN SITE REMEDIATION PROGRAM (OSRP) FILE 57.004 CASPER, WYOMING		SITE LOCATION MAP	FIGURE: 1
	JOB NUMBER: 212205045	DRAWN BY: ARA	CHECKED BY: CB	APPROVED BY: RJC	DATE: 11/4/13

FILEPATH:V:\1878\CADD_files\Other_offices_work\GOLDEN\wdeq_present_Lobell\Casper\CASPER-TOPO.dwg|aandrews|Feb 13, 2014 at 8:12|Layout: TOPO

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(OSRP) FILE 57.004
CASPER, WYOMING

SITE MAP

FIGURE: 2

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:25|Layout: SITE

TE-101(10/7/13)	
DEPTH	15
PID	182
PCE	0.0042
TCE	<0.002
cis-1,2-DCE	<0.002
VC	<0.002

TE-102(10/7/13)	
DEPTH	15
PID	91.6
PCE	<0.002
TCE	<0.002
cis-1,2-DCE	<0.002
VC	<0.002

TE-103(10/7/13)	
DEPTH	8
PID	180.1
PCE	<0.002
TCE	<0.002
cis-1,2-DCE	<0.002
VC	<0.002

TE-104(10/7/13)	
DEPTH	15
PID	10.6
PCE	0.0072
TCE	<0.002
cis-1,2-DCE	<0.002
VC	<0.002

TE-105(10/7/13)	
DEPTH	15
PID	397.0
PCE	0.0038
TCE	<0.002
cis-1,2-DCE	<0.002
VC	<0.002

AA-1(10/16/13)		
DEPTH	15	SAMPLE DEPTH, FEET BGS
PID	182	PID, ppm (PARTS PER MILLION)
PCE	3.4	TETRACHLOROETHENE, mg/kg
TCE	<0.23	TRICHLOROETHENE, mg/kg
cis-1,2-DCE	<0.17	CIS-1,2-DICHLOROETHENE, mg/kg
VC	<0.054	VINYL CHLORIDE, mg/kg

SAMPLE ID (SAMPLE DATE)

mg/kg MILLIGRAMS PER KILOGRAM

- APPROXIMATE PROPERTY BOUNDARY
- SOIL GAS WELLS
- MONITORING WELL
- INDOOR AIR SAMPLES
- PASSIVE SOIL GAS MODULES
- SUB-SLAB SOIL GAS PROBES
- FORMER WELL LOCATION
- GAS LINE
- SANITARY SEWER
- WATER LINE
- COMMUNICATIONS LINE
- EXCAVATION LIMITS

0 20 40

APPROXIMATE SCALE IN FEET

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(OSRP) FILE 57.004
CASPER, WYOMING

UST EXCAVATION AND SOIL SAMPLE CONCENTRATION MAP

FIGURE: 3

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

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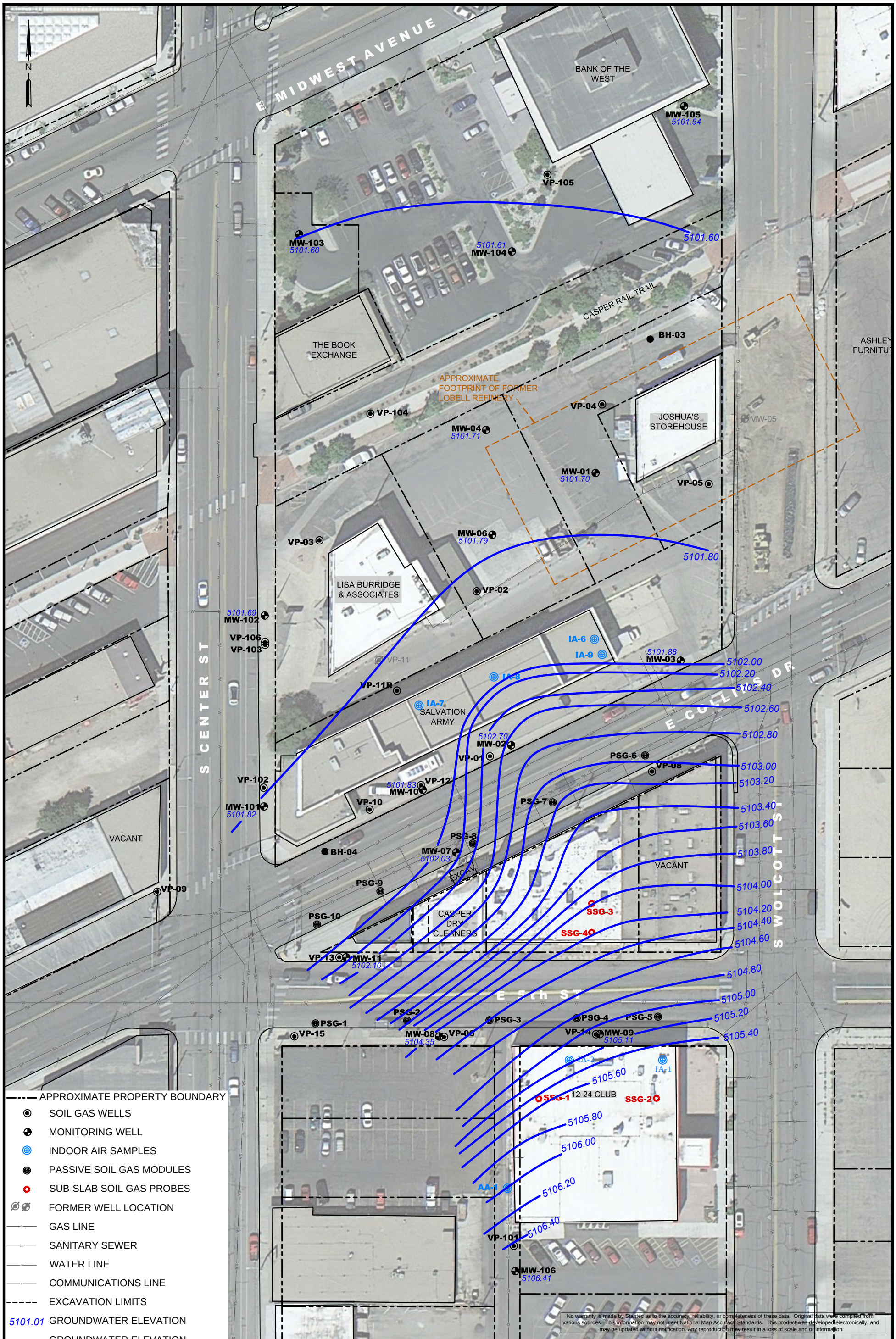

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APPROXIMATE PROPERTY BOUNDARY
SOIL GAS WELLS
MONITORING WELL
INDOOR AIR SAMPLES
PASSIVE SOIL GAS MODULES
SUB-SLAB SOIL GAS PROBES
FORMER WELL LOCATION
GAS LINE
SANITARY SEWER
WATER LINE
COMMUNICATIONS LINE
EXCAVATION LIMITS
5101.01 GROUNDWATER ELEVATION
GROUNDWATER ELEVATION CONTOUR
GROUNDWATER FLOW DIRECTION ARROW

0 60 120
APPROXIMATE SCALE IN FEET

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CASPER, WYOMING

GROUNDWATER ELEVATION
CONTOUR MAP
OCTOBER 18, 2013

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

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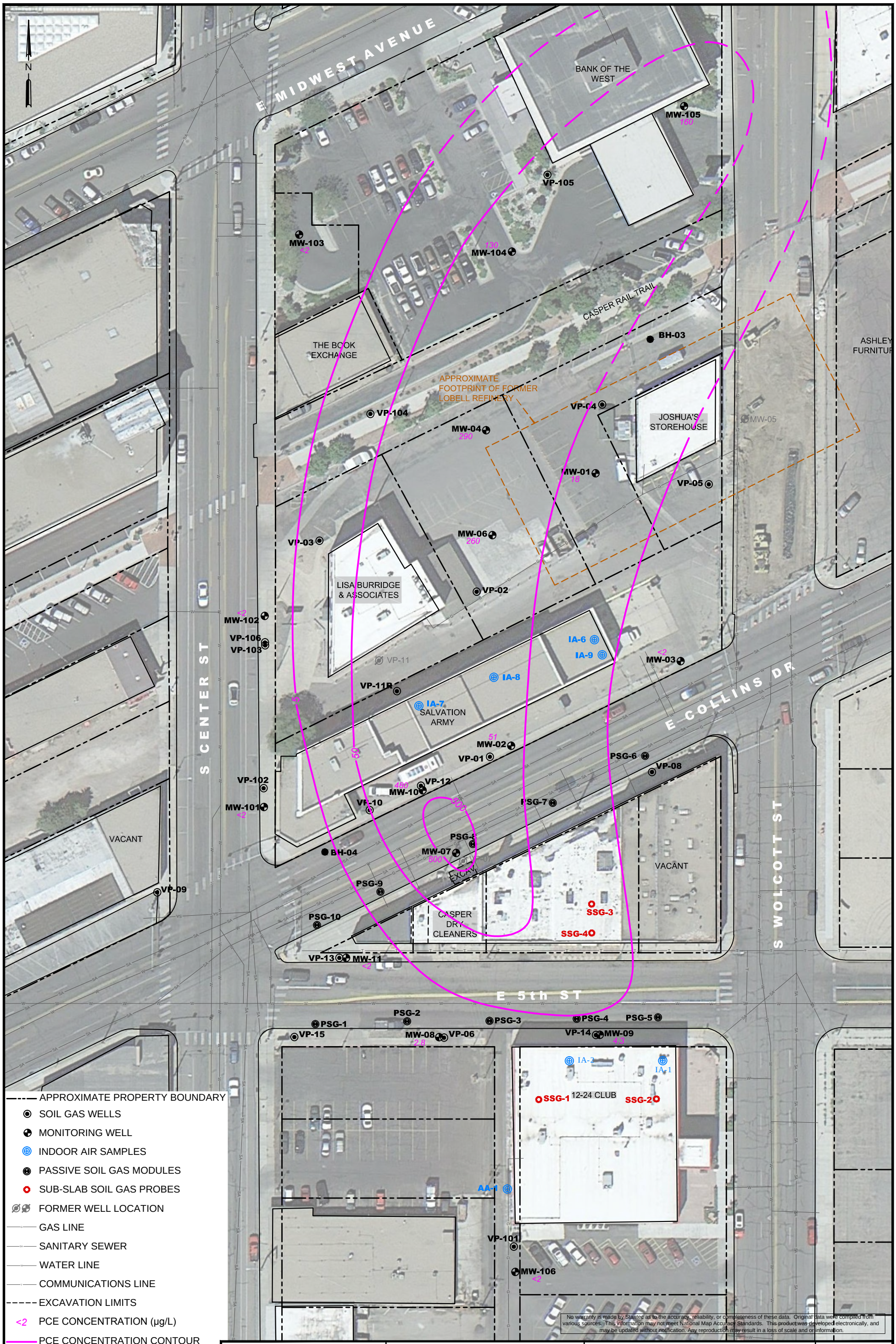

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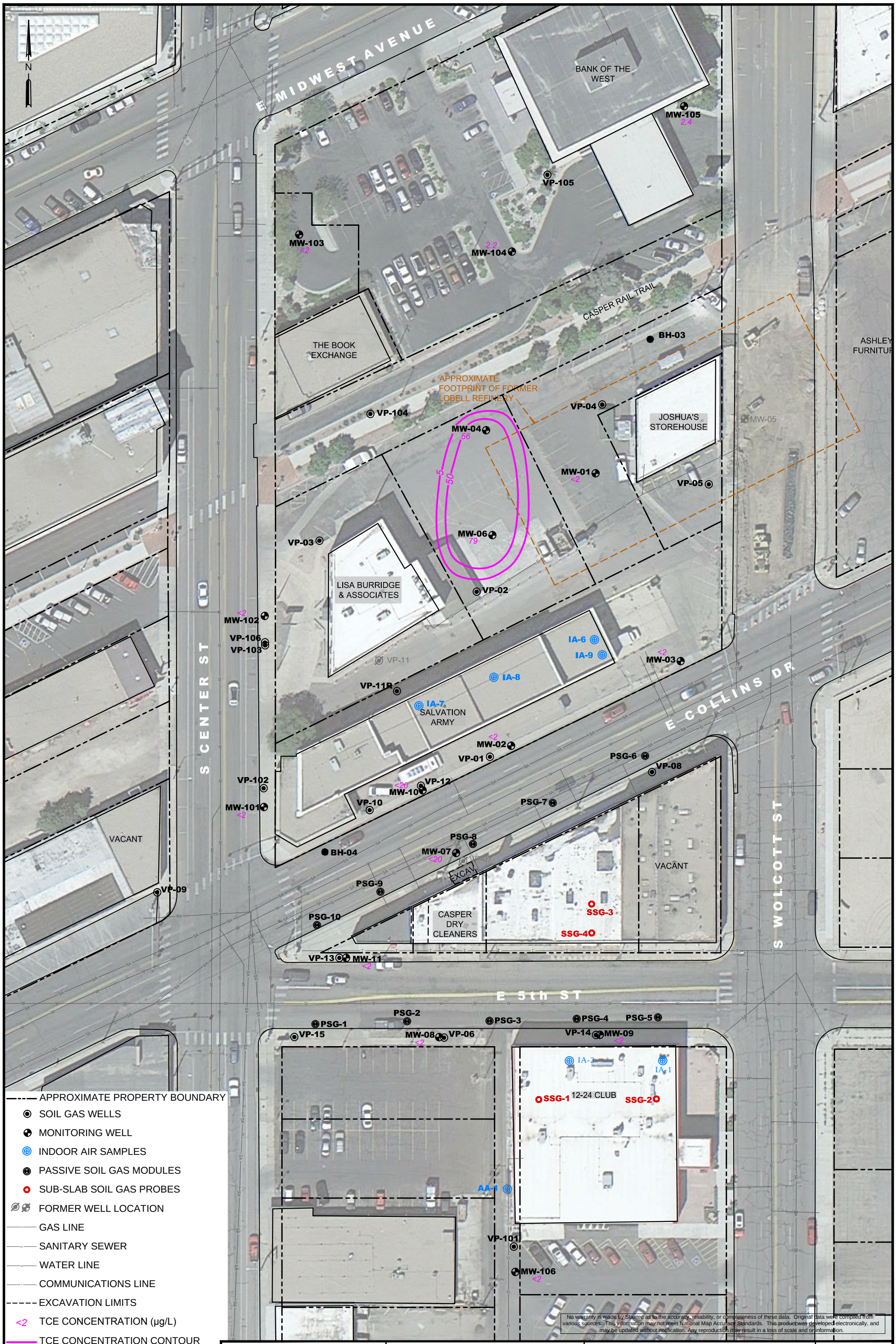
(OSRP) FILE 57.004
CASPER, WYOMING

GROUNDWATER PCE
CONCENTRATION MAP
OCTOBER 9-10, 2013

FIGURE: 5

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:29|Layout: pce-W



APPROXIMATE PROPERTY BOUNDARY
SOIL GAS WELLS
MONITORING WELL
INDOOR AIR SAMPLES
PASSIVE SOIL GAS MODULES
SUB-SLAB SOIL GAS PROBES
FORMER WELL LOCATION
GAS LINE
SANITARY SEWER
WATER LINE
COMMUNICATIONS LINE
EXCAVATION LIMITS
<2 TCE CONCENTRATION (µg/L)
TCE CONCENTRATION CONTOUR (5 µg/L GROUNDWATER STANDARD)
µg/L MICROGRAMS PER LITER
TCE TRICHLOROETHENE

0 60 120
APPROXIMATE SCALE IN FEET

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GROUNDWATER TCE CONCENTRATION MAP
OCTOBER 9-10, 2013

FIGURE: 6

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

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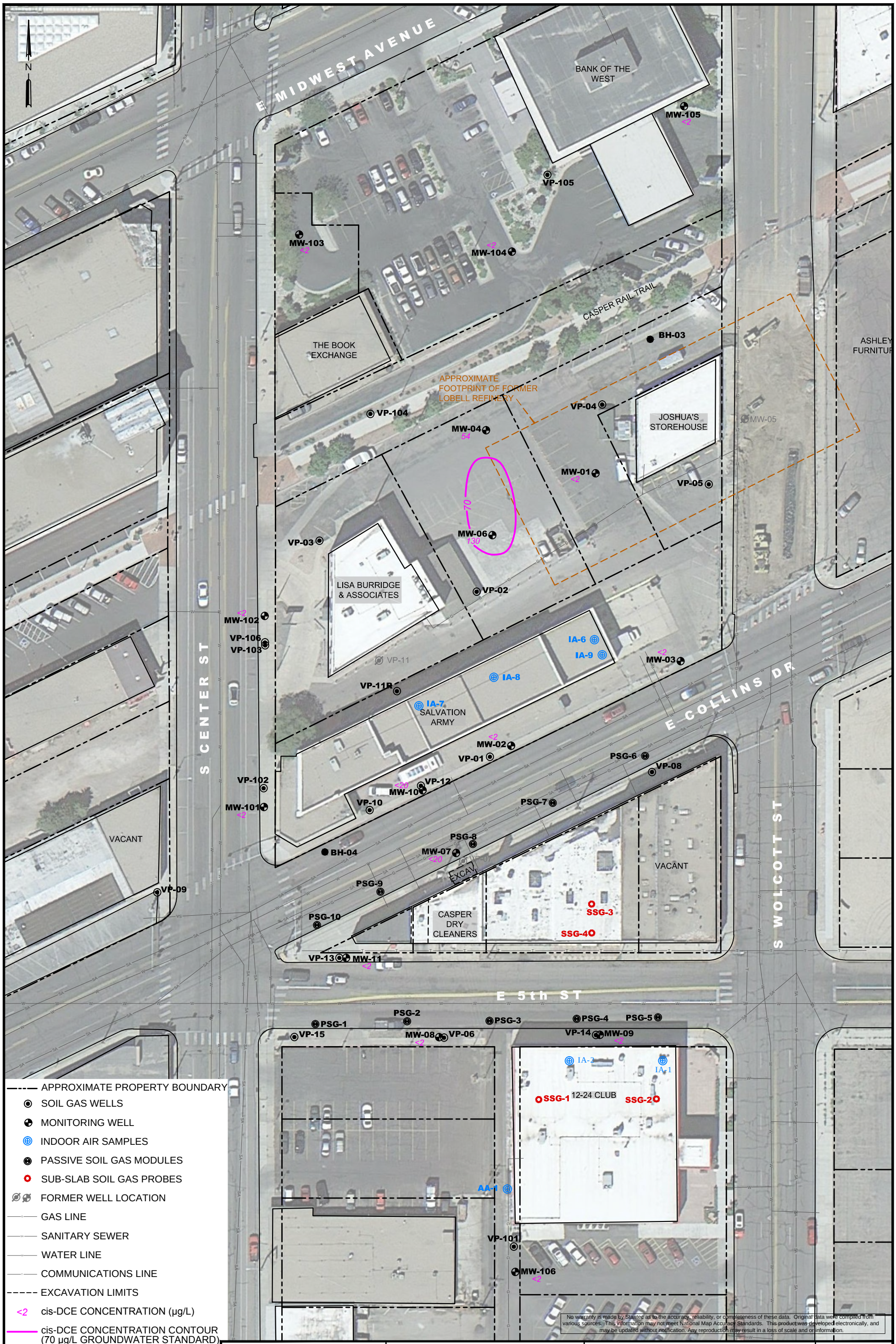

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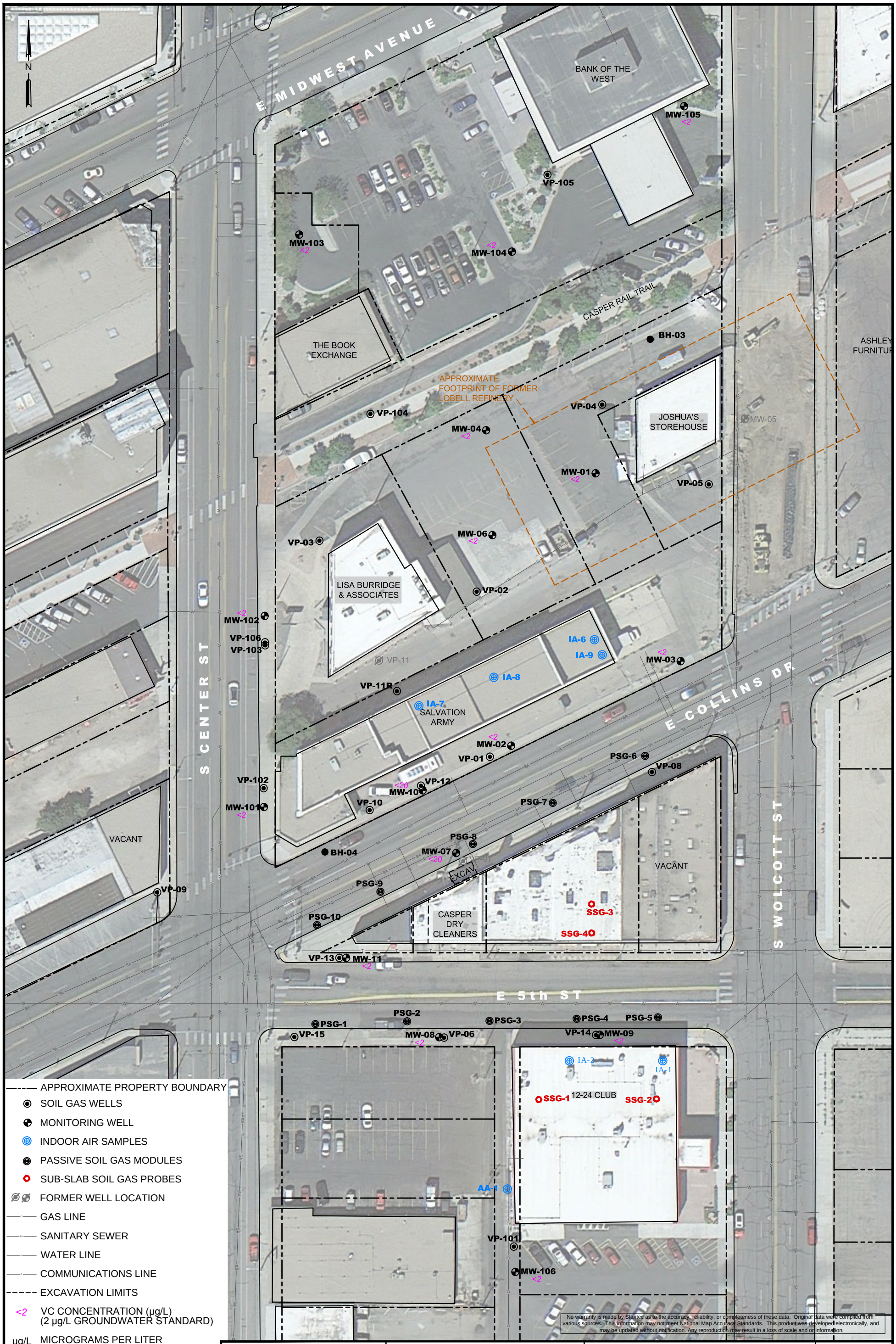
GROUNDWATER cis 1,2-DCE
CONCENTRATION MAP
OCTOBER 9-10, 2013

FIGURE: 7

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:30|Layout: CIS-W



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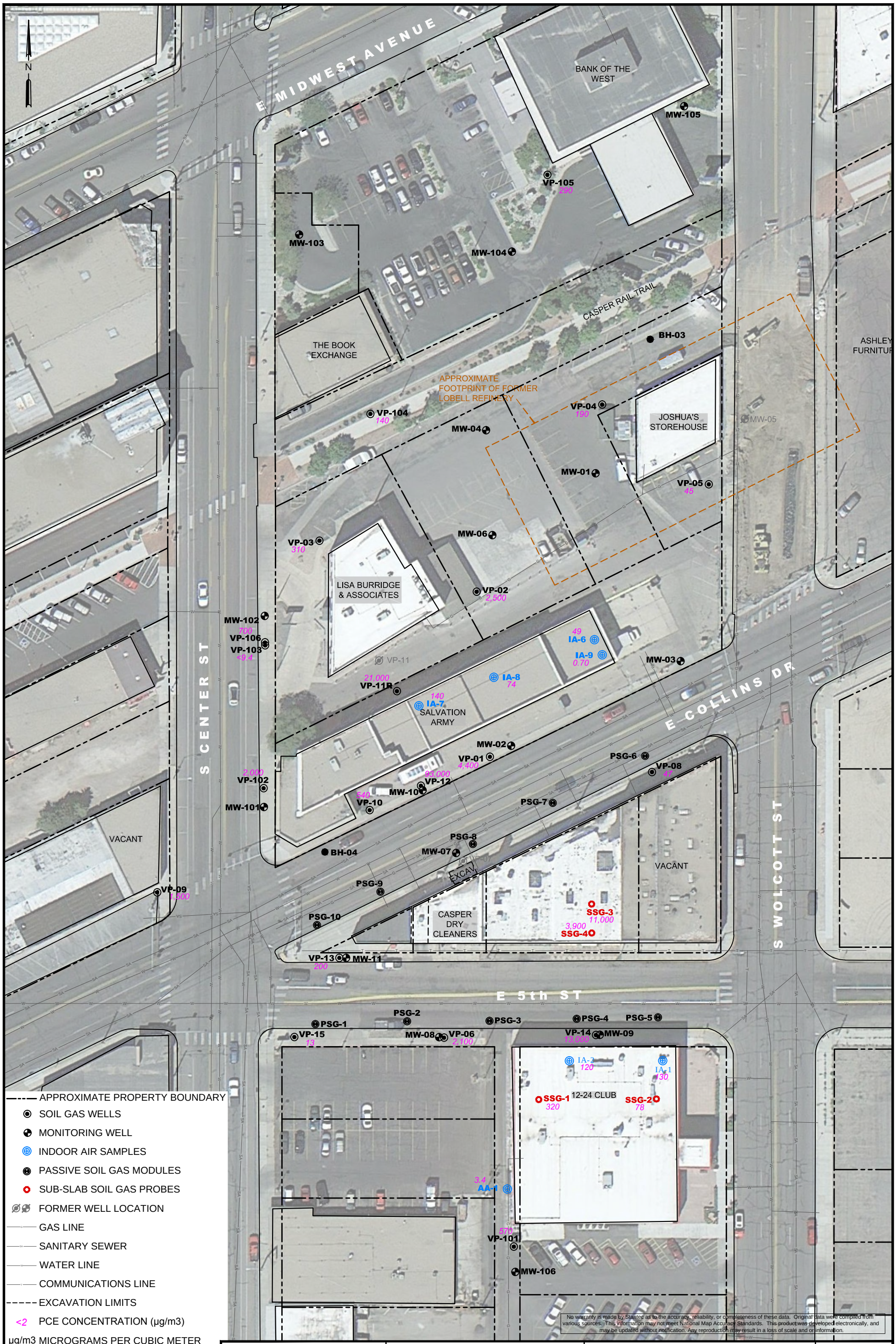
GROUNDWATER VINYL CHLORIDE
CONCENTRATION MAP
OCTOBER 9-10, 2013

FIGURE: 8

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:30|Layout: VC-W



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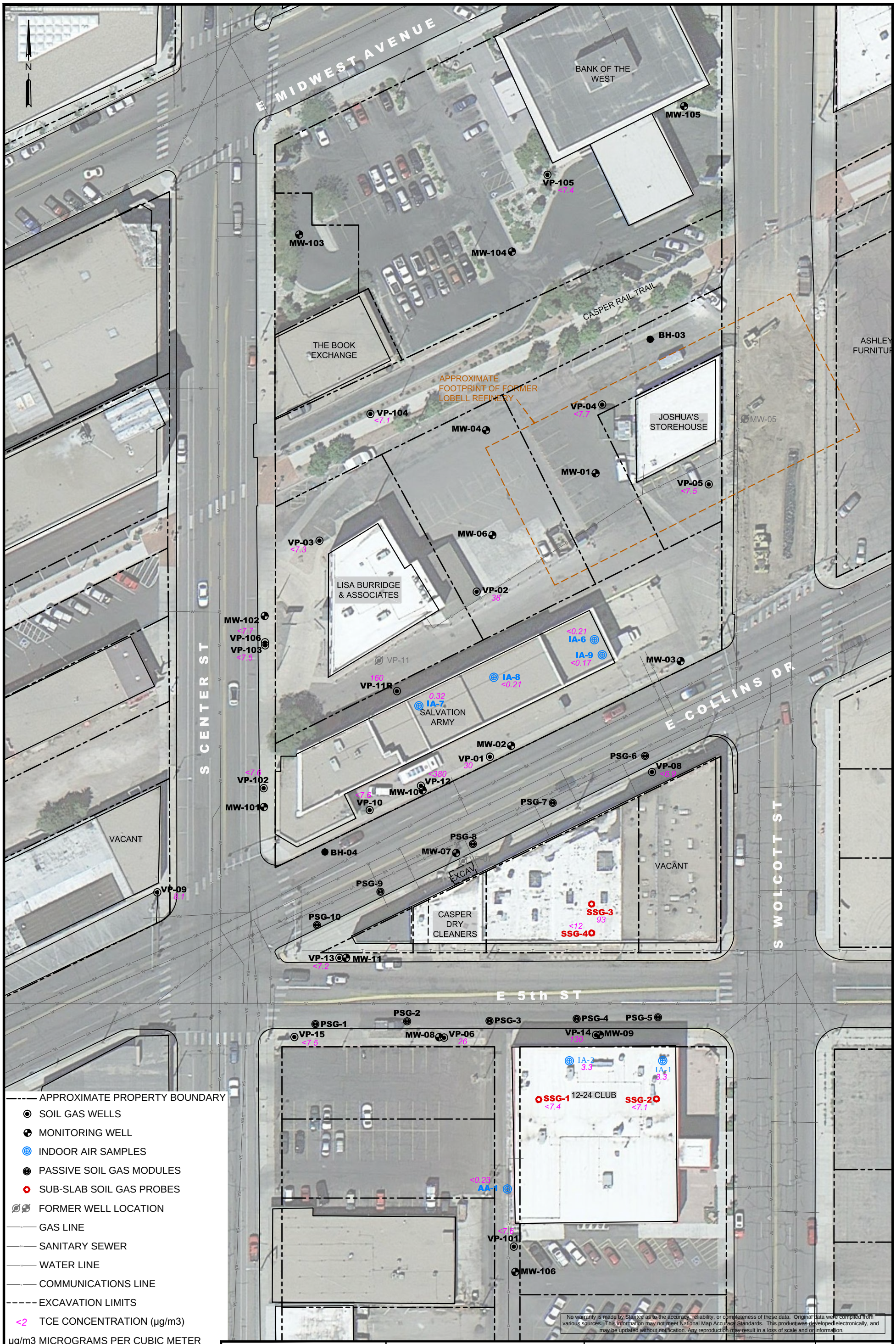
(OSRP) FILE 57.004
CASPER, WYOMING

SOIL VAPOR, SUB-SLAB VAPOR, AND INDOOR AIR PCE CONCENTRATION MAP
OCTOBER 15-18, 2013

FIGURE: 9

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:30|Layout: pce-V



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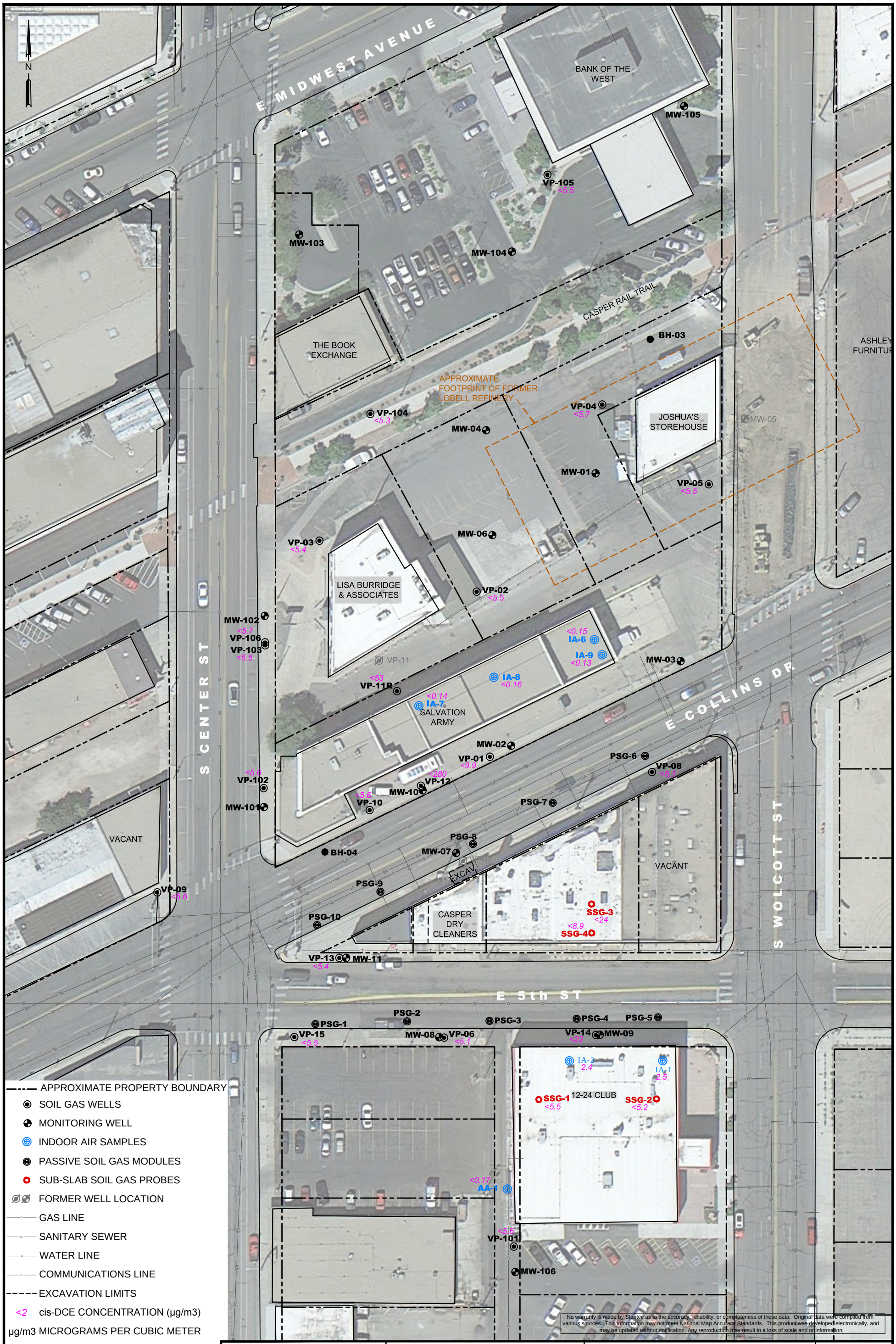
FORMER LOBELL REFINERY-
ORPHAN SITE REMEDIATION PROGRAM
(OSRP) FILE 57.004
CASPER, WYOMING

SOIL VAPOR, SUB-SLAB VAPOR, AND INDOOR AIR TCE CONCENTRATION MAP
OCTOBER 15-18, 2013

FIGURE: 10

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:31|Layout: TCE-V



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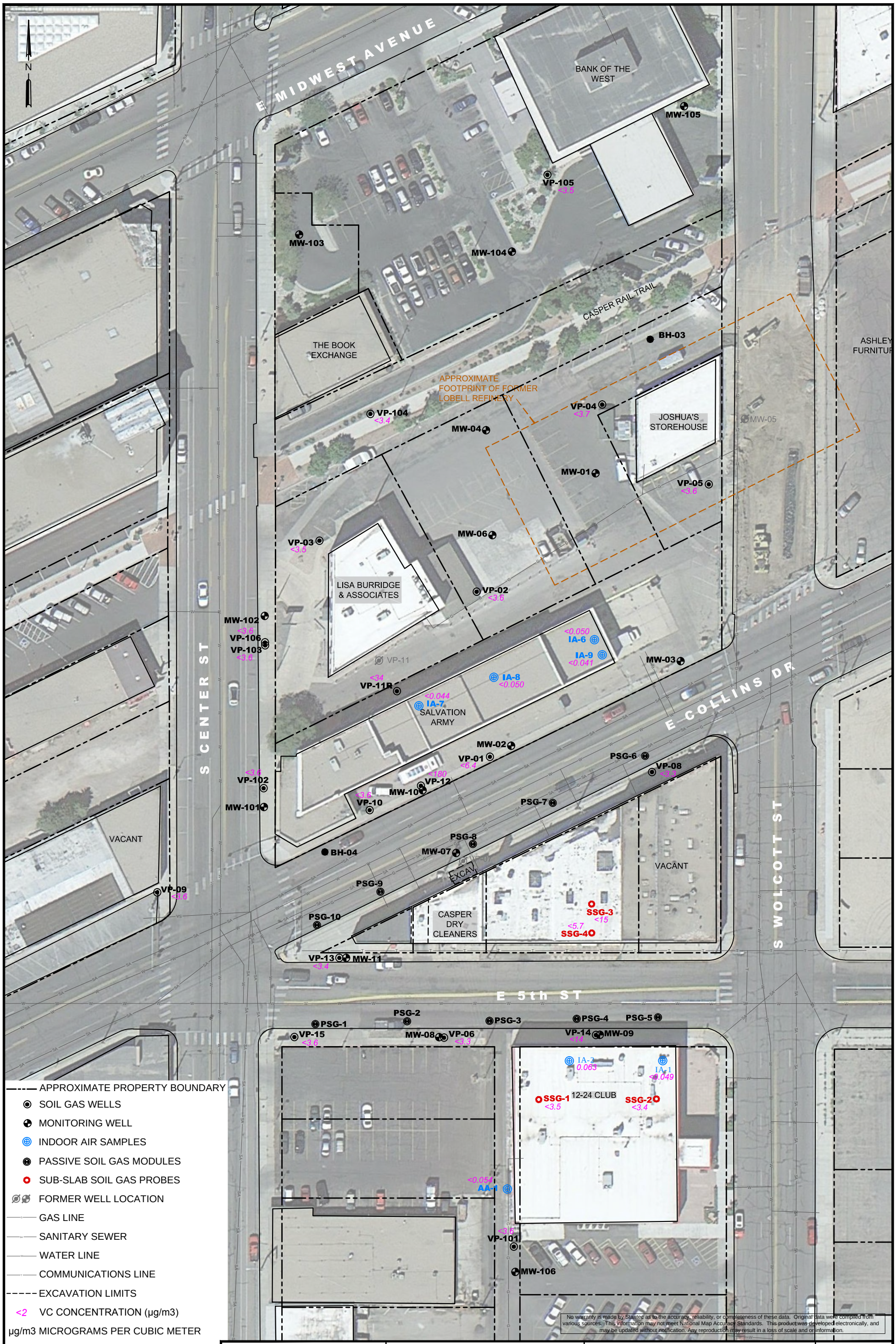
FOR:
FORMER LOBELL REFINERY-
ORPHAN SITE REMEDIATION PROGRAM
(OSRP) FILE 57.004
CASPER, WYOMING

SOIL VAPOR, SUB-SLAB VAPOR, AND INDOOR AIR cis-DCE CONCENTRATION
OCTOBER 15-18, 2013

FIGURE: 11

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:C:\Users\AAndrews\Documents\traveling_folder\lobell\Casper-added prop num-R1113-R814.dwg|AAndrews|Aug 04, 2014 at 9:31|Layout: CIS-V



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FORMER LOBELL REFINERY-
ORPHAN SITE REMEDIATION PROGRAM
(OSRP) FILE 57.004
CASPER, WYOMING

SOIL VAPOR, SUB-SLAB VAPOR, AND INDOOR AIR VC CONCENTRATION MAP
OCTOBER 15-18, 2013

FIGURE: 12

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

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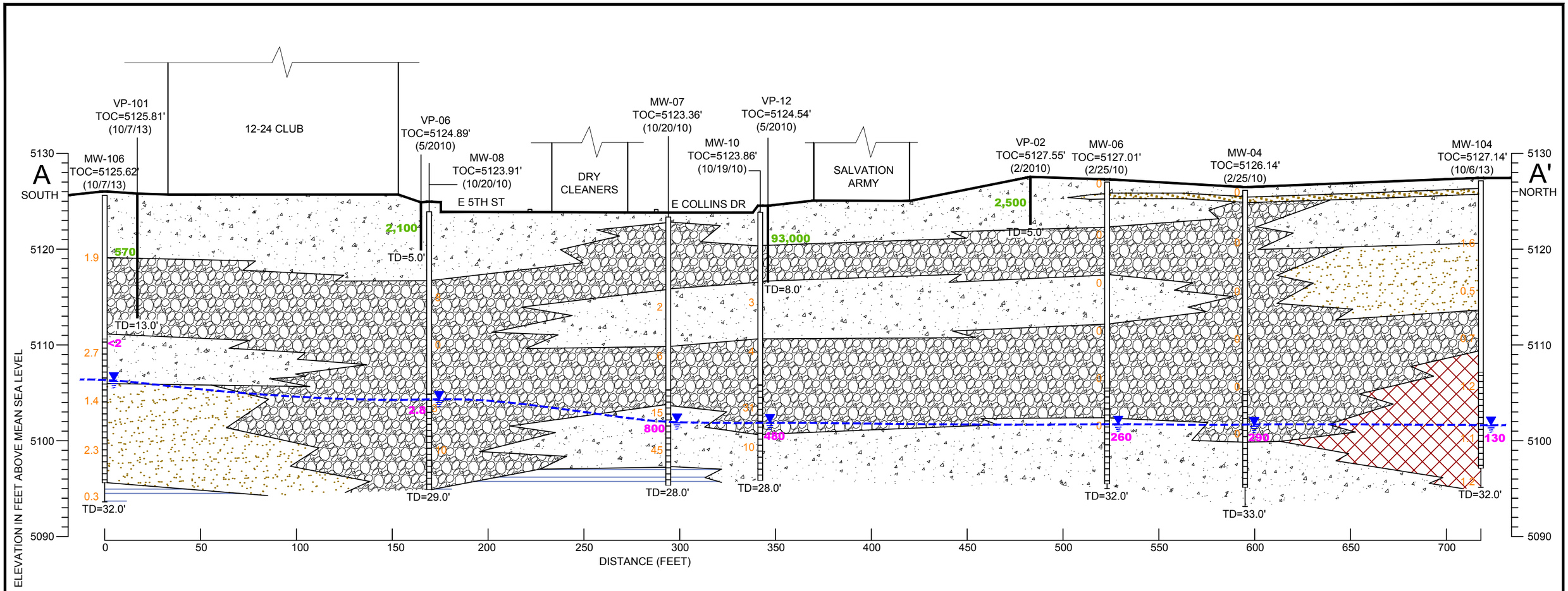

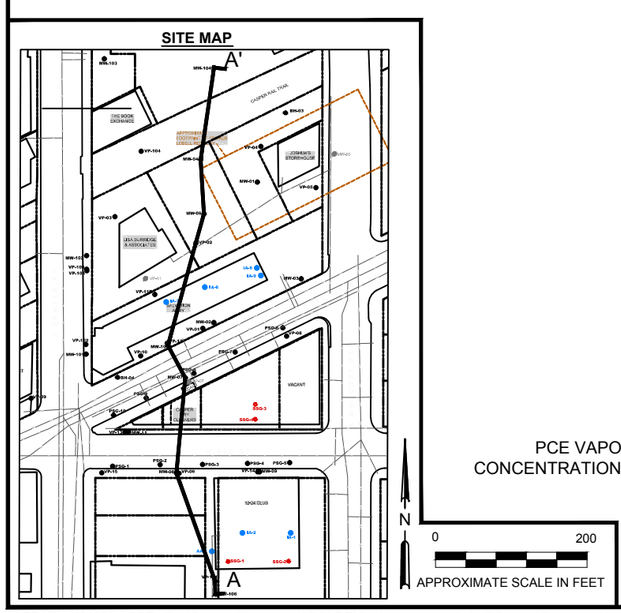

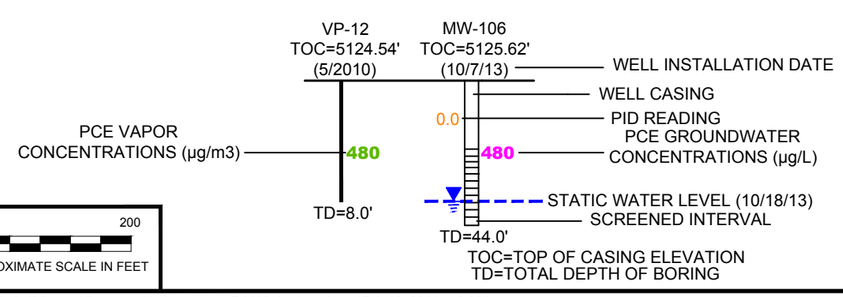

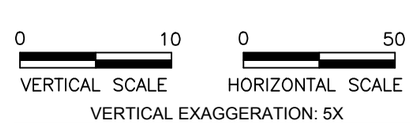

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ORPHAN SITE REMEDIATION PROGRAM
(OSRP) FILE 57.004
CASPER, WYOMING

GEOLOGIC CROSS SECTION A-A'

FIGURE: 13

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212205045	ARA	CB	RJC	2/13/14

FILEPATH:V:\1878\CADD_files\Other_offices_work\GOLDEN\wdeq_present_Lobell\Casper\Casper-added prop num-R1113.dwg|aandrews|Feb 13, 2014 at 8:39|Layout: xsect

APPENDICES

APPENDIX A

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 1

View of concrete sidewalk removed from top of the UST excavation.

Photograph No. 2

View of soil removed from top of the USTs.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 3

View of UST piping removal from within the UST excavation.

Photograph No. 4

View of UST capped piping removal from within the UST excavation.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 5

View of UST piping removal from within the UST excavation.

Photograph No. 6

View of UST capped piping draining and removal from within the UST excavation.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 7

Photograph No. 8

View (from left to right) of exposed tops of USTs Tanks #4, Tank #3, and Tank #2.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 9

View (from left to right) of exposed tops of USTs Tanks #4, Tank #3, Tank #2, and Tank #1.

Photograph No. 10

View of liquid and sludge removal from the USTs.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 11

View of tank cleaning and rinse water removal.

Photograph No. 12

View of liquid and sludge removal from the USTs.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 13

View of inside one of the vertically positioned USTs after cleaning.

Photograph No. 14

View of inside the single horizontally positioned USTs after cleaning.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 15

View UST tops and of sealed and capped UST supply and return piping.

Photograph No. 16

View UST excavation gravel backfill and PVC piping installed for future direct push soil borings.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 17

View of finished concrete sidewalk over the UST excavation.

Photograph No. 18

View from across E. Collins Dr. of finished concrete sidewalk over the UST excavation.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 19

View of direct push soil borings in UST excavation.

Photograph No. 20

View of direct push soil borings in UST excavation.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 21

View of hydrovac utility clearance prior to hollow stem drilling.

Photograph 22

View of groundwater monitoring well install using hollow stem techniques.

STANTEC CONSULTING SERVICES INC. PHOTOGRAPHIC RECORD	
Client: WDEQ	**Job Number:** 212205045
Site Name: Former Lobell Refinery	**Location:** Casper, Wyoming
Photographer: CAB/MS	**Date:** October 2013

Photograph No. 23

View of soil vapor point install using direct push techniques.

Photograph No. 24

View of waste storage area located in the east parking of the Ashely Furniture store.

APPENDIX B

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: BH-3		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-24-10	Date Finished: 2-24-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			Fine to coarse grained SAND and fine grained GRAVEL, tan.	0.80		44-28-26		350	Hydro-carbon	
			Silty, clayey SAND, black, hydrocarbon odor.	1.50						
			Black to 3 ft. Thin brown clay layer at 3 ft, then tan brown sand.	5.00						
5			Fine to coarse grained SAND and fine to coarse grained GRAVEL, dry to moist, 12 in. recovery.	6.50		8-22-28		2		
			Gray sand and gravel at 7.5 ft. Very gravelly from 8 to 9 ft. Railroad spike brought to surface in cuttings.	10.00					Hydro-carbon	
10			Fine to coarse grained SAND, tan, dry to moist.	11.50		8-13-16		0		
			Some gravel from 12 to 13 ft.	15.00						
15			Fine to coarse grained SAND, tan, dry to moist.	16.50		8-13-30		0		
			Gravel at 17 ft.	20.00						
20			Fine to coarse grained SAND and fine to coarse grained GRAVEL, tan moist, 3 in. recovery.	21.50		28-39-42		0		
25				25.00						
			Fine to coarse grained SAND, saturated. Gray, hydrocarbon odor 1 in. thick layer at 25.5 ft.	26.50		11-23-30		10	Hydro-carbon	

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft
Time After Drilling
Depth To Water (ft)
Remarks:

114-510205 TETRA TECH **LOG OF EXPLORATORY BORING BH-3**

Revised 2-04-09 (MAT)

510205 LOGS.GPJ ` 4-9-10 ` CASPER ENVIRO NO FIG # ` TT library 1-10 (MAT)

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: BH-4		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-25-10	Date Finished: 2-25-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FIID HEADSPACE (ppm)	ODOR	STAINING
			ASPHALTIC PAVEMENT, (4 in. thick).	0.30		50-17-8		4		
			ROAD BASE, old concrete, (6 in. thick).	0.80						
			Medium to fine grained SAND, tan, dry, brown at 1.5 ft.	1.50						
5			No recovery. Coarse to fine grained SAND and fine grained GRAVEL, tan to brown, moist.			5-15-17				
10				10.00						
			3 in. recovery. Coarse to fine grained SAND and fine grained GRAVEL, tan to brown, moist.	11.50				9		
15				15.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	16.50		30-50/0.4		0		
20				20.00						
			Coarse to fine grained SAND and some coarse to fine grained GRAVEL, tan to orange, moist.	21.50		17-19-38		0		
25				25.00						
			Coarse to fine grained SAND with little coarse grained GRAVEL, tan, saturated.	26.50		7-28-49		0		

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING BH-4

Revised 2-04-09 (MAT)

510205 LOGS.GPJ ` 4-9-10 ` CASPER ENVIRO NO FIG # ` TT library 1-10 (MAT)

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-1		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-23-10	Date Finished: 2-23-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			ASPHALTIC PAVEMENT, (3 in. thick).	0.25						
			12 in. recovery, sand and gravel, 3 in. wood.	1.50		17-5-4				
				2.00						
			Clayey SAND, gray, moist.	4.00						
5			Silty clayey SAND, tan, moist.	5.00						
			12 in. recovery. Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan to brown, moist, slightly silty and clayey.	6.50		7-21-25		2		
			Thin dark layer at 7.5 ft.							
10				10.00						
			Coarse to medium grained SAND, tan, one large coarse gravel in bottom, moist.	11.50		4-9-18				
15				15.00						
			Coarse to fine grained SAND, trace of fine grained gravel, tan, moist, more coarse to fine grained gravel in bottom 4 in..	16.50		12-32-50/0.3				
20				20.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan to brown, moist.	21.50		22-50/0.4		2		
25				25.00						
			Coarse to fine grained SAND with little small gravel, gray, saturated.	26.50		12-25-22		98	Hydro-carbon	

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING MW-1

Revised 2-04-09 (MAT)

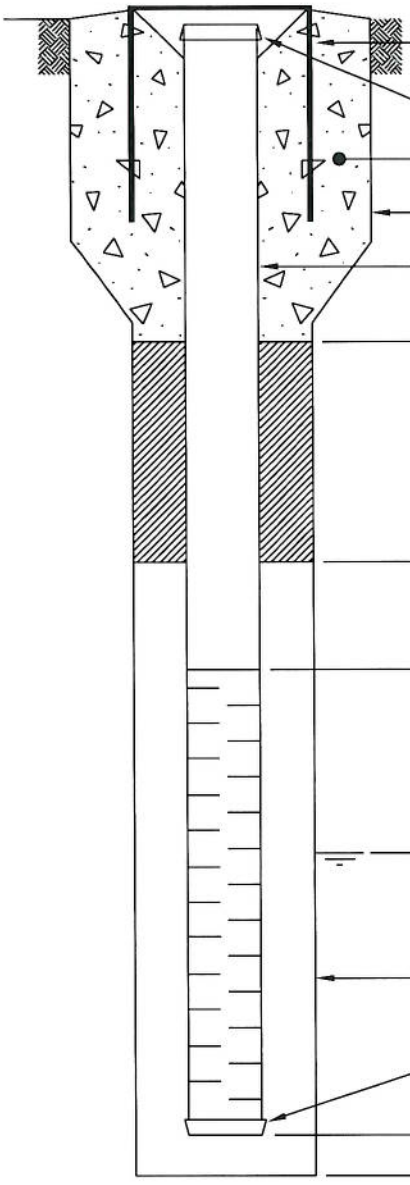
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-1
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Marty Hernandez
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5125.98

DATE: HOLE STARTED: 2-23-10
COMPLETED: 2-23-10



Protective Casing Type: 7 in. Steel Flush Mount
Water Tight PVC Cap Type: Expandable
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: 3/8 in. Chips
Depth to Top of Filter Pack: 18.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 20.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 24.64 ft (Date 3-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush
Depth to Bottom of PVC Cap: 30.0 ft
Depth to Bottom of Boring: 30.0 ft

NOT TO SCALE

6-13-13 * MAT

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-1

510205.MI

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-2		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-25-10	Date Finished: 2-25-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	PID HEADSPACE (ppm)	FIELD SCREENING RESULTS: FID HEADSPACE (ppm)	ODOR	STAINING
			CONCRETE PAVEMENT, (8 in. thick).							
			Clayey SAND, (2 in. thick).	0.80		4-6-8		0		
			Medium to fine grained SAND, tan to brown, moist.	1.50						
5				5.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, dry.	6.50		10-20-21		0		
10				10.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan to orange, moist.	11.50		12-15-39		0		
			More brown layer, (3 in. thick) at 11 ft.							
15				15.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	16.50		17-29-50/0.4		0		
20				20.00						
			Medium to fine grained SAND with trace coarse grained gravel, tan to orange, moist.	21.50		14-24-27		0		
25				25.00						
			Coarse to fine grained SAND, gray, saturated.	26.50		5-13-35		0		

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▼ ft
Time After Drilling
Depth To Water (ft)
Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING MW-2

510205 LOGS.GPJ ` 4-9-10 ` CASPER ENVIRO NO FIG # ` TT library 1-10 (MAT)

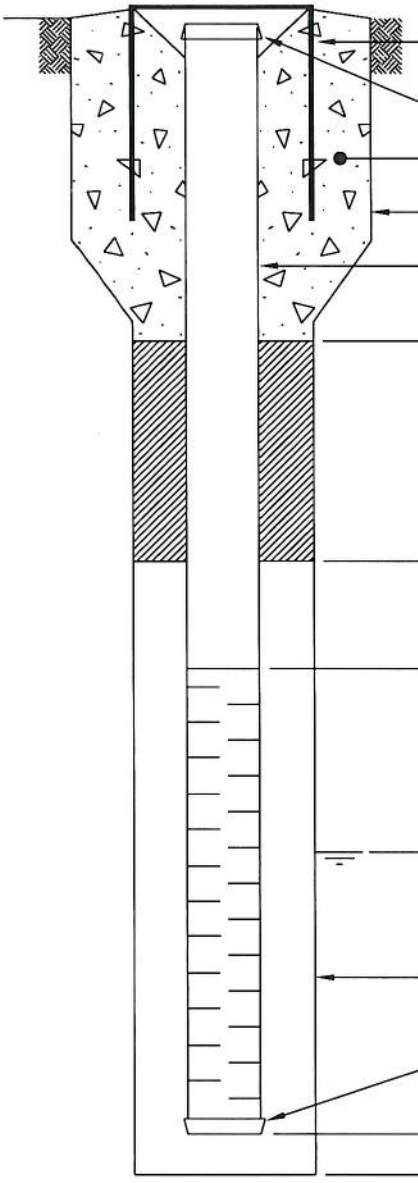
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-2
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Marty Hernandez
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5123.91

DATE: HOLE STARTED: 2-25-10
COMPLETED: 2-25-10



Protective Casing Type: 7 in. Steel Flush Mount
Water Tight PVC Cap Type: Expandable
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: 3/8 in. Chips
Depth to Top of Filter Pack: 17.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 19.5 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 22.46 ft (Date 3-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush
Depth to Bottom of PVC Cap: 29.5 ft
Depth to Bottom of Boring: 30.0 ft

NOT TO SCALE

6-13-13 * MAT

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-2

510205 MA

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-3		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-25-10	Date Finished: 2-25-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			CONCRETE PAVEMENT, (6 in. thick).	0.50		4-1-5		0		
			Silty, clayey SAND, brown, moist.	1.50						
5				5.00						
			Medium to fine grained SAND, tan, moist, (4 in. thick). Sandy CLAY, brown, moist, (4 in. thick). Coarse grained SAND and fine grained GRAVEL, (4 in. thick). Fe stained SAND, (1 in. thick). Sandy CLAY, brown, moist, (5 in. thick).	6.50		6-6-5		0		
10				10.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan to brown, moist.	11.50		13-18-30		0		
15				15.00						
			No recovery. Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan to brown.	16.50		28-49-50/0.4		0		
20				20.00						
			Coarse to fine grained SAND with little fine grained gravel, tan, moist.	21.50		13-24-30		0		
				24.00						
25			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan to gray, saturated.			54/0.4				
			Sandy CLAY at 26.25 ft.	26.50		60-39-20		0		

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▼ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205 TETRA TECH **LOG OF EXPLORATORY BORING MW-3**

Revised 2-04-09 (MAT)

510205 LOGS.GPJ ` 4-9-10 ` CASPER ENVIRO NO FIG # ` TT library 1-10 (MAT)

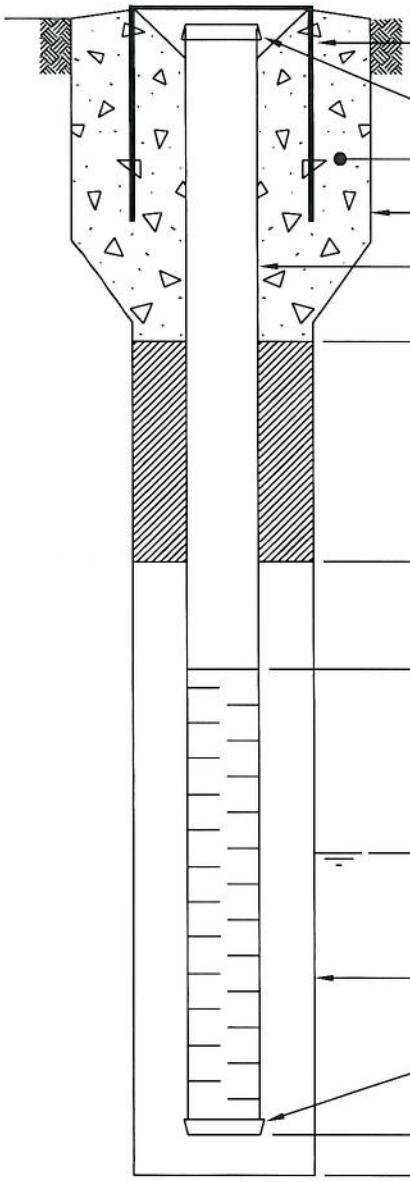
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-3
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Marty Hernandez
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5123.33

DATE: HOLE STARTED: 2-25-10
COMPLETED: 2-25-10



Protective Casing Type: 7 in. Steel Flush Mount
Water Tight PVC Cap Type: Expandable
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: 3/8 in. Chips
Depth to Top of Filter Pack: 17.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 19.5 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 21.95 ft (Date 3-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush
Depth to Bottom of PVC Cap: 29.5 ft
Depth to Bottom of Boring: 30.0 ft

NOT TO SCALE

6-13-13 * MAT

510205 M

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-3

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-4		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-23-10	Date Finished: 2-23-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	PID HEADSPACE (ppm)	FIELD SCREENING RESULTS: FID HEADSPACE (ppm)	ODOR	STAINING
			ASPHALTIC PAVEMENT, (3 in. thick).	0.25		29-15-9		0		
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist, slightly silty and clayey.	1.00						
			Silty, clayey SAND with trace gravel, brown to black, moist, frozen.	1.50						
5				5.00						
			2 in. recovery. Coarse to fine grained SAND and coarse to fine grained GRAVEL, moist.	6.50		18-14-10		0		
			Thin dark layer at 8 ft.							
10				10.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	11.50		3-11-29		0		
			Clayey sand layer, (2 in. thick) at 11 ft.							
			More gravelly.							
15				15.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	16.50		13-30-34		0		
20				20.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	21.50		48-50/0.25		0		
25				25.00						
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, saturated.	26.50				0		

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205 TETRA TECH **LOG OF EXPLORATORY BORING MW-4**

Revised 2-04-09 (MAT)

510205 LOGS.GPJ ` 4-9-10 ` CASPER ENVIRO NO FIG # ` TT library 1-10 (MAT)

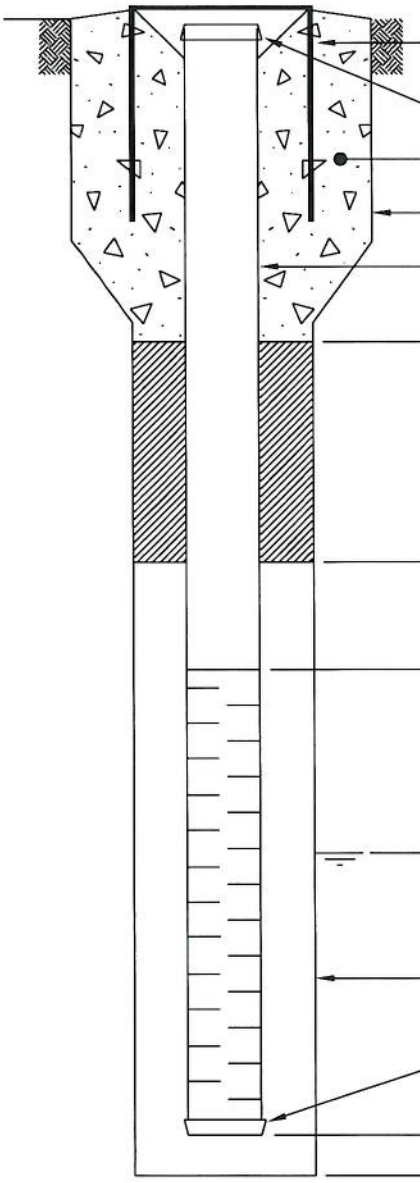
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-4
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Marty Hernandez
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5126.19

DATE: HOLE STARTED: 2-23-10
COMPLETED: 2-23-10



Protective Casing Type: 7 in. Steel Flush Mount
Water Tight PVC Cap Type: Expandable
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: 3/8 in. Chips
Depth to Top of Filter Pack: 19.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 21.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 24.89 ft (Date 3-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush
Depth to Bottom of PVC Cap: 31.0 ft
Depth to Bottom of Boring: 33.0 ft

NOT TO SCALE

6-13-13 * MAT

510205 M

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-4

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: BH-2 (MW-5)		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-24-10	Date Finished: 2-24-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			ASPHALTIC PAVEMENT, (3 in. thick).	0.25		18-25-22		17	Sewer	
			Silty, clayey SAND, brown, moist.	1.50						
			Coal layer 3 in. thick at 1 ft, black, oily at 1.5 ft.							
			Black to 4 ft.							
5				5.00						
			Fine to coarse grained SAND and fine grained GRAVEL, moist giving to dry.	6.00		7-7-8		4		
			Fine to coarse grained SAND, little fine grained gravel, dry.	6.50						
10				10.00						
			Fine to coarse grained SAND, tan, moist, Fe staining, gray layer 1/2 in. thick layer, with hydrocarbon odor at 11 ft.	11.00		10-18-23		10	Hydro-carbon	
			Fine to coarse grained SAND and fine grained gravel, tan, moist to wet.	11.50						
15				15.00						
			Fine to coarse grained SAND and fine to coarse grained GRAVEL, gray, moist to wet.	16.00		32-50/0.4		85		
20				20.00						
			Fine to coarse grained SAND and fine grained GRAVEL with trace coarse grained gravel. Dark to light gray, 1/2 in. thick black layer at 21 ft.	21.50		23-40-50/0.25		155		
25				25.00						
			Fine to coarse grained SAND, gray to 25.25 ft, tan to 26.5, one coarse grained gravel, free oily tan product in spoon.	26.50		11-19-17		620	Hydro-carbon	

Bottom of Boring at 26.5 ft

FIELD SCREENING RESULTS

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▼ ft

Time After Drilling

Depth To Water (ft) ▼

Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING BH-2 (MW-5)

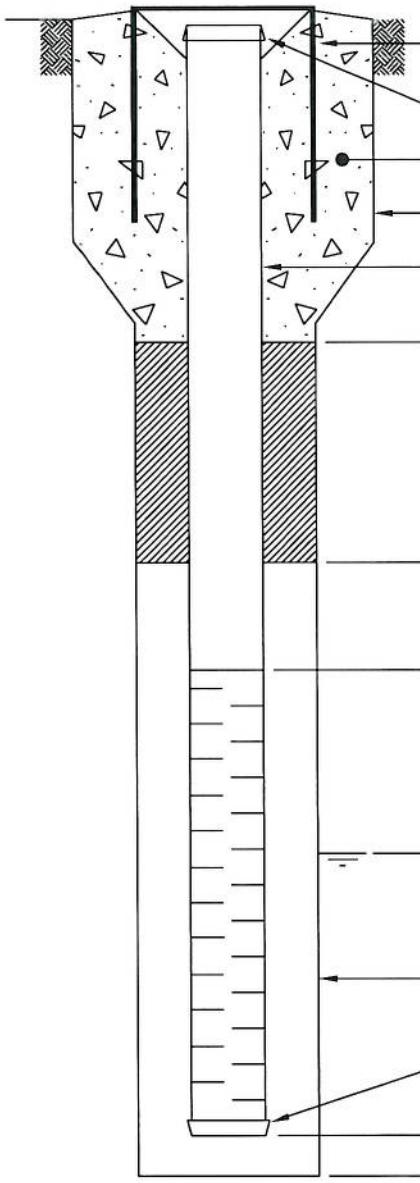
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-5
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Marty Hernandez
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5125.24

DATE: HOLE STARTED: 2-25-10
COMPLETED: 2-25-10



Protective Casing Type: 7 in. Steel Flush Mount
Water Tight PVC Cap Type: Expandable
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: 3/8 in. Chips
Depth to Top of Filter Pack: 19.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 21.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 23.94 ft (Date 3-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush
Depth to Bottom of PVC Cap: 31.0 ft
Depth to Bottom of Boring: 31.0 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-5

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-6		Driller: Marty Hernandez	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 2-26-10	Date Finished: 2-26-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			CONCRETE PAVEMENT, (6 in. thick).	0.50		12-12-7		0		
			Coarse to fine grained SAND and coarse to fine grained GRAVEL.	1.00						
			Silty, clayey SAND, black.	1.50						
			Sandy CLAY, Fe staining.	2.00						
			Silty, clayey SAND, black.	4.00						
5				5.00						
			Medium to fine grained SAND, tan, moist.	6.00		4-5-9		0		
			Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	6.50						
10				10.00						
			12 in. recovery. Coarse to fine grained SAND with little coarse to fine grained gravel, tan to orange, moist.	11.50		4-6-12		0		
15				15.00						
			Coarse to fine grained SAND and fine grained GRAVEL, tan, moist.	16.50		12-24-32		2		
20				20.00						
			6 in. recovery. Coarse to fine grained SAND and coarse to fine grained GRAVEL, tan, moist.	21.50		38-50/0.25		0		
25				25.00						
			Coarse to fine grained SAND, tan, wet. Saturated at about 25.5 ft.	26.50		20-32-32		0		

Bottom of Boring at 26.5 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft
Time After Drilling
Depth To Water (ft)
Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING MW-6

Revised 2-04-09 (MAT)

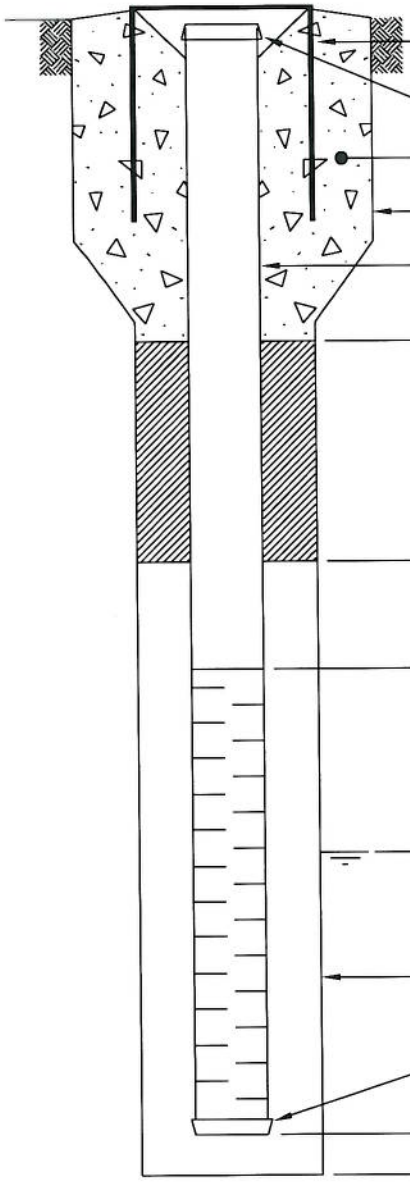
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-6
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Marty Hernandez
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5127.08

DATE: HOLE STARTED: 2-25-10
COMPLETED: 2-25-10



Protective Casing Type: 7 in. Steel Flush Mount
Water Tight PVC Cap Type: Expandable
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: 3/8 in. Chips
Depth to Top of Filter Pack: 18.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 21.5 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 25.71 ft (Date 3-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush
Depth to Bottom of PVC Cap: 31.5 ft
Depth to Bottom of Boring: 32.0 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-6

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-7		Driller: Drilling Engineers, Inc.	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 10-20-10	Date Finished: 10-20-10
Elevation and Datum: Ground: Existing Grade Casing:			

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			ASPHALTIC PAVEMENT, (12 in.thick).	1.00						
5			SAND and GRAVEL, tan, moist.	8.00						
				9.00						
10			Coarse to fine grained SAND with little small gravel, tan, moist.	11.00	X	3-4-5-5		2		
				14.00						
15			Coarse to fine grained SAND and GRAVEL, tan, moist.	16.00	X	13-36-43-41		6		
20				20.00						
			Coarse to fine grained SAND with some gravel, tan-orange, iron staining, moist.	20.50	X	9-18-24-28		15		
			Coarse to fine grained SAND with little gravel, gray, wet.	21.00						
				24.00						
25			Coarse to fine grained SAND with little gravel, tan, saturated.	26.00	X	4-15-26-20		45		
				26.50						
			SHALE.	28.00	X	25-45-50/0.25				

Bottom of Boring at 28.0 ft

Sampler Types:			Operation Types:	
Split Spoon	Penetrometer		Auger	
Shelby	Vane Shear		Air Rotary	
Continuous Sampling	Bulk Sample	California	Hand Auger	Core Barrel
Test Pit	Grab Sample	Headspace	Continuous Sampling	Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft
Time After Drilling
Depth To Water (ft)
Remarks:

114-510205 | TETRA TECH | **LOG OF EXPLORATORY BORING MW-7**

PJ ' 8-19-11 ' ' CASPER ENVIRO NO FIG # ' TT library 1-10 (MAT)
510205 L
Revised 2-04-09 (MAT)

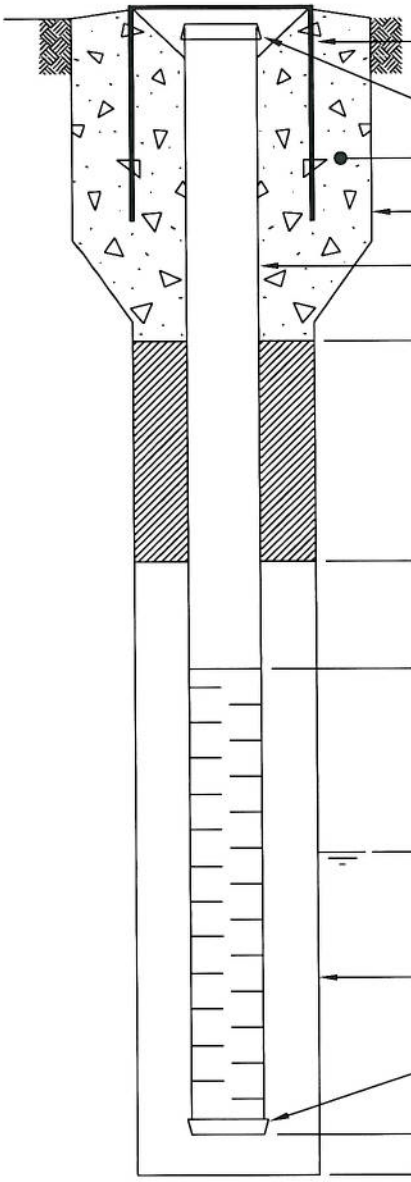
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-7D
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Drilling Engineers, Inc.
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5123.46

DATE: HOLE STARTED: 10-20-10
COMPLETED: 10-20-10



Protective Casing Type: Flush Mount
Water Tight PVC Cap Type: Expansion
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: Chips
Depth to Top of Filter Pack: 16.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 18.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: _____ (Date _____)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush Mount
Depth to Bottom of PVC Cap: 28.0 ft
Depth to Bottom of Boring: 28.0 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-7D

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-8		Driller: Drilling Engineers, Inc.	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 10-18-10	Date Finished: 10-18-10
Elevation and Datum: Ground: Existing Grade Casing:			

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FIID HEADSPACE (ppm)	ODOR	STAINING
			SAND, tan, moist.	2.00						
5			SAND and small gravel, tan, moist.	8.00						
10			Coarse to fine grained SAND and GRAVEL with trace cobbles, tan, moist.					8		
15								0		
20			Drilling softened at 20 ft.					3		
			Gravel layers somewhere between 23 and 25 ft.							
25			SHALE starts about 25 ft.	25.00				10		
				29.00						

Bottom of Boring at 29.0 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING MW-8

PJ ' 8-19-11 ' CASPER ENVIRO NO FIG # ' TT library 1-10 (MAT)

510205

Revised 2-04-09 (MAT)

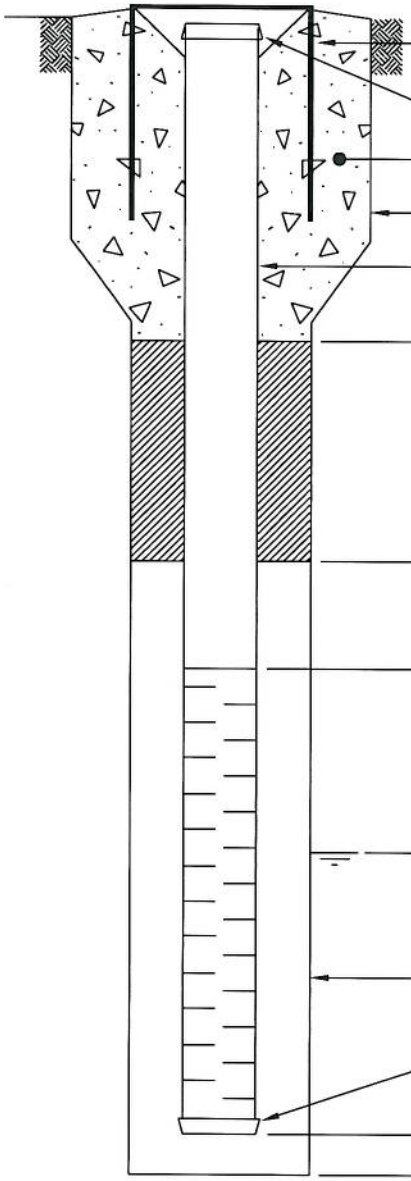
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-8
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Drilling Engineers, Inc.
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5123.98

DATE: HOLE STARTED: 10-18-10
COMPLETED: 10-18-10



Protective Casing Type: Flush Mount
Water Tight PVC Cap Type: Expansion
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: Chips
Depth to Top of Filter Pack: 17.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 19.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: _____ (Date _____)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush Mount
Depth to Bottom of PVC Cap: 29.0 ft
Depth to Bottom of Boring: 29.0 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-8

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-9		Driller: Drilling Engineers, Inc.	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 10-18-10	Date Finished: 10-18-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
			SAND, tan to brown, moist.	2.00						
5			SAND and GRAVEL with some cobbles, tan, moist.	8.00						
			Fine grained SAND and GRAVEL with some cobbles, tan, moist.	9.00				5		
10			Coarse to fine grained SAND and GRAVEL with some cobbles, tan, moist.							
15								12		
20								8		
				22.50						
			SHALE with some sand lenses, gray, dry.	23.00						
			Bottom of Boring at 23.0 ft					14		

FIELD SCREENING RESULTS

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING MW-9

PJ ' 8-19-11 ' ' CASPER ENVIRO NO FIG # ' TT library 1-10 (MAT)

510205

Revised 2-04-09 (MAT)

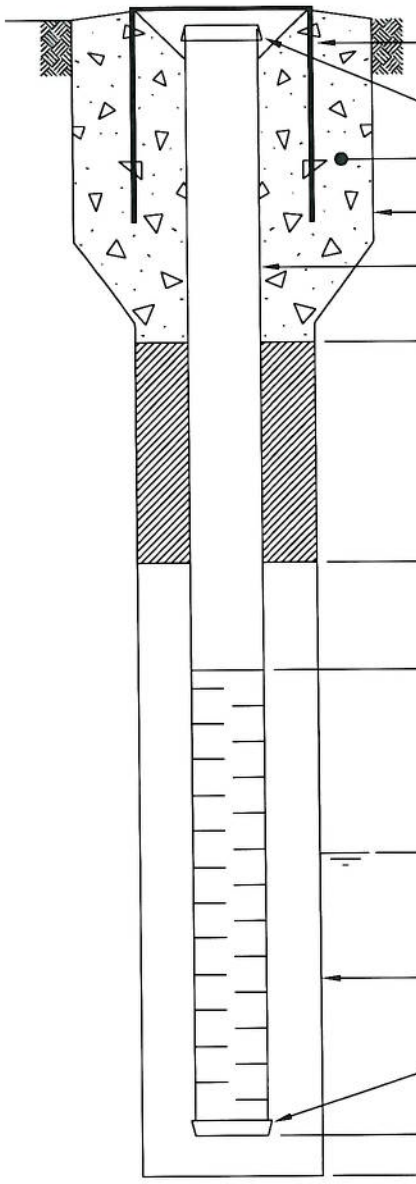
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-9
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Drilling Engineers, Inc.
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5124.96

DATE: HOLE STARTED: 10-18-10
COMPLETED: 10-18-10



Protective Casing Type: Flush Mount
Water Tight PVC Cap Type: Expansion
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: Chips
Depth to Top of Filter Pack: 11.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 13.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: 8.25 ft (Date 10-18-10)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush Mount
Depth to Bottom of PVC Cap: 23.0 ft
Depth to Bottom of Boring: 23.0 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-9

510205 M 6-13-1 MAT

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-10		Driller: Drilling Engineers, Inc.	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 10-19-10	Date Finished: 10-19-10
Elevation and Datum: Ground: Existing Grade	Casing:		

Notes:

DEPTH (ft)	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	PID HEADSPACE (ppm)	FID HEADSPACE (ppm)	ODOR	STAINING
	SAND, tan to brown, moist.	4.00						
5	SAND and GRAVEL, tan, moist.	8.00						
		9.00						
10	Coarse to fine grained SAND with some gravel, tan, dry.	11.00	X	13-19-20-21		3		
		14.00						
15	Coarse to fine grained SAND and GRAVEL, tan, dry.	16.00	X	13-42-41-40		4		
		20.00						
20	Coarse to fine grained SAND and GRAVEL, tan to orange, wet to saturated.	22.00	X	11-31-32-34		31		
		24.00						
25	Coarse to fine grained SAND with some gravel, tan to orange, saturated.	26.00	X	7-11-14-16		10		
		28.00						

Bottom of Boring at 28.0 ft

Sampler Types: Split Spoon, Penetrometer, Shelby, Vane Shear, Continuous Sampling, Bulk Sample, California, Test Pit, Grab Sample, Headspace

Operation Types: Auger, Air Rotary, Hand Auger, Core Barrel, Continuous Sampling, Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▽ ft

Time After Drilling

Depth To Water (ft)

Remarks:

114-510205

TETRA TECH

LOG OF EXPLORATORY BORING MW-10

PJ: 8-19-11 : CASPER ENVIRO NO FIG #: TT library 1-10 (MAT)

510205

Revised 2-04-09 (MAT)

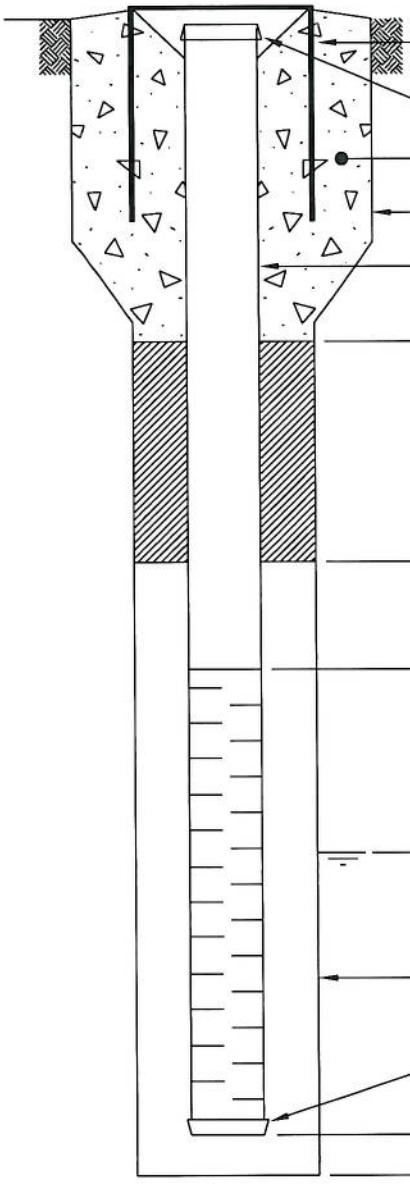
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-10
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Drilling Engineers, Inc.
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5124.00

DATE: HOLE STARTED: 10-19-10
COMPLETED: 10-19-10



Protective Casing Type: Flush Mount
Water Tight PVC Cap Type: Expansion
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: Chips
Depth to Top of Filter Pack: 16.0 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 18.0 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: _____ (Date _____)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush Mount
Depth to Bottom of PVC Cap: 28.0 ft
Depth to Bottom of Boring: 28.0 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-10

Project Name: WDEQ VPR - Site Characterization - Former Lobell Refinery - Casper, Wyoming			
Borehole Location: Refer to Site Map			
Borehole Number: MW-11		Driller: Drilling Engineers, Inc.	Logger: Joe Scott
Drilling Equipment: CME-55	Borehole Diameter (in.): 8.25	Date Started: 10-19-10	Date Finished: 10-19-10
Elevation and Datum: Ground: Existing Grade Casing:			

Notes:

DEPTH (ft)	OPERATION	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH (ft)	SAMPLE	STANDARD PENETRATION RESISTANCE SPT	FIELD SCREENING RESULTS: PID HEADSPACE (ppm)	FIID HEADSPACE (ppm)	ODOR	STAINING
			SAND, tan to brown, moist.	2.00						
			SAND, tan, moist.	8.00						
5										
			Coarse to fine grained SAND with some gravel, tan, dry.	14.00				0		
10										
			Coarse to fine grained SAND with some gravel, trace cobbles, tan, moist.	19.00				6		
15			Wet at 18 ft.							
			No Recovery from 19 to 24 ft (too wet).	24.00				7		
20										
			Coarse to fine grained SAND with little gravel, tan, saturated. Brown clay in tip of shoe.	26.50				5		
25										

Bottom of Boring at 26.5 ft

Sampler Types:			Operation Types:	
Split Spoon	Penetrometer		Auger	
Shelby	Vane Shear		Air Rotary	
Continuous Sampling	Bulk Sample	California	Hand Auger	Core Barrel
Test Pit	Grab Sample	Headspace	Continuous Sampling	Drive Casing

WATER LEVEL OBSERVATIONS

While Drilling ▽ Dry ft Upon Completion of Drilling ▼ ft
Time After Drilling
Depth To Water (ft)
Remarks:

114-510205 | TETRA TECH | **LOG OF EXPLORATORY BORING MW-11**

Revised 2-04-09 (MAT)

PJ ' 8-19-11 ' ' CASPER ENVIRO NO FIG # ' TT library 1-10 (MAT)
510205

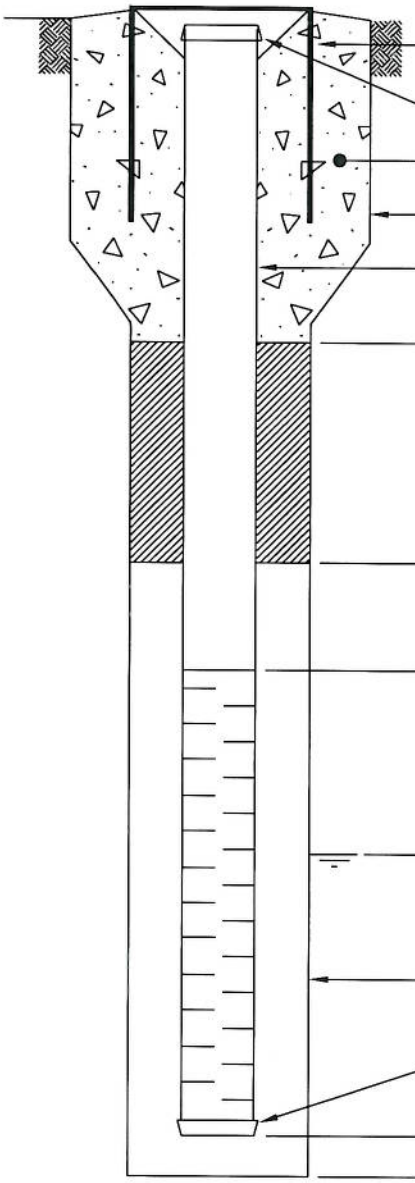
PROJECT: WDEQ VPR Site Characterization
Formaer Lobell Refinery
Casper, Wyoming

MONITORING WELL NO. MW-11
SHEET 1 OF 1
LOCATION: Refer to Site Map

DRILL TYPE: SOIL: CME 55 Hollow Stem Auger

DRILLED BY: Drilling Engineers, Inc.
LOGGED BY: Joe Scott
REMARKS: Casing Elevation = 5124.28

DATE: HOLE STARTED: 10-19-10
COMPLETED: 10-19-10



Protective Casing Type: Flush Mount
Water Tight PVC Cap Type: Expansion
Surface Seal Type: Cement
Surface Seal Dia.: 1.0 ft
PVC Casing Type: 2 in. I.D., Schedule 40
Depth to Top of Bentonite Seal: 2.0 ft
Bentonite Seal Type: Chips
Depth to Top of Filter Pack: 14.5 ft
Filter Pack Type: 10-20 Silica Sand
Depth to Top of Well Screen: 16.5 ft
PVC Well Screen Type: 0.01 in. Factory Slotted, Threaded Joints, 2 in. I.D., Schedule 40
Depth to Initial Static Water Level: _____ (Date _____)
Boring Diameter: 8.25 in.
PVC Cap Type: Flush Mount
Depth to Bottom of PVC Cap: 26.5 ft
Depth to Bottom of Boring: 26.5 ft

NOT TO SCALE

114-510205	TETRA TECH	MONITORING WELL INSTALLATION DIAGRAM MW-11

PROJECT: **WDEQ-Former Lobell Refinery**
LOCATION: **East Collins Dr., Casper, WY**
PROJECT NUMBER: **212205045**

WELL / PROBEHOLE / BOREHOLE NO: **MW-101**
PAGE 1 OF 1

Stantec

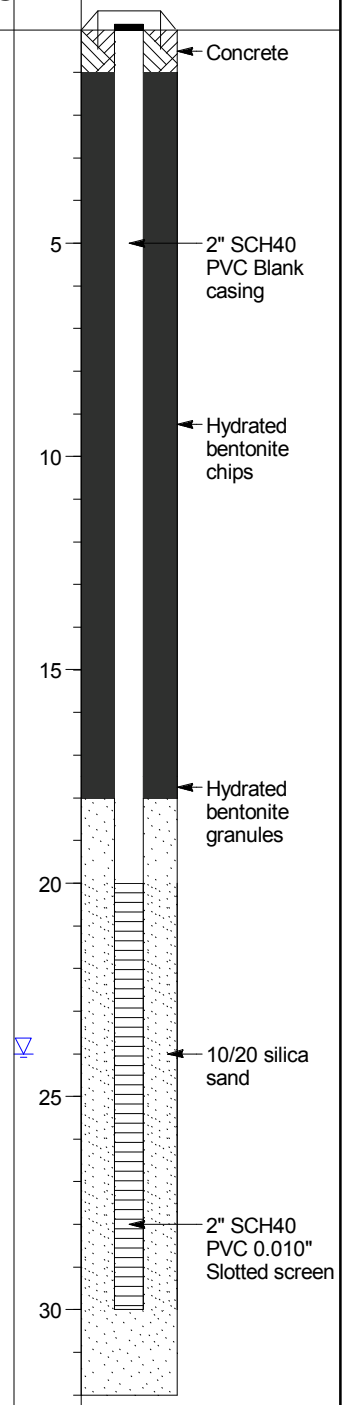
DRILLING: STARTED **10/7/13** COMPLETED: **10/7/13**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **DrillPro Services**
DRILLING EQUIPMENT: **Diedrich D120**
DRILLING METHOD: **hollow stem auger**
SAMPLING EQUIPMENT: **split spoon**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **24** BOREHOLE DEPTH (ft): **32**
STATIC DTW (ft): **Not Encountered** WELL DEPTH (ft): **30**
WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8**
LOGGED BY: **M.Sauerwein** CHECKED BY: **R.Cirillo**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)
			Concrete, 6" thick Waterknifed to 5' bgs					
5		SW	**SAND** ; SW; 2.5Y 5/2 grayish brown; fine to coarse-grained; loose; dry; well graded; 20% fines, 50% medium, 25% coarse		12:41 MW-101 (5-7)	1/2	4 4 4 4	1.6
10		SW	**SAND** ; SW; 2.5Y 5/2 grayish brown; fine to coarse-grained; loose; dry; well graded; 20% fines, 50% medium, 25% coarse		12:46 MW-101 (10-12)	0.66/2	2 1 1 1	0.9
15		SW	**SAND WITH GRAVEL** ; SW; 2.5Y 6/3 light yellowish brown; fine to coarse-grained; very dense; dry; well graded; 30% fines, 30% medium, 20% coarse, 10% very coarse, 10% coarse sub-rounded gravel		12:53 MW-101 (15-17)	1.16/2	16 22 50/4"	1.3
20		SW	**SAND WITH GRAVEL** ; SW; 10YR 7/2 light gray; fine to coarse-grained; dense; dry; well graded; 30% fines, 30% medium, 20% coarse, 10% very coarse, 10% fine to coarse sub-rounded gravel		13:00 MW-101 (20-22)	1/2	15 29 20 20	2.2
25		SW-SM	**SAND WITH SILT** ; SW-SM; 2.5Y 5/2 grayish brown; fine to coarse-grained; medium dense; wet; well graded; 10% silt and trace clay, 10% fines, 15% medium, 35% coarse, 25% very coarse		13:07 MW-101 (25-27)	1.33/2	2 5 8 9	1.8
30		SW-SM	**SAND WITH SILT** ; SW-SM; 2.5Y 5/2 grayish brown; fine to coarse-grained; medium dense; wet; well graded; 10% silt and trace clay, 15% fines, 20% medium, 25% coarse, 25% very coarse, 10% fine subangular to sub-rounded gravel Borehole terminated at 32 feet.		13:20 MW-101 (30-32)	1.5/2	2 6 9 10	2.0
35								

Depth (feet)

Well Construction



GEO FORM 304 LOBELL-MW101-106.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 12/10/13

PROJECT: **WDEQ-Former Lobell Refinery**
LOCATION: **East Collins Dr., Casper, WY**
PROJECT NUMBER: **212205045**

WELL / PROBEHOLE / BOREHOLE NO: **MW-102**
PAGE 1 OF 1

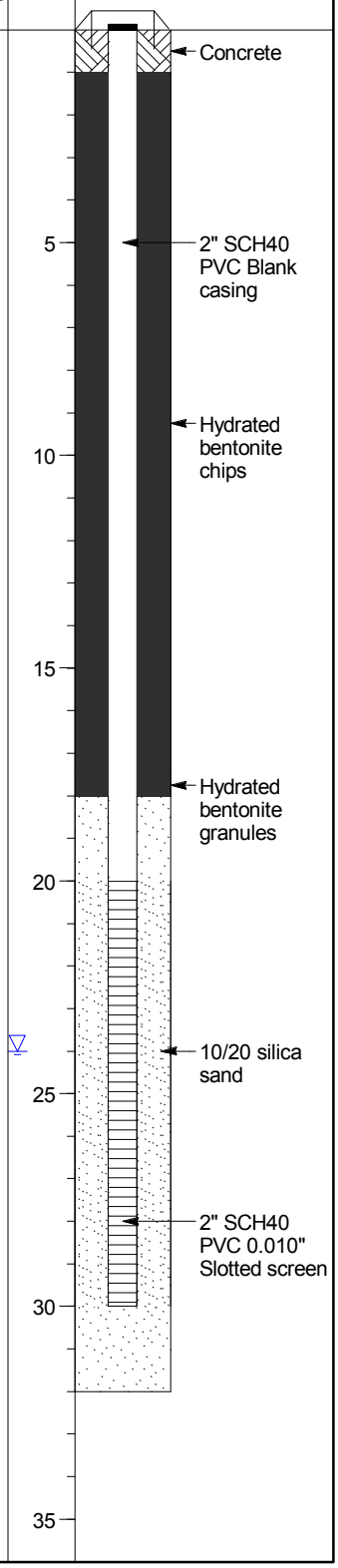
Stantec

DRILLING: STARTED **10/7/13** COMPLETED: **10/7/13**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **DrillPro Services**
DRILLING EQUIPMENT: **Diedrich D120**
DRILLING METHOD: **hollow stem auger**
SAMPLING EQUIPMENT: **split spoon**

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): **24**
STATIC DTW (ft): **Not Encountered**
WELL CASING DIAMETER (in): **2**
LOGGED BY: **M.Sauerwein**

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): **32**
WELL DEPTH (ft): **30**
BOREHOLE DIAMETER (in): **8**
CHECKED BY: **R.Cirillo**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)
			Concrete, 6" thick Waterknifed to 5' bgs					
5		SW	**SAND** ; SW; 2.5Y 5/2 grayish brown; fine to coarse-grained; loose; dry; well graded; 30% fines, 45% medium, 20% coarse, trace very coarse		14:26 MW-102 (5-7)	1.33/2	2 3 3 3	2.1
10		SW	**SAND** ; SW; 2.5Y 5/2 grayish brown; fine to coarse-grained; medium dense; dry; well graded; 20% fines, 30% medium, 35% coarse, 15% very coarse		14:31 MW-102 (10-12)	1.33/2	3 5 8 9	0.8
15		SW-SM	**SAND WITH SILT AND GRAVEL** ; SW-SM; 10YR 6/3 pale brown; fine to coarse-grained; very dense; moist to dry; iron oxide staining; well graded; 10% silt and trace clay, 10% fines, 20% medium, 25% coarse, 20% very coarse, 10% fine to coarse angular to subangular gravel		14:39 MW-102 (15-17)	1/2	10 18 21 31	1.4
20		SW	**SAND WITH GRAVEL** ; SW; 10YR 6/1 gray; fine to coarse-grained; dense; moist; well graded; trace silt and clay, 25% fines, 40% medium, 15% coarse, 10% very coarse, 10% fine to coarse sub-rounded gravel		14:45 MW-102 (20-22)	1/2	10 16 21 50/3"	1.1
25		SW-SM	**SAND WITH SILT** ; SW-SM; 2.5Y 5/2 grayish brown; fine to coarse-grained; medium dense; wet; well graded; 10% silt and trace clay, 10% fines, 15% medium, 35% coarse, 25% very coarse		14:54 MW-102 (25-27)	1.33/2	5 7 10 12	1.2
30		SW-SM	**SAND WITH SILT** ; SW-SM; 2.5Y 5/2 grayish brown; fine to coarse-grained; medium dense; wet to saturated; well graded; 10% silt and trace clay, 15% fines, 20% medium, 25% coarse, 25% very coarse, 10% subangular to sub-rounded gravel Borehole terminated at 32 feet.		15:01 MW-102 (30-32)	1.5/2	3 6 9 10	1.1
35								



PROJECT: **WDEQ-Former Lobell Refinery**
LOCATION: **East Collins Dr., Casper, WY**
PROJECT NUMBER: **212205045**

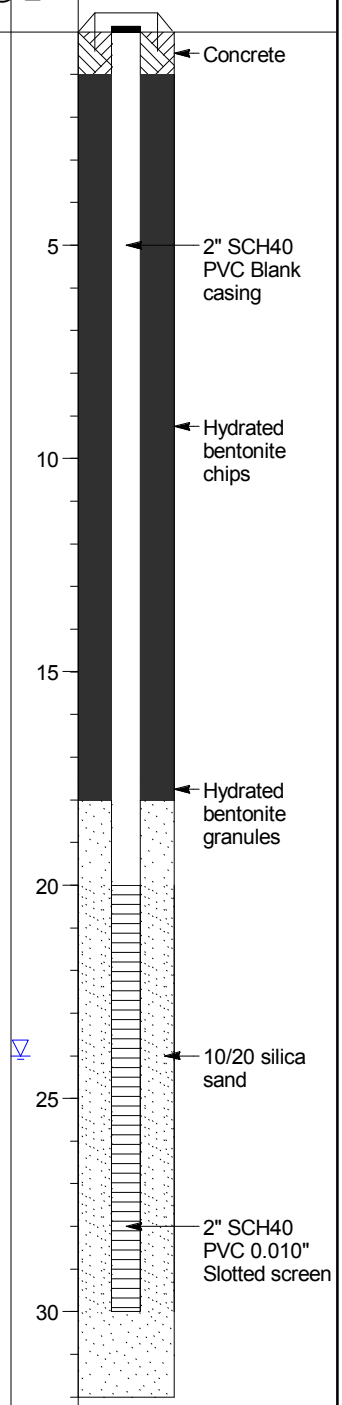
WELL / PROBEHOLE / BOREHOLE NO: **MW-103**
PAGE 1 OF 1

Stantec

DRILLING: STARTED **10/8/13** COMPLETED: **10/8/13**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **DrillPro Services**
DRILLING EQUIPMENT: **Diedrich D120**
DRILLING METHOD: **hollow stem auger**
SAMPLING EQUIPMENT: **split spoon**

NORTHING (ft): EASTING (ft):
LATITUDE: LONGITUDE:
GROUND ELEV (ft): TOC ELEV (ft):
INITIAL DTW (ft): **24** BOREHOLE DEPTH (ft): **32**
STATIC DTW (ft): **Not Encountered** WELL DEPTH (ft): **30**
WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8**
LOGGED BY: **M.Sauerwein** CHECKED BY: **R.Cirillo**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)
			Asphalt, 4" thick Waterknifed to 5' bgs					
5		CL	**LEAN CLAY** ; CL; 2.5Y 4/2 dark grayish brown; low plasticity; low dry strength; dry		7:17 MW-103 (5-7)	1.5/2	3 4 3 4	1.1
		SP	**SAND** ; SP; 10YR 6/2 light brownish gray; fine to medium-grained; dry; poorly graded; micaceous; trace fine sub-rounded gravel					0.6
10		ML	**SANDY SILT** ; ML; 2.5Y 5/2 grayish brown; low plasticity; low dry strength; dry to moist; poorly graded; 75% silt, 25% fine grained sand		7:25 MW-103 (10-12)	0.75/2	4 5 5 6	0.7
15		SW	**SAND** ; SW; 10YR 6/3 pale brown; fine to coarse-grained; dense; dry; well graded; 30% fines, 40% medium, 15% coarse, 10% very coarse, trace fine subangular gravel		7:34 MW-103 (15-17)	1.25/2	10 15 18 12	0.4
20		SW-SM	**SAND WITH SILT AND GRAVEL** ; SW-SM; 10YR 6/1 gray; fine to coarse-grained; very dense; moist; well graded; 10% silt and trace clay, 10% fines, 15% medium, 35% coarse, 25% very coarse		7:43 MW-103 (20-22)	1.33/2	5 27 50/6"	0.9
25		SW-SM	**SAND WITH GRAVEL** ; SW-SM; 10YR 6/1 gray; fine to coarse-grained; very dense; wet; well graded; 10% silt and trace clay, 10% fines, 15% medium, 35% coarse, 25% very coarse, with coarse round gravel		7:50 MW-103 (25-27)	1.33/2	10 27 50/3"	0.6
30		SW-SM	**SAND WITH SILT AND GRAVEL** ; SW-SM; 2.5Y 5/2 grayish brown; fine to coarse-grained; very dense; saturated; well graded; 10% silt and trace clay, 15% fines, 20% medium, 25% coarse, 25% very coarse, 10% fine subangular to sub-rounded gravel		8:00 MW-103 (30-32)	1.5/2	8 14 22 50/2"	0.9
			Borehole terminated at 32 feet.					
35								



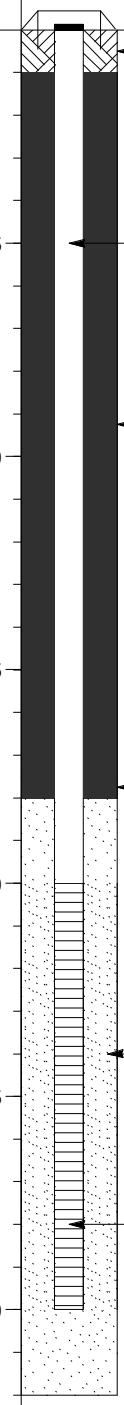
GEO FORM 304 LOBELL-MW101-106.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 12/10/13

PROJECT: **WDEQ-Former Lobell Refinery** LOCATION: **East Collins Dr., Casper, WY** PROJECT NUMBER: **212205045**	WELL / PROBEHOLE / BOREHOLE NO: PAGE 1 OF 1 **MW-104**
DRILLING: STARTED **10/6/13** COMPLETED: **10/6/13** INSTALLATION: STARTED COMPLETED: DRILLING COMPANY: **DrillPro Services** DRILLING EQUIPMENT: **Diedrich D120** DRILLING METHOD: **hollow stem auger** SAMPLING EQUIPMENT: **split spoon**	NORTHING (ft): EASTING (ft): LATITUDE: LONGITUDE: GROUND ELEV (ft): TOC ELEV (ft): INITIAL DTW (ft): **23** BOREHOLE DEPTH (ft): **32** STATIC DTW (ft): **Not Encountered** WELL DEPTH (ft): **30** WELL CASING DIAMETER (in): **2** BOREHOLE DIAMETER (in): **8** LOGGED BY: **M.Sauerwein** CHECKED BY: **R.Cirillo**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)
			Surface-sandy soil, cobbles Waterknifed to 5' bgs					
5		SW	**SAND WITH GRAVEL** ; SW; 10YR 5/4 yellowish brown; fine to coarse-grained; medium dense; dry; well graded; 20% fines, 25% medium, 15% coarse, 10% very coarse sand, 20% coarse subangular to rounded gravel and cobbles		13:04 MW-104 (5-7)	1.33/2	5 6 7 5	1.6
10		SM	**SILTY SAND WITH GRAVEL** ; SM; 2.5Y 4/3 olive brown; fine to coarse-grained; dense; moist; well graded; 15% silt and trace clay, 20% fines, 20% medium, 15% coarse, 10% very coarse sand, 15% fine subangular to rounded gravel and cobbles		13:18 MW-104 (10-12)	0.166/2	2 15 17 17	0.5
15		GW	**SANDY GRAVEL** ; GW; 10YR 4/3 brown; dense to very dense; dry to moist; well graded; 25% fine subrounded to subangular gravel, 30% coarse rounded to subangular gravel, 10% medium sand, 15% coarse sand, 15% very coarse sand, trace fine sand		13:41 MW-104 (15-17)	0.25/2	6 8 15 18	0.7
20		SW	**SAND WITH GRAVEL** ; SW; 10YR 5/3 brown; fine to coarse-grained; very dense; dry; well graded; 15% fines, 25% medium, 25% coarse, 25% very coarse, 15% fine to coarse subangular to rounded gravel		13:50 MW-104 (20-22)	0.75/2	17 50/3"	1.2
25		SM	**SILTY SAND WITH GRAVEL** ; SM; 2.5Y 5/2 grayish brown; fine to coarse-grained; very dense; wet; well graded; 15% silt and trace clay, 15% fines, 15% medium, 25% coarse, 15% very coarse, 10% fine subangular to sub-rounded gravel		14:00 MW-104 (25-27)	1/2	25 50/6"	1.1
30		SW-SM SW-SM	**SAND WITH SILT** ; SW-SM; 2.5Y 5/3 light olive brown; fine to coarse-grained; dense; wet to saturated; well graded; 10% silt, 15% fines, 25% medium, 40% coarse, 10% very coarse **SAND WITH SILT AND GRAVEL** ; SW-SM; 2.5Y 5/3 light olive brown; fine to coarse-grained; very dense; saturated; well graded; 10% silt trace clay, 10% fines, 10% medium, 35% coarse, 20% very coarse, 10% fine to coarse gravel		14:11 MW-104 (30-32)	1.5/2	5 17 19 30	1.2
35								

Depth (feet): 5, 10, 15, 20, 25, 30, 35

Well Construction:



Borehole terminated at 32 feet.

GEO FORM 304 LOBELL-MW101-106.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 12/10/13

PROJECT: **WDEQ-Former Lobell Refinery**
LOCATION: **East Collins Dr., Casper, WY**
PROJECT NUMBER: **212205045**

WELL / PROBEHOLE / BOREHOLE NO: **MW-105**
PAGE 1 OF 1

Stantec

DRILLING: STARTED **10/6/13** COMPLETED: **10/6/13**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **DrillPro Services**
DRILLING EQUIPMENT: **Diedrich D120**
DRILLING METHOD: **hollow stem auger**
SAMPLING EQUIPMENT: **split spoon**

NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): **24**
STATIC DTW (ft): **Not Encountered**
WELL CASING DIAMETER (in): **2**
LOGGED BY: **M.Sauerwein**

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): **33**
WELL DEPTH (ft): **33**
BOREHOLE DIAMETER (in): **8**
CHECKED BY: **R.Cirillo**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)
			Surface-sandy soil, cobbles, landscaping Waterknifed to 5' bgs					
5					16:03 MW-105 (5-7)	0.166/2	1 2 1 2	1.1
		SW-SM	**SAND WITH SILT** ; SW-SM; 2.5Y 4/3 olive brown; fine to coarse-grained; loose; moist; well graded; 10% silt and trace clay, 15% fines, 25% medium, 30% coarse, 15% very coarse					
10					16:11 MW-105 (10-12)	1.33/2	5 7 8 12	1.2
		SW	**SAND** ; SW; 10Y 5/3 brown; fine to coarse-grained; medium dense; dry; well graded; 40% fines, 30% medium, 20% coarse, 10% very coarse					
15					16:22 MW-105 (15-17)	1.5/2	9 12 15 17	0.7
		SW	**SAND** ; SW; 10YR 6/2 light brownish gray; fine to coarse-grained; dense; dry; well graded; 40% fines, 25% medium, 25% coarse, 10% very coarse					
20					16:29 MW-105 (20-22)	0.75/2	16 50/6"	0.9
		SW	**SAND WITH GRAVEL** ; SW; 10YR 5/2 grayish brown; fine to coarse-grained; very dense; dry; well graded; 25% fines, 25% medium, 20% coarse, 15% very coarse, 10% coarse sub-rounded gravel					
25					16:44 MW-105 (25-27)	1.33/2	8 12 50/6"	1.3
		SW-SM	**SAND WITH SILT AND GRAVEL** ; SW-SM; 10YR 5/3 brown; fine to coarse-grained; very dense; wet; well graded; 10% silt and trace clay, 10% fines, 15% medium, 30% coarse, 25% very coarse, 15% fine to coarse subangular to rounded gravel					
30					17:02 MW-105 (30-32)	1.33/2	8 12 16 18	0.9
		SP-SM	**SAND WITH SILT** ; SP-SM; 10YR 5/2 grayish brown; fine to medium-grained; dense; wet to saturated; poorly graded; 10% silt					
		SW	**SAND TRACE CLAY TRACE SILT** ; SW; 10YR 5/3 brown; fine to coarse-grained; very dense; wet to saturated; well graded; 10% fines, 20% medium, 35% coarse, 25% very coarse					
35			Borehole terminated at 33 feet.					

Depth (feet): 5, 10, 15, 20, 25, 30, 35

Well Construction:
- Concrete
- 2" SCH40 PVC Blank casing
- Hydrated bentonite chips
- Hydrated bentonite granules
- 10/20 silica sand
- 2" SCH40 PVC 0.010" Slotted screen

PROJECT: **WDEQ-Former Lobell Refinery**
LOCATION: **East Collins Dr., Casper, WY**
PROJECT NUMBER: **212205045**

WELL / PROBEHOLE / BOREHOLE NO: **MW-106**
PAGE 1 OF 1

Stantec

DRILLING: STARTED **10/7/13** COMPLETED: **10/7/13**
INSTALLATION: STARTED COMPLETED:
DRILLING COMPANY: **DrillPro Services**
DRILLING EQUIPMENT: **Diedrich D120**
DRILLING METHOD: **hollow stem auger**
SAMPLING EQUIPMENT: **split spoon**

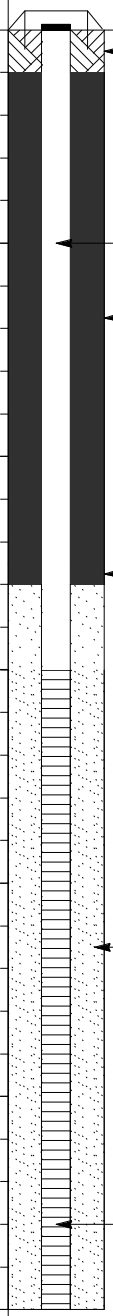
NORTHING (ft):
LATITUDE:
GROUND ELEV (ft):
INITIAL DTW (ft): **21**
STATIC DTW (ft): **Not Encountered**
WELL CASING DIAMETER (in): **2**
LOGGED BY: **M.Sauerwein**

EASTING (ft):
LONGITUDE:
TOC ELEV (ft):
BOREHOLE DEPTH (ft): **32**
WELL DEPTH (ft): **30**
BOREHOLE DIAMETER (in): **8**
CHECKED BY: **R.Cirillo**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)
			Asphalt, 6" thick Waterknifed to 5' bgs					
5		SM	**SILTY SAND WITH CLAY** ; SM; 2.5Y 4/3 olive brown; fine-grained; very loose; moist; poorly graded; 10% clay, 30% silt, 60% fines		9:05 MW-106 (5-7)	1.25/2	1 1 1 2	1.9
10		GW	**SANDY GRAVEL** ; GW; 10YR 7/1 light gray; fine to coarse-grained; very dense; dry; well graded; 60% coarse to fine gravel, subangular to rounded, 30% fine to very coarse sand		9:13 MW-106 (10-12)	0.166/2	10 50/6"	
15		SW	**SAND WITH GRAVEL TRACE SILT** ; SW; 10YR 6/1 gray; fine to coarse-grained; very dense; dry; well graded; 35% fines, 15% medium, 10% coarse, 10% very coarse, 15% fine to coarse subangular to rounded gravel		9:29 MW-106 (15-17)	1.33/2	10 22 20 46	2.7
20		SW-SM	**SAND WITH SILT AND GRAVEL** ; SW-SM; 10YR 5/1 gray; fine to coarse-grained; medium dense; wet to saturated; well graded; 10% silt and trace clay, 10% fines, 20% medium, 25% coarse, 20% very coarse, 10% coarse subrounded gravel		9:38 MW-106 (20-22)	1.25/2	8 10 10 11	1.4
25		SW-SM	**SAND WITH SILT** ; SW-SM; 10YR 5/2 grayish brown; fine to coarse-grained; very dense; wet; well graded; 10% silt and trace clay, 20% fines, 35% medium, 30% coarse		9:51 MW-106 (25-27)	0.5/2	15 21 50/6"	2.3
30			No recovery, saturated, N 4/0 GREY1, dark gray Borehole terminated at 32 feet.		10:05 MW-106 (30-32)	<1"	50 50/3"	0.3
35								

Depth (feet)

Well Construction



GEO FORM 304 LOBELL-MW101-106.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 12/10/13

APPENDIX C

Casper Wells Survey

Survey Point #	Northing	Easting	Elevation	Description
1104001	1187443.947	1583132.840	5119.69	C-18 BM 5119.69
1104002	1184946.168	1582922.218	5125.65	VP 105 TOP
1104003	1184893.773	1582898.148	5127.44	MW 104 TOP LID
1104004	1184893.839	1582898.099	5127.14	MW 104 TOP CASING
1104005	1184905.293	1582753.197	5126.82	MW 103 TOP LID
1104006	1184905.504	1582753.192	5126.45	MW 103 TOP CASING
1104007	1184783.397	1582801.701	5126.96	VP 104 TOP
1104008	1184772.268	1582880.529	5126.48	MW 04 TOP LID
1104009	1184772.291	1582880.498	5126.14	MW 04 TOP CASING
1104010	1184789.797	1582959.515	5126.25	VP 04 TOP
1104011	1184834.219	1582992.210	5125.87	BH 03
1104012	1184742.821	1582955.118	5126.16	MW 01 TOP LID
1104013	1184742.932	1582955.090	5125.88	MW 01 TOP CASING
1104014	1184700.787	1582884.803	5127.28	MW 06 TOP LID
1104015	1184700.831	1582884.714	5127.01	MW 06 TOP CASING
1104016	1184662.365	1582874.048	5127.55	VP 02
1104017	1184735.484	1583032.168	5125.00	VP 05
1104018	1184596.872	1582824.273	5127.30	VP 11R 5 O/S
1104019	1184599.245	1582828.614	5127.28	VP 11R 10 O/S
1104020	1184594.672	1582819.766	5127.23	VP 11R TOP
1104021	1184627.833	1582729.860	5125.52	VP 106 TOP
1104022	1184625.843	1582730.014	5125.51	VP 103 TOP
1104023	1184645.766	1582729.685	5125.55	MW 102 TOP LID
1104024	1184645.850	1582729.708	5125.26	MW 102 TOP CASING
1104025	1184655.530	1582735.122	5126.09	5123 USGS BM
1104026	1184697.100	1582766.970	5126.73	VP 03
1104027	1184528.585	1582728.959	5125.11	VP 102
1104028	1184515.578	1582729.209	5125.05	MW 101 TOP LID
1104029	1184515.787	1582729.234	5124.74	MW 101 TOP CASING
1104030	1184485.150	1582770.712	5124.18	BH 04
1104031	1184513.662	1582801.178	5124.69	VP 10
1104032	1184527.005	1582837.305	5124.53	MW 10 TOP LID
1104033	1184527.206	1582837.292	5123.86	MW 10 TOP CASING
1104034	1184530.270	1582836.085	5124.54	VP 12
1104035	1184549.988	1582883.086	5124.41	VP 02
1104036	1184557.460	1582897.560	5124.66	MW 02 TOP CASING
1104037	1184557.391	1582897.601	5125.00	MW 02 TOP LID
1104038	1184615.087	1583012.940	5123.28	MW 03 TOP CASING
1104039	1184614.988	1583012.952	5123.47	MW 03 TOP LID
1104040	1184539.785	1582993.529	5123.05	VP 08
1104042	1184539.829	1582993.481	5123.13	VP 08
1104045	1184484.429	1582859.984	5123.81	MW 07 TOP LID
1104046	1184484.496	1582860.085	5123.36	MW 07 TOP CASING

Casper Wells Survey

Survey Point #	Northing	Easting	Elevation	Description
1104047	1184479.583	1582866.868	5123.89	PATCH COR
1104048	1184471.624	1582851.405	5123.69	PATCH COR
1104049	1184413.080	1582780.515	5124.75	VP 13
1104050	1184413.053	1582785.286	5124.75	MW 11 TOP LID
1104051	1184413.112	1582785.138	5124.21	MW 11 TOP CASING
1104052	1184435.403	1582765.315	5124.29	PSG 10
1104053	1184458.034	1582808.491	5124.00	PSG 9
1104054	1184490.565	1582871.441	5123.53	PSG 8 USE
1104055	1184518.595	1582925.839	5123.38	PSG 7 USE
1104056	1184550.551	1582988.773	5123.20	PSG 6 USE
1104057	1184359.199	1582749.900	5124.32	VP 11
1104058	1184367.997	1582764.206	5124.31	PSG 1
1104059	1184369.859	1582826.675	5124.48	PSG 2
1104060	1184358.755	1582851.838	5124.89	VP 06
1104061	1184359.062	1582848.461	5123.91	MW 08 TOP CASING
1104062	1184358.893	1582848.439	5124.95	MW 08 TOP LID
1104063	1184370.191	1582882.803	5124.84	PSG 3
1104064	1184371.581	1582942.164	5125.01	PSG 4
1104065	1184372.599	1582997.540	5125.14	PSG 5
1104066	1184216.483	1582899.358	5125.81	VP 101
1104067	1184199.080	1582900.286	5126.02	MW 106 TOP LID
1104068	1184199.212	1582900.326	5125.62	MW 106 TOP CASING
1104069	1184199.218	1582900.324	5125.61	MW 106 TOP CASING
1104070	1184360.560	1582955.277	5125.65	VP 14
1104071	1184360.537	1582957.987	5125.33	MW 09 TOP LID
1104072	1184360.652	1582957.962	5125.02	MW 09 TOP CASING
1104073	1184992.775	1583015.279	5126.25	MW 105 TOP LID
1104074	1184992.843	1583015.315	5125.79	MW 105 TOP CASING
C-18	1187392.568	1583154.375	5167.32	C-18 BM

Note: I Todd M Whittaker certify that I hold Wyoming PLS Certificate number 12291, as Issued by the State of Wyoming, I further certify that this survey was done by me or under my direct supervision.
Date of Survey Nov 4, 2013,
Coordinates are NAD 83, State Plane (4902 WYEC)

Professional Land Surveyor
TODD M. WHITTAKER
12291
Date 12/10/2013
WYOMING

APPENDIX D

V13101541

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) D98232543 SC PPW 8/6/2013 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WYD035994052
2. Page 1 of 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 006860666 FLE

5. Generator's Name and Mailing Address
Wyoming Department of Environmental Quality
120 East 5th Street
Casper, WY 82601
Generator's Phone: (307) 777-2948

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Env Services Inc
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number: NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (TETRACHLOROETHENE), 9, PG III	05	TP	1,250	G	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1-CH692277B ERG#171

15. **GENERATOR'S/OFFEROR'S 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 transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Cindi Martinez
Signature: Cindi Martinez
Month 10 Day 17 Year 13

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Kim E Witzki
Signature: Kim E Witzki
Month 10 Day 17 Year 13

Transporter 2 Printed/Typed Name
Signature
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H040 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: ED AVILA
Signature
Month 10 Day 18 Year 13

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

D98232543 SC PPW 8/6/2013 ✓ V13101541

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WYD035994052
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 006860666 FLE

5. Generator's Name and Mailing Address
Wyoming Department of Environmental Quality
120 East 5th Street
Casper, WY 82601
Generator's Phone: (307) 777-2948

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors Env Services Inc
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number: NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
x	1. NA3082, HAZARDOUS WASTE, LIQUID, N.O.S., (TETRACHLOROETHENE), 9, PG III	05	TP	1,250	G	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CH692277B ERG#171

15. **GENERATOR'S/OFFEROR'S 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 transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Cindi Martinez
Signature: [signature]
Month 10 Day 17 Year 13

GENERATOR

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Kim Witzki
Signature: Kim Witzki
Month 10 Day 17 Year 13
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H040 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: ED AVILA
Signature: [signature]
Month 10 Day 18 Year 13

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **DESIGNATED FACILITY TO GENERATOR**

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

2247 South Highway 71
Kimball, NE 69145

308-235-4012
FAX 308-235-4307
www.cleanharbors.com

DATE: 10/18/2013

MANIFEST: 006860666FLE

Dear Valued Customer:

In accordance with 40 CFR 264.12(b), Clean Harbors Environmental Services, Inc., Kimball Facility, has appropriate state and federal permits to accept, store, and/or treat the waste you shipped to our facility. This letter should be kept on file with your copy of the signed manifest.

Clean Harbors Environmental Services, Inc. makes every effort to ensure that signed copies of manifests are returned to the waste generator as quickly as possible following receipt of your waste at our facility. This allows us to provide you with rapid verification that your waste shipment arrived safely at our waste management facility.

Once your waste has been received, Clean Harbors' personnel will verify that the quantity that has been received matches the quantity that was shipped. We also inspect the material and conduct testing to ensure that it meets the facility's waste acceptance criteria as described in our Waste Analysis Plan, as well as processing requirements. Every effort is made to complete the waste verification as quickly as possible; however, it is possible that the signed copy of the manifest may be returned to you before the waste verification process is completed. If a significant discrepancy, as defined by US EPA regulations (40 CFR 264.72), is discovered during the waste verification process, we will contact you in order to reconcile the discrepancy. Additionally, we will work with you to make any corrections to the waste manifest that is necessary.

Sincerely,

Receiving Department

Stantec Consulting Corporation
2000 South Colorado Blvd
Suite 2-300
Denver CO 80222

D98256711 SC PPW 8/6/2013

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WYD035994052
2. Page 1 of 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 006860684 FLE

GENERATOR

5. Generator's Name and Mailing Address
Wyoming Department of Environmental Quality
120 East 5th Street
Casper, WY 82601
Generator's Phone: (307) 777-2948

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors Deer Trail LLC
100555 East Highway 36
Deer Trail, CO 80105
Facility's Phone: (970) 386-2293
U.S. EPA ID Number: COD991300484

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
x	1. NA3077, HAZARDOUS WASTE, SOLID, N.O.S. MIXTURE, (SOIL CONTAMINATED WITH TETRACHLOROETHENE), 9, PG III	001	CM	30500 Est	P	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1.CH8922648 ERG#171
CHRT 24672

15. **GENERATOR'S/OFFEROR'S 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 transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Cindy Martinez
Signature: Cindy Martinez
Month 10 Day 21 Year 13

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: SHAWN A. CULEK
Signature: Shawn A. Culek
Month 10 Day 25 Year 13
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name
Signature
Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **GENERATOR'S INITIAL COPY**

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

Land Disposal Restriction Notification Form

Printed Date :Oct 18, 2013

MANIFEST INFORMATION

Generator : Wyoming Department of Environmental Quality

Address: 120 East 5th Street
Casper,WY 82601

EPA ID #: WYD035984052

Manifest Tracking Info.

006860684FLE

Sales Order No: D98256711

LINE ITEM INFORMATION

Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH692264B	NON-WASTEWATER	7 (Alternate Soil Std-meets std. (with listed hazardous waste only))

EPA Waste Code	EPA Waste SubCategory
F002	NONE

LDR Chemical Data

Chemical	Underlying Hazardous Constituents	Constituents of Concern	Contaminants Subject to Treatment
TETRACHLOROETHYLENE	N	Y	N

Certification	Applies to Manifest Line Items
This contaminated soil does contain listed hazardous waste and does not exhibit a characteristic of hazardous waste and complies with the soil treatment standards as provided by 40 CFR 268.49(c) or the universal treatment standards. I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.	1.

Waste analysis data, where available, is attached.

Signature : Cindi Martinez

Print Name Cindi Martinez

Title : Program Principal

Date : 10/24/2013

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WYD 035944052

2. Page 1 of: 1

3. Emergency Response Phone: (800) 483-7478

4. Manifest Tracking Number: 004879397 FLE

GENERATOR

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address): SAME

Generator's Phone:

6. Transporter 1 Company Name: Veolia Environmental Services, Inc.

U.S. EPA ID Number: MDD981[illegible]

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address: Veolia Environmental Services, LLC, 18825 Southwest Highway 30, Pocatello, ID 83204

U.S. EPA ID Number: IDD981[illegible]

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-REGULATED WASTE, (SOLID)	13	DM	4,100	P	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

Pallets 13x55 DM

15. **GENERATOR'S/OFFEROR'S 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 transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Tom Eckert | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month | Day | Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name | Signature | Month | Day | Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

D90240353 SC PPW 8/6/2013

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WYD035994052
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 006860688 FLE

GENERATOR

5. Generator's Name and Mailing Address
Wyoming Department of Environmental Quality
120 East 5th Street
Casper, WY 82601
Generator's Phone: (307) 777-2948

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors Deer Trail LLC
108555 East Highway 36
Deer Trail, CO 80105
Facility's Phone: (970) 386-2293
U.S. EPA ID Number: COD991300484

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON D.O.T. REGULATED (NON-HAZARDOUS SOIL AND DEBRIS)	1	CM	4,000	P	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1. CH692275B

15. **GENERATOR'S/OFFEROR'S 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 transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] Signature: [illegible] Month 11 Day 21 Year 13

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Justin Simonsen Signature: [illegible] Month 11 Day 4 Year 13
Transporter 2 Printed/Typed Name: Signature: Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name Signature Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

APPENDIX E

ChemSolutions

7388 S. Revere Parkway #806
Centennial, CO 80112
303.771.5570

October 19, 2013

Russ Cirillo
Stantec Consulting
2000 South Colorado Blvd.
Suite 2-300
Denver, CO 80222

RE: STN097

Dear Russ,

Enclosed please find the analytical results for the Project #212205045 solid samples collected on 10/7/13.

Tables 1-10 contain the analytical results for the samples. The quality control samples are summarized in Tables 11-17.

Thank you for the opportunity to work on this project. Please call if you have any questions. The invoice will follow shortly.

Sincerely,

John Graves
Laboratory Director
ChemSolutions LLC

10/19/13

ChemSolutions LLC

Table 1

Sample Results

Project ID: STN097

Client Sample ID: TE-101-15'

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260C

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13

Date Received: 10/9/13

Date Analyzed: 10/17/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	0.0042	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0577	115
1,2-Dichloroethane-D4	0.0559	112
Toluene-D8	0.0488	97.6
Bromofluorobenzene	0.0490	98.0

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 2
Sample Results
Project ID: STN097

Client Sample ID: TE-101-15'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8015C
Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13
Date Received: 10/9/13
Sample Matrix: Solid

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	5	mg/Kg	10/12/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-chlorooctadecane	95.5	8015C-DRO

ND=Not Detected

10/19/13

ChemSolutions LLC

Table 3

Sample Results

Project ID: STN097

Client Sample ID: TE-102-15'

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260C

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13

Date Received: 10/9/13

Date Analyzed: 10/18/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0521	104
1,2-Dichloroethane-D4	0.0526	105
Toluene-D8	0.0499	99.8
Bromofluorobenzene	0.0488	97.6

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 4
Sample Results
Project ID: STN097

Client Sample ID: TE-102-15'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8015C
Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13
Date Received: 10/9/13
Sample Matrix: Solid

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	5	mg/Kg	10/12/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-chlorooctadecane	100	8015C-DRO

ND=Not Detected

10/19/13

ChemSolutions LLC

Table 5

Sample Results

Project ID: STN097

Client Sample ID: TE-103-8'

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260C

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13

Date Received: 10/9/13

Date Analyzed: 10/17/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0563	113
1,2-Dichloroethane-D4	0.0583	117
Toluene-D8	0.0504	101
Bromofluorobenzene	0.0370	74.0

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 6
Sample Results
Project ID: STN097

Client Sample ID: TE-103-8'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8015C
Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13
Date Received: 10/9/13
Sample Matrix: Solid

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	45	5	mg/Kg	10/16/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-chlorooctadecane	97.8	8015C-DRO

ND=Not Detected

10/19/13

ChemSolutions LLC

Table 7

Sample Results

Project ID: STN097

Client Sample ID: TE-104-15'

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260C

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13

Date Received: 10/9/13

Date Analyzed: 10/17/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	0.0072	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0544	109
1,2-Dichloroethane-D4	0.0535	107
Toluene-D8	0.0430	86.0
Bromofluorobenzene	0.0489	97.8

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 8
Sample Results
Project ID: STN097

Client Sample ID: TE-104-15'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8015C
Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13
Date Received: 10/9/13
Sample Matrix: Solid

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	5	mg/Kg	10/12/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-chlorooctadecane	93.4	8015C-DRO

ND=Not Detected

10/19/13

ChemSolutions LLC

Table 9

Sample Results

Project ID: STN097

Client Sample ID: TE-105-15'

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260C

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13

Date Received: 10/9/13

Date Analyzed: 10/17/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	0.0038	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0552	110
1,2-Dichloroethane-D4	0.0568	114
Toluene-D8	0.0348	69.6
Bromofluorobenzene	0.0491	98.2

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 10
Sample Results
Project ID: STN097

Client Sample ID: TE-105-15'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8015C
Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/7/13
Date Received: 10/9/13
Sample Matrix: Solid

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	6.1	5	mg/Kg	10/16/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-chlorooctadecane	105	8015C-DRO

ND=Not Detected

10/19/13

ChemSolutions LLC

Table 11

Method Blank Results

Project ID: STN097

Sample ID: Blank
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260C
Units: mg/Kg, Dry Weight Basis

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/17/13
Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0517	103
1,2-Dichloroethane-D4	0.0498	99.6
Toluene-D8	0.0383	76.6
Bromofluorobenzene	0.0495	99.0

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 12
Sample Results
Project ID: STN097

Sample ID: Blank
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8015C
Units: mg/Kg, Dry Weight Basis

Date Sampled: NA
Date Received: NA
Sample Matrix: Solid

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	5	mg/Kg	10/11/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-chlorooctadecane	101	8015C-DRO

ND=Not Detected

10/19/13

ChemSolutions LLC

Table 13

Method Blank Results

Project ID: STN097

Sample ID: Blank
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260C
Units: mg/Kg, Dry Weight Basis

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/18/13
Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0498	99.6
1,2-Dichloroethane-D4	0.0486	97.2
Toluene-D8	0.0499	99.8
Bromofluorobenzene	0.0470	94.0

ND= Not detected

10/19/13

ChemSolutions LLC
Table 14
LCS Spike Results
Project ID: STN097

Sample ID: Laboratory Control Sample
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg
Spike Amount: 0.050 mg/Kg

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/18/13
Sample Matrix: Solid

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	0.0396	79.2
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	0.0559	112	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methylene Chloride	ND	NA	Styrene	ND	NA
Methyl-t-butyl ether	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	0.0428	85.6	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	0.0462	92.4	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	0.0506	101	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0545	109
1,2-Dichloroethane-D4	0.0600	120
Toluene-D8	0.0581	116
Bromofluorobenzene	0.0500	100

ND= Not detected

10/19/2013

ChemSolutions LLC
Table 15
LCS Spike Results
Project ID: STN097

Client Project ID: 212205045 WDEQ-Lobell
Sample Matrix: Soil

EPA Method 8015C — Date Analyzed: 10/11/13

ANALYTE	LCS SPIKE	% RECOVERY	UNITS
TPH-DRO	95.6	95.6	mg/Kg
Surrogate Recoveries			
1-chlorooctadecane	49.1	98.2	mg/Kg

LCS=Laboratory Control Sample

ChemSolutions LLC
Table 16 (Page 1 of 2)
Matrix Spike Results
Project ID: STN097

Client Sample ID: TE-101-15'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg
Spike Amount: 0.050 mg/Kg

Date Sampled: 10/7/13
Date Received: 10/9/13
Date Analyzed: 10/18/13
Sample Matrix: Solid

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	0.0087	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	0.0386	77.2
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	0.0456	91.2	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methylene Chloride	ND	NA	Styrene	ND	NA
Methyl-t-butyl ether	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	0.0415	83.0	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	0.0398	79.6	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	0.0415	83.0	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0555	111
1,2-Dichloroethane-D4	0.0557	111
Toluene-D8	0.0493	98.6
Bromofluorobenzene	0.0527	105

ND = Not Detected, NA = Not Analyzed or Not Applicable

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Table 16 (Page 2 of 2)
Matrix Spike Duplicate Results
Project ID: STN097

Client Sample ID: TE-101-15'
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg
Spike Amount: 0.050 mg/Kg

Date Sampled: 10/7/13
Date Received: 10/9/13
Date Analyzed: 10/18/13
Sample Matrix: Solid

Analyte	Amount Recovered	% Recovery	RPD	Analyte	Amount Recovered	% Recovery	RPD
Dichlorodifluoromethane	ND	NA	NA	trans-1,3-Dichloropropene	ND	NA	NA
Chloromethane	ND	NA	NA	1,1,2-Trichloroethane	ND	NA	NA
Vinyl Chloride	ND	NA	NA	Tetrachloroethene	0.0068	NA	NA
Bromomethane	ND	NA	NA	Dibromochloromethane	ND	NA	NA
Chloroethane	ND	NA	NA	1,2-Dibromoethane	ND	NA	NA
Trichlorofluoromethane	ND	NA	NA	Chlorobenzene	0.0363	72.6	6.1
Acetone	ND	NA	NA	1,1,1,2-Tetrachloroethane	ND	NA	NA
1,1-Dichloroethene	0.0429	85.8	6.1	Ethylbenzene	ND	NA	NA
Carbon Disulfide	ND	NA	NA	Total Xylene	ND	NA	NA
Methylene Chloride	ND	NA	NA	Styrene	ND	NA	NA
Methyl-t-butyl ether	ND	NA	NA	Isopropylbenzene	ND	NA	NA
trans-1,2-Dichloroethene	ND	NA	NA	Bromoform	ND	NA	NA
1,1-Dichloroethane	ND	NA	NA	n-Propylbenzene	ND	NA	NA
Vinyl acetate	ND	NA	NA	1,2,3-Trichloropropane	ND	NA	NA
2-Butanone	ND	NA	NA	2-Chlorotoluene	ND	NA	NA
cis-1,2-Dichloroethene	ND	NA	NA	1,3,5-Trimethylbenzene	ND	NA	NA
Chloroform	ND	NA	NA	4-Chlorotoluene	ND	NA	NA
Tetrahydrofuran	ND	NA	NA	t-Butylbenzene	ND	NA	NA
1,1,1-Trichloroethane	ND	NA	NA	1,2,4-Trimethylbenzene	ND	NA	NA
Carbon Tetrachloride	ND	NA	NA	sec-Butylbenzene	ND	NA	NA
Benzene	0.0400	80.0	3.7	p-Isopropyltoluene	ND	NA	NA
1,2-Dichloroethane	ND	NA	NA	1,1,2,2-Tetrachloroethane	ND	NA	NA
Trichloroethene	0.0383	76.6	3.8	1,3-Dichlorobenzene	ND	NA	NA
1,2-Dichloropropane	ND	NA	NA	1,4-Dichlorobenzene	ND	NA	NA
Dibromomethane	ND	NA	NA	n-Butylbenzene	ND	NA	NA
Bromodichloromethane	ND	NA	NA	1,2 Dichlorobenzene	ND	NA	NA
cis-1,3-Dichloropropene	ND	NA	NA	1,2-Dibromo-3-chloropropane	ND	NA	NA
4-Methyl-2-pentanone	ND	NA	NA	1,2,4-Trichlorobenzene	ND	NA	NA
Toluene	0.0393	78.6	5.4	Hexachlorobutadiene	ND	NA	NA
2-Hexanone	ND	NA	NA	1,2,3-Trichlorobenzene	ND	NA	NA
				Naphthalene	ND	NA	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0549	110
1,2-Dichloroethane-D4	0.0571	114
Toluene-D8	0.0496	99.2
Bromofluorobenzene	0.0491	98.2

ND = Not Detected, NA = Not Analyzed or Not Applicable

10/19/2013

ChemSolutions LLC

Table 17

Matrix Spike Results

Project ID: STN097

Client Project ID: 212205045 WDEQ-Lobell

Sample Matrix: Soil

Date Sampled: 10/7/13

Date Received: 10/9/13

Date Analyzed: 10/11/13

EPA Method 8015C	TE-101-15'		TE-101-15'			
ANALYTE	MATRIX SPIKE	% RECOVERY	MATRIX SPIKE DUP	% RECOVERY	%RSD	UNITS
TPH-DRO	92.8	92.8	88.0	88.0	5.31	mg/Kg
Surrogate Recoveries						
1-chlorooctadecane	47.1	94.2	45.4	90.8	NA	mg/Kg

End of Report

Chain of Custody

ChemSolutions

7388 S. Revere Pkwy, #806
Centennial, CO 80112
Email: john@chemmobile.com
Phone: 303-771-5570
Fax: 303-771-5574

Client Name & Address: Russ Cirillo/Stantec 2000 South Colorado Blvd. Suite 2-200 Denver CO 80222	Client Project Name & Location: WDEQ-Lobell Casper, WY	ChemSolutions Project #: STN097
Contact: Russ Cirillo	Sampler: Chris Beall CAB	Location Received: Base Lab
Phone #: 720-934-5680	Client Project Number: 212205045	Custody Seals: Intact
E-mail: russ.cirillo@stantec.com	Invoice to: Russ Cirillo/Stantec	Temperature Upon Receipt: 4°C

Sample ID	Date Sampled	Time Sampled	Grab or Comp	Matrix	# of Containers	VOC (8260B)	TPH-DRO (8015B)*						Remarks
TE-101-15'	100713	1530	Grab	Soil	2	X	X						*All TPH DRO run for C10-C32
TE-102-15'	100713	1550	Grab	Soil	2	X	X						
TE-103-8'	100713	1605	Grab	Soil	2	X	X						
TE-104-15'	100713	1615	Grab	Soil	2	X	X						
TE-105-15'	100713	1630	Grab	Soil	2	X	X						

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	100813	1630	[signature]	10/9/13	1000
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Shipped via Fed Ex.

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11/5/2013
Mr. Pat Vaughan
Stantec Consulting Corporation
9400 SW Barnes Road
Suite 200
Portland OR 97225

Project Name: Lobell
Project #:
Workorder #: 1310418B

Dear Mr. Pat Vaughan

The following report includes the data for the above referenced project for sample(s) received on 10/18/2013 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1310418B

Work Order Summary

CLIENT:	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225	**BILL TO:**	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225
PHONE:	503-297-1631	**P.O. #**	212205045
FAX:	503-297-5429	**PROJECT #**	Lobell
DATE RECEIVED:	10/18/2013	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/05/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSG-1	Modified ASTM D-1946	8.0 "Hg	15 psi
02A	SSG-2	Modified ASTM D-1946	7.0 "Hg	15 psi
03A	SSG-3	Modified ASTM D-1946	1.0 "Hg	15 psi
04A	SSG-4	Modified ASTM D-1946	3.0 "Hg	15 psi
05A	Lab Blank	Modified ASTM D-1946	NA	NA
05B	Lab Blank	Modified ASTM D-1946	NA	NA
06A	LCS	Modified ASTM D-1946	NA	NA
06AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 11/05/13

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
Stantec Consulting Corporation
Workorder# 1310418B

Four 1 Liter Summa Canister samples were received on October 18, 2013. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The reporting limit for Nitrogen was raised from 0.10% to 0.50%.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: SSG-1

Lab ID#: 1310418B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.28	19
Nitrogen	1.4	79
Carbon Dioxide	0.028	1.3
Helium	0.14	0.25

Client Sample ID: SSG-2

Lab ID#: 1310418B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	17
Nitrogen	1.3	81
Carbon Dioxide	0.026	2.2

Client Sample ID: SSG-3

Lab ID#: 1310418B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	21
Nitrogen	1.0	79
Carbon Dioxide	0.021	0.40

Client Sample ID: SSG-4

Lab ID#: 1310418B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	21
Nitrogen	1.1	78
Carbon Dioxide	0.022	0.24
Helium	0.11	1.1

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Client Sample ID: SSG-1

Lab ID#: 1310418B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102905**	**Date of Collection:**	**10/16/13 9:57:00 AM**
Dil. Factor:	**2.76**	**Date of Analysis:**	**10/29/13 10:30 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.28	19
Nitrogen	1.4	79
Carbon Dioxide	0.028	1.3
Methane	0.00028	Not Detected
Helium	0.14	0.25

Container Type: 1 Liter Summa Canister

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Client Sample ID: SSG-2

Lab ID#: 1310418B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102906**	**Date of Collection:**	**10/16/13 10:41:00 AM**
Dil. Factor:	**2.64**	**Date of Analysis:**	**10/29/13 10:57 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.26	17
Nitrogen	1.3	81
Carbon Dioxide	0.026	2.2
Methane	0.00026	Not Detected
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister

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Client Sample ID: SSG-3

Lab ID#: 1310418B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102907**	**Date of Collection:**	**10/16/13 2:20:00 PM**
Dil. Factor:	**2.09**	**Date of Analysis:**	**10/29/13 11:21 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.21	21
Nitrogen	1.0	79
Carbon Dioxide	0.021	0.40
Methane	0.00021	Not Detected
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister

eurofins | Air Toxics

Client Sample ID: SSG-4

Lab ID#: 1310418B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102908**	**Date of Collection:**	**10/16/13 1:53:00 PM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**10/29/13 11:46 AM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.22	21
Nitrogen	1.1	78
Carbon Dioxide	0.022	0.24
Methane	0.00022	Not Detected
Helium	0.11	1.1

Container Type: 1 Liter Summa Canister

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1310418B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 10:05 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Nitrogen	0.50	Not Detected
Carbon Dioxide	0.010	Not Detected
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1310418B-05B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10110503c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 09:55 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1310418B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 09:13 AM**	

Compound	%Recovery	Method Limits
Oxygen	100	85-115
Nitrogen	100	85-115
Carbon Dioxide	102	85-115
Methane	99	85-115
Helium	99	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1310418B-06AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10102926**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 08:10 PM**	

Compound	**%Recovery**	**Method Limits**
Oxygen	99	85-115
Nitrogen	101	85-115
Carbon Dioxide	102	85-115
Methane	100	85-115
Helium	99	85-115

Container Type: NA - Not Applicable

eurofins | Air Toxics

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ___ of ___

Project Manager: Russ Cirillo
Collected by: (Print and Sign) B. Collins
Company: Stantec Consulting
Email: Russ.Cirillo@stantec.com
Address: 2000 S. Colorado 2-300
City: Denver
State: CO
Zip: 80222
Phone: 303 285 6100
Fax:

Project Info:
P.O. # 227205045
Project #:
Project Name: Lobell

Turn Around Time:
☐ Normal
☐ Rush
___ specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Rec'd pl.	Final psi
01A	SSG-1	37799	10/16/13	0957	TO15 GCMS, Helium, TO15 SIM Ch4 No Helium	-25	-4		
02A	SSG-2	24602	10/16/13	1041		-24	-4		
03A	SSG-3	35619	10/16/13	1420		-23	-4		
04A	SSG-4	35626	10/16/13	1353		-23	-4		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
B. Collins	10/17/13	ATL	10/18/13 10:00
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes: Samples collected at 5,100' elevation

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	Good	Yes / No / None	1310418

Form 1765 rev.11

ChemSolutions

7388 S. Revere Parkway #806
Centennial, CO 80112
303.771.5570

October 31, 2013

Russ Cirillo
Stantec Consulting
2000 South Colorado Blvd.
Suite 2-300
Denver, CO 80222

RE: STN101

Dear Russ,

Enclosed please find the analytical results for the Project #212205045 water samples collected on 10/9-10/11/13.

Tables 1-63 contain the analytical results for the samples. The quality control samples are summarized in Tables 64-76 and Appendix A.

Thank you for the opportunity to work on this project. Please call if you have any questions. The invoice will follow shortly.

Sincerely,

John Graves
Laboratory Director
ChemSolutions LLC

10/31/13

ChemSolutions LLC

TABLE 1

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-04-100913 | Date Sampled: 10/9/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18-10/19/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	290	20
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	54	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	56	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	103
1,2-Dichloroethane-D4	105
Toluene-D8	99.6
Bromofluorobenzene	104

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 2

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-04-100913
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.043	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	2.8	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	32.4
Phenol-d5	27.2
Nitrobenzene-d5	38.4
2-Fluorobiphenyl	41.4
2,4,6-Tribromophenol	78.8
Terphenyl-d14	88.2

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 3
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-04-100913
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/9/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C
Mercury	0.00053	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.042	0.020	mg/L	10/29/2013	6010B
Barium	1.1	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.076	0.010	mg/L	10/29/2013	6010B
Lead	0.068	0.0050	mg/L	10/29/2013	6010B
Selenium	ND	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	72.5	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 4

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-07-100913 | Date Sampled: 10/9/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/19/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	50	trans-1,3-Dichloropropene	ND	50
Chloromethane	ND	50	1,1,2-Trichloroethane	ND	20
Vinyl Chloride	ND	20	Tetrachloroethene	800	20
Bromomethane	ND	50	Dibromochloromethane	ND	50
Chloroethane	ND	50	1,2-Dibromoethane	ND	50
Trichlorofluoromethane	ND	50	Chlorobenzene	ND	20
Acetone	ND	200	1,1,1,2-Tetrachloroethane	ND	50
1,1-Dichloroethene	ND	50	Ethylbenzene	ND	50
Carbon Disulfide	ND	50	Total Xylene	ND	50
Methyl-tert-butyl ether	ND	20	Styrene	ND	50
Methylene Chloride	ND	50	Isopropylbenzene	ND	50
trans-1,2-Dichloroethene	ND	20	Bromoform	ND	50
1,1-Dichloroethane	ND	20	n-Propylbenzene	ND	50
Vinyl acetate	ND	100	1,2,3-Trichloropropane	ND	50
2-Butanone	ND	100	2-Chlorotoluene	ND	50
cis-1,2-Dichloroethene	ND	20	1,3,5-Trimethylbenzene	ND	50
Chloroform	ND	50	4-Chlorotoluene	ND	50
Tetrahydrofuran	ND	100	t-Butylbenzene	ND	50
1,1,1-Trichloroethane	ND	20	1,2,4-Trimethylbenzene	ND	50
Carbon Tetrachloride	ND	20	sec-Butylbenzene	ND	50
Benzene	ND	20	p-Isopropyltoluene	ND	50
1,2-Dichloroethane	ND	20	1,1,2,2-Tetrachloroethane	ND	50
Trichloroethene	ND	20	1,3-Dichlorobenzene	ND	50
1,2-Dichloropropane	ND	50	1,4-Dichlorobenzene	ND	50
Dibromomethane	ND	50	n-Butylbenzene	ND	50
Bromodichloromethane	ND	50	1,2 Dichlorobenzene	ND	50
cis-1,3-Dichloropropene	ND	50	1,2-Dibromo-3-chloropropane	ND	50
4-Methyl-2-pentanone	ND	100	1,2,4-Trichlorobenzene	ND	50
Toluene	ND	50	Hexachlorobutadiene	ND	50
2-Hexanone	ND	100	1,2,3-Trichlorobenzene	ND	50
			Naphthalene	ND	50

Surrogate	% Recovery
Dibromofluoromethane	123
1,2-Dichloroethane-D4	116
Toluene-D8	116
Bromofluorobenzene	112

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 5

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-07-100913
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.012	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	51.2
Phenol-d5	45.0
Nitrobenzene-d5	57.4
2-Fluorobiphenyl	53.4
2,4,6-Tribromophenol	71.3
Terphenyl-d14	89.2

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 6
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-07-100913
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/9/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.044	0.020	mg/L	10/29/2013	6010B
Barium	0.88	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.070	0.010	mg/L	10/29/2013	6010B
Lead	0.069	0.0050	mg/L	10/29/2013	6010B
Selenium	0.039	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	81.2	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 7

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-10-100913 | Date Sampled: 10/9/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/20/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	50	trans-1,3-Dichloropropene	ND	50
Chloromethane	ND	50	1,1,2-Trichloroethane	ND	20
Vinyl Chloride	ND	20	Tetrachloroethene	480	20
Bromomethane	ND	50	Dibromochloromethane	ND	50
Chloroethane	ND	50	1,2-Dibromoethane	ND	50
Trichlorofluoromethane	ND	50	Chlorobenzene	ND	20
Acetone	ND	200	1,1,1,2-Tetrachloroethane	ND	50
1,1-Dichloroethene	ND	50	Ethylbenzene	ND	50
Carbon Disulfide	ND	50	Total Xylene	ND	50
Methyl-tert-butyl ether	ND	20	Styrene	ND	50
Methylene Chloride	ND	50	Isopropylbenzene	ND	50
trans-1,2-Dichloroethene	ND	20	Bromoform	ND	50
1,1-Dichloroethane	ND	20	n-Propylbenzene	ND	50
Vinyl acetate	ND	100	1,2,3-Trichloropropane	ND	50
2-Butanone	ND	100	2-Chlorotoluene	ND	50
cis-1,2-Dichloroethene	ND	20	1,3,5-Trimethylbenzene	ND	50
Chloroform	ND	50	4-Chlorotoluene	ND	50
Tetrahydrofuran	ND	100	t-Butylbenzene	ND	50
1,1,1-Trichloroethane	ND	20	1,2,4-Trimethylbenzene	ND	50
Carbon Tetrachloride	ND	20	sec-Butylbenzene	ND	50
Benzene	ND	20	p-Isopropyltoluene	ND	50
1,2-Dichloroethane	ND	20	1,1,2,2-Tetrachloroethane	ND	50
Trichloroethene	ND	20	1,3-Dichlorobenzene	ND	50
1,2-Dichloropropane	ND	50	1,4-Dichlorobenzene	ND	50
Dibromomethane	ND	50	n-Butylbenzene	ND	50
Bromodichloromethane	ND	50	1,2 Dichlorobenzene	ND	50
cis-1,3-Dichloropropene	ND	50	1,2-Dibromo-3-chloropropane	ND	50
4-Methyl-2-pentanone	ND	100	1,2,4-Trichlorobenzene	ND	50
Toluene	ND	50	Hexachlorobutadiene	ND	50
2-Hexanone	ND	100	1,2,3-Trichlorobenzene	ND	50
			Naphthalene	ND	50

Surrogate	% Recovery
Dibromofluoromethane	101
1,2-Dichloroethane-D4	109
Toluene-D8	134
Bromofluorobenzene	101

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 8

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-10-100913
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.012	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	42.7
Phenol-d5	32.2
Nitrobenzene-d5	53.6
2-Fluorobiphenyl	50.0
2,4,6-Tribromophenol	71.8
Terphenyl-d14	66.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 9
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-10-100913
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/9/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.040	0.020	mg/L	10/29/2013	6010B
Barium	0.72	0.0050	mg/L	10/29/2013	6010B
Cadmium	0.0059	0.0050	mg/L	10/29/2013	6010B
Chromium	0.058	0.010	mg/L	10/29/2013	6010B
Lead	0.043	0.0050	mg/L	10/29/2013	6010B
Selenium	0.081	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	78.7	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

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TABLE 10

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-03-100913 | Date Sampled: 10/9/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	103
1,2-Dichloroethane-D4	108
Toluene-D8	100
Bromofluorobenzene	107

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 11

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-03-100913
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.028	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.026	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	45.4
Phenol-d5	32.0
Nitrobenzene-d5	54.6
2-Fluorobiphenyl	50.0
2,4,6-Tribromophenol	76.4
Terphenyl-d14	79.4

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 12
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-03-100913
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/9/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	ND	0.020	mg/L	10/29/2013	6010B
Barium	0.10	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.029	0.010	mg/L	10/29/2013	6010B
Lead	0.044	0.0050	mg/L	10/29/2013	6010B
Selenium	0.035	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	70.2	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

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ChemSolutions LLC

TABLE 13

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: BDS-1-100913 | Date Sampled: 10/9/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/20/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	25	trans-1,3-Dichloropropene	ND	25
Chloromethane	ND	25	1,1,2-Trichloroethane	ND	10
Vinyl Chloride	ND	10	Tetrachloroethene	710	10
Bromomethane	ND	25	Dibromochloromethane	ND	25
Chloroethane	ND	25	1,2-Dibromoethane	ND	25
Trichlorofluoromethane	ND	25	Chlorobenzene	ND	10
Acetone	ND	100	1,1,1,2-Tetrachloroethane	ND	25
1,1-Dichloroethene	ND	25	Ethylbenzene	ND	25
Carbon Disulfide	ND	25	Total Xylene	ND	25
Methyl-tert-butyl ether	ND	10	Styrene	ND	25
Methylene Chloride	ND	25	Isopropylbenzene	ND	25
trans-1,2-Dichloroethene	ND	10	Bromoform	ND	25
1,1-Dichloroethane	ND	10	n-Propylbenzene	ND	25
Vinyl acetate	ND	50	1,2,3-Trichloropropane	ND	25
2-Butanone	ND	50	2-Chlorotoluene	ND	25
cis-1,2-Dichloroethene	ND	10	1,3,5-Trimethylbenzene	ND	25
Chloroform	ND	25	4-Chlorotoluene	ND	25
Tetrahydrofuran	ND	50	t-Butylbenzene	ND	25
1,1,1-Trichloroethane	ND	10	1,2,4-Trimethylbenzene	ND	25
Carbon Tetrachloride	ND	10	sec-Butylbenzene	ND	25
Benzene	ND	10	p-Isopropyltoluene	ND	25
1,2-Dichloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	25
Trichloroethene	ND	10	1,3-Dichlorobenzene	ND	25
1,2-Dichloropropane	ND	25	1,4-Dichlorobenzene	ND	25
Dibromomethane	ND	25	n-Butylbenzene	ND	25
Bromodichloromethane	ND	25	1,2 Dichlorobenzene	ND	25
cis-1,3-Dichloropropene	ND	25	1,2-Dibromo-3-chloropropane	ND	25
4-Methyl-2-pentanone	ND	50	1,2,4-Trichlorobenzene	ND	25
Toluene	ND	25	Hexachlorobutadiene	ND	25
2-Hexanone	ND	50	1,2,3-Trichlorobenzene	ND	25
			Naphthalene	ND	25

Surrogate	% Recovery
Dibromofluoromethane	95.8
1,2-Dichloroethane-D4	105
Toluene-D8	80.7
Bromofluorobenzene	133

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 14

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: BDS-1-100913
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.013	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.023	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	45.3
Phenol-d5	34.4
Nitrobenzene-d5	56.0
2-Fluorobiphenyl	56.8
2,4,6-Tribromophenol	68.1
Terphenyl-d14	73.4

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 15
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: BDS-1-100913
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/9/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	ND	0.020	mg/L	10/29/2013	6010B
Barium	0.18	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.016	0.010	mg/L	10/29/2013	6010B
Lead	0.012	0.0050	mg/L	10/29/2013	6010B
Selenium	0.078	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	63.1	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 16

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-06-101013 | Date Sampled: 10/10/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18-10/19/13/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	260	20
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	130	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	79	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	105
1,2-Dichloroethane-D4	109
Toluene-D8	101
Bromofluorobenzene	108

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 17

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-06-101013
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.012	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	38.9
Phenol-d5	29.1
Nitrobenzene-d5	45.8
2-Fluorobiphenyl	42.6
2,4,6-Tribromophenol	64.5
Terphenyl-d14	68.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 18
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-06-101013
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/10/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	ND	0.020	mg/L	10/29/2013	6010B
Barium	0.32	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.032	0.010	mg/L	10/29/2013	6010B
Lead	0.061	0.0050	mg/L	10/29/2013	6010B
Selenium	0.041	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	68.1	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 19

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-01-101013 | Date Sampled: 10/10/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/19/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	18	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	103
1,2-Dichloroethane-D4	121
Toluene-D8	127
Bromofluorobenzene	111

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 20

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-01-101013
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	0.52	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	0.17	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	0.17	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	0.11	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.14	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	0.12	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	49.2
Phenol-d5	51.5
Nitrobenzene-d5	54.8
2-Fluorobiphenyl	69.6
2,4,6-Tribromophenol	95.8
Terphenyl-d14	84.8

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 21
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-01-101013
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/10/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	0.92	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	ND	0.020	mg/L	10/29/2013	6010B
Barium	0.13	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	ND	0.010	mg/L	10/29/2013	6010B
Lead	0.0066	0.0050	mg/L	10/29/2013	6010B
Selenium	0.052	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	68.9	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 22

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-02-101013 | Date Sampled: 10/10/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	51	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	101
1,2-Dichloroethane-D4	109
Toluene-D8	98.6
Bromofluorobenzene	107

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 23

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-02-101013
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.046	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	2.8	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	4.8	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	35.1
Phenol-d5	29.4
Nitrobenzene-d5	42.6
2-Fluorobiphenyl	37.8
2,4,6-Tribromophenol	62.7
Terphenyl-d14	59.4

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 24
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-02-101013
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/10/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.16	0.020	mg/L	10/29/2013	6010B
Barium	7.4	0.0050	mg/L	10/29/2013	6010B
Cadmium	0.0085	0.0050	mg/L	10/29/2013	6010B
Chromium	0.52	0.010	mg/L	10/29/2013	6010B
Lead	0.31	0.0050	mg/L	10/29/2013	6010B
Selenium	0.042	0.020	mg/L	10/30/2013	6010B
Silver	ND	0.010	mg/L	10/30/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	68.0	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 25

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-08-101013 | Date Sampled: 10/10/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	2.8	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	105
1,2-Dichloroethane-D4	114
Toluene-D8	102
Bromofluorobenzene	108

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 26

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-08-101013
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	41.7
Phenol-d5	37.1
Nitrobenzene-d5	44.2
2-Fluorobiphenyl	43.6
2,4,6-Tribromophenol	62.5
Terphenyl-d14	74.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 27
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-08-101013
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/10/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.10	0.020	mg/L	10/29/2013	6010B
Barium	2.5	0.0050	mg/L	10/29/2013	6010B
Cadmium	0.0057	0.0050	mg/L	10/29/2013	6010B
Chromium	0.19	0.010	mg/L	10/29/2013	6010B
Lead	0.20	0.0050	mg/L	10/29/2013	6010B
Selenium	0.036	0.020	mg/L	10/30/2013	6010B
Silver	ND	0.010	mg/L	10/30/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	82.5	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 28

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-09-101013 | Date Sampled: 10/10/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	4.3	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	106
1,2-Dichloroethane-D4	117
Toluene-D8	97.8
Bromofluorobenzene	109

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 29

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-09-101013
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	48.0
Phenol-d5	39.6
Nitrobenzene-d5	58.8
2-Fluorobiphenyl	55.6
2,4,6-Tribromophenol	74.7
Terphenyl-d14	85.4

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 30
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-09-101013
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/10/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.075	0.020	mg/L	10/29/2013	6010B
Barium	1.4	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.15	0.010	mg/L	10/29/2013	6010B
Lead	0.14	0.0050	mg/L	10/29/2013	6010B
Selenium	0.39	0.020	mg/L	10/30/2013	6010B
Silver	ND	0.010	mg/L	10/30/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	70.6	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 31

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-11-101013
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Analyzed: 10/18/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	111
1,2-Dichloroethane-D4	117
Toluene-D8	98.4
Bromofluorobenzene	111

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 32

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-11-101013
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.020	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	53.9
Phenol-d5	46.1
Nitrobenzene-d5	58.8
2-Fluorobiphenyl	54.4
2,4,6-Tribromophenol	77.5
Terphenyl-d14	71.8

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 33
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-11-101013
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/10/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.049	0.020	mg/L	10/29/2013	6010B
Barium	1.2	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.095	0.010	mg/L	10/29/2013	6010B
Lead	0.10	0.0050	mg/L	10/29/2013	6010B
Selenium	ND	0.020	mg/L	10/30/2013	6010B
Silver	ND	0.010	mg/L	10/30/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	61.5	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 34

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-106-101113 | Date Sampled: 10/11/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/18/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	56.0	112
1,2-Dichloroethane-D4	60.4	121
Toluene-D8	50.3	101
Bromofluorobenzene	54.3	109

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 35

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-106-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/26/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	47.3
Phenol-d5	35.6
Nitrobenzene-d5	53.6
2-Fluorobiphenyl	49.2
2,4,6-Tribromophenol	63.1
Terphenyl-d14	66.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 36
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-106-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.020	0.020	mg/L	10/29/2013	6010B
Barium	0.36	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.025	0.010	mg/L	10/29/2013	6010B
Lead	0.042	0.0050	mg/L	10/29/2013	6010B
Selenium	ND	0.020	mg/L	10/30/2013	6010B
Silver	ND	0.010	mg/L	10/30/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	80.1	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 37

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-102-101113
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	114
1,2-Dichloroethane-D4	128
Toluene-D8	101
Bromofluorobenzene	110

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 38

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-102-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	3.7	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	42.5
Phenol-d5	33.3
Nitrobenzene-d5	52.4
2-Fluorobiphenyl	49.2
2,4,6-Tribromophenol	75.3
Terphenyl-d14	81.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 39
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-102-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.045	0.020	mg/L	10/29/2013	6010B
Barium	1.1	0.0050	mg/L	10/29/2013	6010B
Cadmium	0.0055	0.0050	mg/L	10/29/2013	6010B
Chromium	0.10	0.010	mg/L	10/29/2013	6010B
Lead	0.064	0.0050	mg/L	10/29/2013	6010B
Selenium	0.032	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	51.5	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 40

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-101-101113 | Date Sampled: 10/11/13

Client Project ID: WDEQ-Lobell | Date Received: 10/12/13

EPA Method 8260C | Date Analyzed: 10/18/13

Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	105
1,2-Dichloroethane-D4	116
Toluene-D8	100
Bromofluorobenzene	105

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 41

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-101-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	33.4
Phenol-d5	38.6
Nitrobenzene-d5	39.6
2-Fluorobiphenyl	42.4
2,4,6-Tribromophenol	57.3
Terphenyl-d14	55.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 42
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-101-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.024	0.020	mg/L	10/29/2013	6010B
Barium	0.81	0.0050	mg/L	10/29/2013	6010B
Cadmium	ND	0.0050	mg/L	10/29/2013	6010B
Chromium	0.047	0.010	mg/L	10/29/2013	6010B
Lead	0.042	0.0050	mg/L	10/29/2013	6010B
Selenium	0.048	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	62.2	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 43

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-103-101113
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Analyzed: 10/20/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	85.0
1,2-Dichloroethane-D4	89.0
Toluene-D8	135
Bromofluorobenzene	102

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 44

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-103-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.5
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.5
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.018	0.5
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.5
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	38.8
Phenol-d5	26.9
Nitrobenzene-d5	46.6
2-Fluorobiphenyl	44.8
2,4,6-Tribromophenol	63.8
Terphenyl-d14	72.4

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 45
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-103-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.051	0.020	mg/L	10/29/2013	6010B
Barium	1.5	0.0050	mg/L	10/29/2013	6010B
Cadmium	0.0058	0.0050	mg/L	10/29/2013	6010B
Chromium	0.098	0.010	mg/L	10/29/2013	6010B
Lead	0.065	0.0050	mg/L	10/29/2013	6010B
Selenium	ND	0.020	mg/L	10/29/2013	6010B
Silver	ND	0.010	mg/L	10/29/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	77.0	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 46

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-105-101113
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Analyzed: 10/18/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	160	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	2.4	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	107
1,2-Dichloroethane-D4	115
Toluene-D8	98.6
Bromofluorobenzene	110

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 47

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-105-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.018	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	0.14	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.19	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	29.5
Phenol-d5	23.6
Nitrobenzene-d5	37.6
2-Fluorobiphenyl	35.0
2,4,6-Tribromophenol	60.7
Terphenyl-d14	49.2

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 48
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-105-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.038 O1,P1	0.020	mg/L	10/28/2013	6010B
Barium	1 O1	0.0050	mg/L	10/28/2013	6010B
Cadmium	0.0051	0.0050	mg/L	10/28/2013	6010B
Chromium	0.094 O1	0.010	mg/L	10/28/2013	6010B
Lead	0.049	0.0050	mg/L	10/28/2013	6010B
Selenium	ND	0.020	mg/L	10/28/2013	6010B
Silver	ND O1,J3,J6	0.010	mg/L	10/28/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	70.3	8015C-DRO

ND=Not Detected
O1=The analyte failed both the method required serial dilution test and subsequent post-spike criteria. These failures indicate matrix interference.
P1=RPD value not applicable for sample concentrations less than 5 times the reporting limit.
J3=The associated batch QC was outside the established quality control range for precision.
J6=The sample matrix interfered with the ability to make any accurate determination; spike value is low.
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 49

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-104-101113
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Analyzed: 10/20/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	130	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	2.2	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	106
1,2-Dichloroethane-D4	112
Toluene-D8	118
Bromofluorobenzene	102

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 50

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: MW-104-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/16/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	30.7
Phenol-d5	24.3
Nitrobenzene-d5	37.4
2-Fluorobiphenyl	38.2
2,4,6-Tribromophenol	62.7
Terphenyl-d14	58.0

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 51
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: MW-104-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.050	0.020	mg/L	10/22/2013	6010B
Barium	0.79	0.0050	mg/L	10/22/2013	6010B
Cadmium	0.011	0.0050	mg/L	10/22/2013	6010B
Chromium	0.15	0.010	mg/L	10/22/2013	6010B
Lead	0.058	0.0050	mg/L	10/22/2013	6010B
Selenium	0.044	0.020	mg/L	10/22/2013	6010B
Silver	ND	0.010	mg/L	10/22/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	76.0	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 52

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: FD-1-101113 | Date Sampled: 10/11/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/20/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	100
1,2-Dichloroethane-D4	108
Toluene-D8	132
Bromofluorobenzene	102

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 53

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: FD-1-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	0.027	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	0.013	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	43.9
Phenol-d5	32.9
Nitrobenzene-d5	52.2
2-Fluorobiphenyl	50.8
2,4,6-Tribromophenol	65.1
Terphenyl-d14	75.2

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 54
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: FD-1-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	0.046	0.020	mg/L	10/22/2013	6010B
Barium	1.1	0.0050	mg/L	10/22/2013	6010B
Cadmium	0.014	0.0050	mg/L	10/22/2013	6010B
Chromium	0.049	0.010	mg/L	10/22/2013	6010B
Lead	0.039	0.0050	mg/L	10/22/2013	6010B
Selenium	0.034	0.020	mg/L	10/22/2013	6010B
Silver	ND	0.010	mg/L	10/22/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	63.6	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 55

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: FB-1-101113
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	108
1,2-Dichloroethane-D4	117
Toluene-D8	101
Bromofluorobenzene	111

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 56

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: FB-1-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/13 & 10/27/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	35.1
Phenol-d5	25.8
Nitrobenzene-d5	42.2
2-Fluorobiphenyl	40.2
2,4,6-Tribromophenol	50.8
Terphenyl-d14	74.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 57
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: FB-1-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	ND	0.020	mg/L	10/22/2013	6010B
Barium	ND	0.0050	mg/L	10/22/2013	6010B
Cadmium	ND	0.0050	mg/L	10/22/2013	6010B
Chromium	ND	0.010	mg/L	10/22/2013	6010B
Lead	ND	0.0050	mg/L	10/22/2013	6010B
Selenium	ND	0.020	mg/L	10/22/2013	6010B
Silver	ND	0.010	mg/L	10/22/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	75.5	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 58

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: EB-1-101113 | Date Sampled: 10/11/13
Client Project ID: WDEQ-Lobell | Date Received: 10/12/13
EPA Method 8260C | Date Analyzed: 10/19/13
Units: ug/L | Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	110
1,2-Dichloroethane-D4	119
Toluene-D8	101
Bromofluorobenzene	110

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 59

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: EB-1-101113
Client Project ID: WDEQ-Lobell
EPA Method 8270D/8270SIM
Units: ug/L

Date Sampled: 10/11/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.1	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	43.3
Phenol-d5	33.5
Nitrobenzene-d5	46.4
2-Fluorobiphenyl	43.2
2,4,6-Tribromophenol	59.7
Terphenyl-d14	76.6

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 60
SAMPLE RESULTS
Project ID: STN101

Client Sample ID: EB-1-101113
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/22/2013	8015C
Mercury	ND	0.00020	mg/L	10/17/2013	7470A
Arsenic	ND	0.020	mg/L	10/22/2013	6010B
Barium	ND	0.0050	mg/L	10/22/2013	6010B
Cadmium	ND	0.0050	mg/L	10/22/2013	6010B
Chromium	ND	0.010	mg/L	10/22/2013	6010B
Lead	ND	0.0050	mg/L	10/22/2013	6010B
Selenium	ND	0.020	mg/L	10/22/2013	6010B
Silver	ND	0.010	mg/L	10/22/2013	6010B

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	82.4	8015C-DRO

ND=Not Detected
The metals analyses were performed by ESC.

10/31/13

ChemSolutions LLC

TABLE 61

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: Trip Blank-1
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: 10/12/13
Date Analyzed: 10/18/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	110
1,2-Dichloroethane-D4	120
Toluene-D8	101
Bromofluorobenzene	109

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 62

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: Trip Blank-2
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	2	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	109
1,2-Dichloroethane-D4	115
Toluene-D8	101
Bromofluorobenzene	108

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 63

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Client Sample ID: Trip Blank-3
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	2	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	112
1,2-Dichloroethane-D4	125
Toluene-D8	102
Bromofluorobenzene	105

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 64

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Sample ID: Blank
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/18/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	101
1,2-Dichloroethane-D4	106
Toluene-D8	99.6
Bromofluorobenzene	106

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 65

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Sample ID: Blank
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	108
1,2-Dichloroethane-D4	115
Toluene-D8	101
Bromofluorobenzene	105

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 66

VOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Sample ID: Blank
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/20/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	2	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	10	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	% Recovery
Dibromofluoromethane	94.4
1,2-Dichloroethane-D4	97.2
Toluene-D8	105
Bromofluorobenzene	99.0

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 67

SEMIVOLATILE ORGANIC COMPOUND RESULTS

Project ID: STN101

Sample ID: Blank
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: NA
Date Extracted: 10/15/13
Date Analyzed: 10/17/13 & 10/26/13
Sample Matrix: Water

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
N-Nitrosodimethylamine	ND	0.1	2,4-Dinitrophenol	ND	2.5
Pyridine	ND	0.5	2,4-Dinitrotoluene	ND	0.5
bis(2-Chloroethyl)ether	ND	0.01	4-Nitrophenol	ND	2.5
Phenol	ND	0.5	Fluorene	ND	0.5
2-Chlorophenol	ND	0.5	4-Chlorophenyl-phenylether	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Diethylphthalate	ND	2.5
1,4-Dichlorobenzene	ND	0.5	4,6-Dinitro-2-methylphenol	ND	0.5
1,2-Dichlorobenzene	ND	0.5	n-Nitrosodiphenylamine	ND	0.5
bis(2-chloroisopropyl)ether	ND	0.5	4-Bromophenyl-phenylether	ND	0.5
Hexachloroethane	ND	0.5	Hexachlorobenzene	ND	0.5
N-Nitroso-di-n-propylamine	ND	0.05	Pentachlorophenol	ND	0.5
Nitrobenzene	ND	0.5	Phenanthrene	ND	0.5
Isophorone	ND	0.5	Anthracene	ND	0.5
2-Nitrophenol	ND	0.5	Di-n-butylphthalate	ND	2.5
2,4-Dimethylphenol	ND	0.5	Fluoranthene	ND	0.5
2,4-Dichlorophenol	ND	0.5	Benzidine	ND	0.5
1,2,4-Trichlorobenzene	ND	0.5	Pyrene	ND	0.5
Naphthalene	ND	0.5	Butylbenzylphthalate	ND	2.5
Hexachlorobutadiene	ND	0.5	3,3'-Dichlorobenzidine	ND	0.1
4-Chloro-3-methylphenol	ND	2.5	Benzo[a]anthracene	ND	0.1
2-Methylnapthalene	ND	0.5	Chrysene	ND	0.5
1-Methylnapthalene	ND	0.5	bis(2-Ethylhexyl)phthalate	ND	2.5
Hexachlorocyclopentadiene	ND	0.5	Di-n-octylphthalate	ND	0.5
2,4,6-Trichlorophenol	ND	0.5	Benzo[b]fluoranthene	ND	0.1
2,4,5-Trichlorophenol	ND	0.5	Benzo[k]fluoranthene	ND	0.5
2-Chloronaphthalene	ND	0.5	Benzo[a]pyrene	ND	0.1
Acenaphthylene	ND	0.5	Indeno[1,2,3-cd]pyrene	ND	0.1
Dimethylphthalate	ND	0.5	Dibenz[a,h]anthracene	ND	0.01
2,6-Dinitrotoluene	ND	0.5	Benzo[g,h,i]perylene	ND	0.1
Acenaphthene	ND	0.5			

Surrogate	% Recovery
2-Fluorophenol	34.4
Phenol-d5	23.8
Nitrobenzene-d5	40.0
2-Fluorobiphenyl	33.2
2,4,6-Tribromophenol	76.8
Terphenyl-d14	

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 68
METHOD BLANK RESULTS
Project ID: STN101

Sample ID: Blank
Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: NA
Date Received: NA

ANALYTE	Concentration	Reporting Limit	Units	Date Analyzed	EPA Method
TPH-DRO (SG)	ND	0.5	mg/L	10/21/2013	8015C

Surrogate Recoveries	% Recovery	Method
1-Chlorooctadecane	85.2	8015C-DRO

ND=Not Detected

10/31/13

ChemSolutions LLC

TABLE 69

LABORATORY CONTROL SAMPLE RESULTS

Project ID: STN101

Sample ID: Water LCS
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	52.5	105
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	58.9	118	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methyl-tert-butyl ether	ND	NA	Styrene	ND	NA
Methylene Chloride	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	51.5	103	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	57.4	115	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	54.0	108	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	% Recovery
Dibromofluoromethane	108
1,2-Dichloroethane-D4	120
Toluene-D8	99.6
Bromofluorobenzene	112

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 70

LABORATORY CONTROL SAMPLE RESULTS

Project ID: STN101

Sample ID: Water LCS
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/20/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	50.1	100
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	67.3	135	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methyl-tert-butyl ether	ND	NA	Styrene	ND	NA
Methylene Chloride	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	46.3	92.6	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	48.1	96.2	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	40.9	81.8	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	% Recovery
Dibromofluoromethane	103
1,2-Dichloroethane-D4	110
Toluene-D8	81.6
Bromofluorobenzene	116

ND= Not detected

10/31/13

ChemSolutions LLC

TABLE 71

LABORATORY CONTROL SAMPLE RESULTS

Project ID: STN101

Sample ID: Water LCS
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50/100 ug/L

Date Sampled: NA
Date Received: NA
Date Extracted: 10/15/13
Date Analyzed: 10/17/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
N-Nitrosodimethylamine	ND	NA	2,4-Dinitrophenol	ND	NA
Pyridine	ND	NA	2,4-Dinitrotoluene	53.4	107
bis(2-Chloroethyl)ether	ND	NA	4-Nitrophenol	67.0	67.0
Phenol	32.3	32.3	Fluorene	ND	NA
2-Chlorophenol	53.5	53.5	4-Chlorophenyl-phenylether	ND	NA
1,3-Dichlorobenzene	ND	NA	Diethylphthalate	ND	NA
1,4-Dichlorobenzene	23.7	47.4	4,6-Dinitro-2-methylphenol	ND	NA
1,2-Dichlorobenzene	ND	NA	n-Nitrosodiphenylamine	ND	NA
bis(2-chloroisopropyl)ether	ND	NA	4-Bromophenyl-phenylether	ND	NA
Hexachloroethane	ND	NA	Hexachlorobenzene	ND	NA
N-Nitroso-di-n-propylamine	19.8	39.6	Pentachlorophenol	60.9	60.9
Nitrobenzene	ND	NA	Phenanthrene	ND	NA
Isophorone	ND	NA	Anthracene	ND	NA
2-Nitrophenol	ND	NA	Di-n-butylphthalate	ND	NA
2,4-Dimethylphenol	ND	NA	Fluoranthene	ND	NA
2,4-Dichlorophenol	ND	NA	Benzidine	ND	NA
1,2,4-Trichlorobenzene	24.9	49.8	Pyrene	36.3	72.6
Naphthalene	ND	NA	Butylbenzylphthalate	ND	NA
Hexachlorobutadiene	ND	NA	3,3'-Dichlorobenzidine	ND	NA
4-Chloro-3-methylphenol	126	126	Benzo[a]anthracene	ND	NA
2-Methylnapthalene	ND	NA	Chrysene	ND	NA
1-Methylnapthalene	ND	NA	bis(2-Ethylhexyl)phthalate	ND	NA
Hexachlorocyclopentadiene	ND	NA	Di-n-octylphthalate	ND	NA
2,4,6-Trichlorophenol	ND	NA	Benzo[b]fluoranthene	ND	NA
2,4,5-Trichlorophenol	ND	NA	Benzo[k]fluoranthene	ND	NA
2-Chloronaphthalene	ND	NA	Benzo[a]pyrene	ND	NA
Acenaphthylene	ND	NA	Indeno[1,2,3-cd]pyrene	ND	NA
Dimethylphthalate	ND	NA	Dibenz[a,h]anthracene	ND	NA
2,6-Dinitrotoluene	ND	NA	Benzo[g,h,i]perylene	ND	NA
Acenaphthene	30.3	60.6	Benzo[g,h,i]perylene	ND	NA

Surrogate	% Recovery
2-Fluorophenol	46.6
Phenol-d5	34.0
Nitrobenzene-d5	55.6
2-Fluorobiphenyl	42.6
2,4,6-Tribromophenol	69.3
Terphenyl-d14	70.8

ND= Not detected

10/31/13

ChemSolutions LLC
TABLE 72
LABORATORY CONTROL SAMPLE RESULTS
Project ID: STN101

Client Project ID: WDEQ-Lobell
Sample Matrix: Water

EPA Method 8015C Date Analyzed: 10/21/13

ANALYTE	LCS SPIKE	% RECOVERY	UNITS
TPH-DRO	5.49	96.1	mg/L
Surrogate Recoveries			
1-Chlorooctadecane	46.2	92.4	mg/L

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TABLE 73 (Page 1 of 2)
MATRIX SPIKE RESULTS
Project ID: STN101

Client Sample ID: MW02-101013
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	42	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	51.5	103
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	52.6	105	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methyl-tert-butyl ether	ND	NA	Styrene	ND	NA
Methylene Chloride	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	47.3	94.6	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	54.3	109	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	48.8	97.6	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	% Recovery
Dibromofluoromethane	110
1,2-Dichloroethane-D4	120
Toluene-D8	98.4
Bromofluorobenzene	110

ND = Not Detected, NA = Not Analyzed

ChemSolutions LLC
TABLE 73 (Page 2 of 2)
MATRIX SPIKE DUPLICATE RESULTS
Project ID: STN101

Client Sample ID: MW02-101013
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: 10/10/13
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	RPD	Analyte	Amount Recovered	% Recovery	RPD
Dichlorodifluoromethane	ND	NA	NA	trans-1,3-Dichloropropene	ND	NA	NA
Chloromethane	ND	NA	NA	1,1,2-Trichloroethane	ND	NA	NA
Vinyl Chloride	ND	NA	NA	Tetrachloroethene	36	NA	NA
Bromomethane	ND	NA	NA	Dibromochloromethane	ND	NA	NA
Chloroethane	ND	NA	NA	1,2-Dibromoethane	ND	NA	NA
Trichlorofluoromethane	ND	NA	NA	Chlorobenzene	53.4	107	3.6
Acetone	ND	NA	NA	1,1,1,2-Tetrachloroethane	ND	NA	NA
1,1-Dichloroethene	46.2	92.4	13.0	Ethylbenzene	ND	NA	NA
Carbon Disulfide	ND	NA	NA	Total Xylene	ND	NA	NA
Methyl-tert-butyl ether	ND	NA	NA	Styrene	ND	NA	NA
Methylene Chloride	ND	NA	NA	Isopropylbenzene	ND	NA	NA
trans-1,2-Dichloroethene	ND	NA	NA	Bromoform	ND	NA	NA
1,1-Dichloroethane	ND	NA	NA	n-Propylbenzene	ND	NA	NA
Vinyl acetate	ND	NA	NA	1,2,3-Trichloropropane	ND	NA	NA
2-Butanone	ND	NA	NA	2-Chlorotoluene	ND	NA	NA
cis-1,2-Dichloroethene	ND	NA	NA	1,3,5-Trimethylbenzene	ND	NA	NA
Chloroform	ND	NA	NA	4-Chlorotoluene	ND	NA	NA
Tetrahydrofuran	ND	NA	NA	t-Butylbenzene	ND	NA	NA
1,1,1-Trichloroethane	ND	NA	NA	1,2,4-Trimethylbenzene	ND	NA	NA
Carbon Tetrachloride	ND	NA	NA	sec-Butylbenzene	ND	NA	NA
Benzene	41.5	83.0	13.1	p-Isopropyltoluene	ND	NA	NA
1,2-Dichloroethane	ND	NA	NA	1,1,2,2-Tetrachloroethane	ND	NA	NA
Trichloroethene	61.6	123	12.6	1,3-Dichlorobenzene	ND	NA	NA
1,2-Dichloropropane	ND	NA	NA	1,4-Dichlorobenzene	ND	NA	NA
Dibromomethane	ND	NA	NA	n-Butylbenzene	ND	NA	NA
Bromodichloromethane	ND	NA	NA	1,2 Dichlorobenzene	ND	NA	NA
cis-1,3-Dichloropropene	ND	NA	NA	1,2-Dibromo-3-chloropropane	ND	NA	NA
4-Methyl-2-pentanone	ND	NA	NA	1,2,4-Trichlorobenzene	ND	NA	NA
Toluene	59.9	120	20.4	Hexachlorobutadiene	ND	NA	NA
2-Hexanone	ND	NA	NA	1,2,3-Trichlorobenzene	ND	NA	NA
				Naphthalene	ND	NA	NA

Surrogate	% Recovery
Dibromofluoromethane	114
1,2-Dichloroethane-D4	105
Toluene-D8	113
Bromofluorobenzene	109

ND = Not Detected, NA = Not Analyzed

10/31/13

ChemSolutions LLC
TABLE 74 (Page 1 of 2)
MATRIX SPIKE RESULTS
Project ID: STN101

Client Sample ID: MW03-100913
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	55.1	110
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	58.3	117	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methyl-tert-butyl ether	ND	NA	Styrene	ND	NA
Methylene Chloride	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	52.4	105	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	60.7	121	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	56.0	112	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	% Recovery
Dibromofluoromethane	107
1,2-Dichloroethane-D4	120
Toluene-D8	101
Bromofluorobenzene	108

ND = Not Detected, NA = Not Analyzed

ChemSolutions LLC
TABLE 74 (Page 2 of 2)
MATRIX SPIKE DUPLICATE RESULTS
Project ID: STN101

Client Sample ID: MW03-100913
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Analyzed: 10/19/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	RPD	Analyte	Amount Recovered	% Recovery	RPD
Dichlorodifluoromethane	ND	NA	NA	trans-1,3-Dichloropropene	ND	NA	NA
Chloromethane	ND	NA	NA	1,1,2-Trichloroethane	ND	NA	NA
Vinyl Chloride	ND	NA	NA	Tetrachloroethene	ND	NA	NA
Bromomethane	ND	NA	NA	Dibromochloromethane	ND	NA	NA
Chloroethane	ND	NA	NA	1,2-Dibromoethane	ND	NA	NA
Trichlorofluoromethane	ND	NA	NA	Chlorobenzene	54.3	109	1.5
Acetone	ND	NA	NA	1,1,1,2-Tetrachloroethane	ND	NA	NA
1,1-Dichloroethene	57.6	115	1.2	Ethylbenzene	ND	NA	NA
Carbon Disulfide	ND	NA	NA	Total Xylene	ND	NA	NA
Methyl-tert-butyl ether	ND	NA	NA	Styrene	ND	NA	NA
Methylene Chloride	ND	NA	NA	Isopropylbenzene	ND	NA	NA
trans-1,2-Dichloroethene	ND	NA	NA	Bromoform	ND	NA	NA
1,1-Dichloroethane	ND	NA	NA	n-Propylbenzene	ND	NA	NA
Vinyl acetate	ND	NA	NA	1,2,3-Trichloropropane	ND	NA	NA
2-Butanone	ND	NA	NA	2-Chlorotoluene	ND	NA	NA
cis-1,2-Dichloroethene	ND	NA	NA	1,3,5-Trimethylbenzene	ND	NA	NA
Chloroform	ND	NA	NA	4-Chlorotoluene	ND	NA	NA
Tetrahydrofuran	ND	NA	NA	t-Butylbenzene	ND	NA	NA
1,1,1-Trichloroethane	ND	NA	NA	1,2,4-Trimethylbenzene	ND	NA	NA
Carbon Tetrachloride	ND	NA	NA	sec-Butylbenzene	ND	NA	NA
Benzene	53.0	106	1.1	p-Isopropyltoluene	ND	NA	NA
1,2-Dichloroethane	ND	NA	NA	1,1,2,2-Tetrachloroethane	ND	NA	NA
Trichloroethene	60.3	121	0.7	1,3-Dichlorobenzene	ND	NA	NA
1,2-Dichloropropane	ND	NA	NA	1,4-Dichlorobenzene	ND	NA	NA
Dibromomethane	ND	NA	NA	n-Butylbenzene	ND	NA	NA
Bromodichloromethane	ND	NA	NA	1,2 Dichlorobenzene	ND	NA	NA
cis-1,3-Dichloropropene	ND	NA	NA	1,2-Dibromo-3-chloropropane	ND	NA	NA
4-Methyl-2-pentanone	ND	NA	NA	1,2,4-Trichlorobenzene	ND	NA	NA
Toluene	55.4	111	1.1	Hexachlorobutadiene	ND	NA	NA
2-Hexanone	ND	NA	NA	1,2,3-Trichlorobenzene	ND	NA	NA
				Naphthalene	ND	NA	NA

Surrogate	% Recovery
Dibromofluoromethane	111
1,2-Dichloroethane-D4	125
Toluene-D8	101
Bromofluorobenzene	108

ND = Not Detected, NA = Not Analyzed

10/31/13

ChemSolutions LLC
TABLE 75 (Page 1 of 2)
MATRIX SPIKE RESULTS
Project ID: STN101

Client Sample ID: MW07-100913
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 66.7/133 ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/13
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
N-Nitrosodimethylamine	ND	NA	2,4-Dinitrophenol	ND	NA
Pyridine	ND	NA	2,4-Dinitrotoluene	70.1	105
bis(2-Chloroethyl)ether	ND	NA	4-Nitrophenol	99.9	75.1
Phenol	58.8	44.2	Fluorene	ND	NA
2-Chlorophenol	79.9	60.1	4-Chlorophenyl-phenylether	ND	NA
1,3-Dichlorobenzene	ND	NA	Diethylphthalate	ND	NA
1,4-Dichlorobenzene	35.3	52.9	4,6-Dinitro-2-methylphenol	ND	NA
1,2-Dichlorobenzene	ND	NA	n-Nitrosodiphenylamine	ND	NA
bis(2-chloroisopropyl)ether	ND	NA	4-Bromophenyl-phenylether	ND	NA
Hexachloroethane	ND	NA	Hexachlorobenzene	ND	NA
N-Nitroso-di-n-propylamine	28.4	42.6	Pentachlorophenol	89.7	67.4
Nitrobenzene	ND	NA	Phenanthrene	ND	NA
Isophorone	ND	NA	Anthracene	ND	NA
2-Nitrophenol	ND	NA	Di-n-butylphthalate	ND	NA
2,4-Dimethylphenol	ND	NA	Fluoranthene	ND	NA
2,4-Dichlorophenol	ND	NA	Benzidine	ND	NA
1,2,4-Trichlorobenzene	37.5	56.2	Pyrene	54.5	81.7
Naphthalene	ND	NA	Butylbenzylphthalate	ND	NA
Hexachlorobutadiene	ND	NA	3,3'-Dichlorobenzidine	ND	NA
4-Chloro-3-methylphenol	169	127	Benzo[a]anthracene	ND	NA
2-Methylnapthalene	ND	NA	Chrysene	ND	NA
1-Methylnapthalene	ND	NA	bis(2-Ethylhexyl)phthalate	ND	NA
Hexachlorocyclopentadiene	ND	NA	Di-n-octylphthalate	ND	NA
2,4,6-Trichlorophenol	ND	NA	Benzo[b]fluoranthene	ND	NA
2,4,5-Trichlorophenol	ND	NA	Benzo[k]fluoranthene	ND	NA
2-Chloronaphthalene	ND	NA	Benzo[a]pyrene	ND	NA
Acenaphthylene	ND	NA	Indeno[1,2,3-cd]pyrene	ND	NA
Dimethylphthalate	ND	NA	Dibenz[a,h]anthracene	ND	NA
2,6-Dinitrotoluene	ND	NA	Benzo[g,h,i]perylene	ND	NA
Acenaphthene	43.1	64.6	Benzo[g,h,i]perylene	ND	NA

Surrogate	% Recovery
2-Fluorophenol	55.8
Phenol-d5	46.5
Nitrobenzene-d5	60.2
2-Fluorobiphenyl	51.8
2,4,6-Tribromophenol	74.9
Terphenyl-d14	78.2

ND = Not Detected, NA = Not Analyzed

ChemSolutions LLC
TABLE 75 (Page 2 of 2)
MATRIX SPIKE DUPLICATE RESULTS
Project ID: STN101

Client Sample ID: MW07-100913
Client Project ID: WDEQ-Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: 10/9/13
Date Received: 10/12/13
Date Extracted: 10/15/13
Date Analyzed: 10/17/1
Sample Matrix: Water

Analyte	Amount Recovered	% Recovery	RPD	Analyte	Amount Recovered	% Recovery	RPD
N-Nitrosodimethylamine	ND	NA	NA	2,4-Dinitrophenol	ND	NA	NA
Pyridine	ND	NA	NA	2,4-Dinitrotoluene	64.7	97.0	8.0
bis(2-Chloroethyl)ether	ND	NA	NA	4-Nitrophenol	131	98.5	26.9
Phenol	55.6	41.8	5.6	Fluorene	ND	NA	NA
2-Chlorophenol	65.1	48.9	20.4	4-Chlorophenyl-phenylether	ND	NA	NA
1,3-Dichlorobenzene	ND	NA	NA	Diethylphthalate	ND	NA	NA
1,4-Dichlorobenzene	32.9	49.3	7.0	4,6-Dinitro-2-methylphenol	ND	NA	NA
1,2-Dichlorobenzene	ND	NA	NA	n-Nitrosodiphenylamine	ND	NA	NA
bis(2-chloroisopropyl)ether	ND	NA	NA	4-Bromophenyl-phenylether	ND	NA	NA
Hexachloroethane	ND	NA	NA	Hexachlorobenzene	ND	NA	NA
N-Nitroso-di-n-propylamine	24.1	36.1	16.4	Pentachlorophenol	87.3	65.6	2.7
Nitrobenzene	ND	NA	NA	Phenanthrene	ND	NA	NA
Isophorone	ND	NA	NA	Anthracene	ND	NA	NA
2-Nitrophenol	ND	NA	NA	Di-n-butylphthalate	ND	NA	NA
2,4-Dimethylphenol	ND	NA	NA	Fluoranthene	ND	NA	NA
2,4-Dichlorophenol	ND	NA	NA	Benzidine	ND	NA	NA
1,2,4-Trichlorobenzene	33.9	50.8	10.1	Pyrene	52.8	79.2	3.2
Naphthalene	ND	NA	NA	Butylbenzylphthalate	ND	NA	NA
Hexachlorobutadiene	ND	NA	NA	3,3'-Dichlorobenzidine	ND	NA	NA
4-Chloro-3-methylphenol	111	83.5	41.4	Benzo[a]anthracene	ND	NA	NA
2-Methylnapthalene	ND	NA	NA	Chrysene	ND	NA	NA
1-Methylnapthalene	ND	NA	NA	bis(2-Ethylhexyl)phthalate	ND	NA	NA
Hexachlorocyclopentadiene	ND	NA	NA	Di-n-octylphthalate	ND	NA	NA
2,4,6-Trichlorophenol	ND	NA	NA	Benzo[b]fluoranthene	ND	NA	NA
2,4,5-Trichlorophenol	ND	NA	NA	Benzo[k]fluoranthene	ND	NA	NA
2-Chloronaphthalene	ND	NA	NA	Benzo[a]pyrene	ND	NA	NA
Acenaphthylene	ND	NA	NA	Indeno[1,2,3-cd]pyrene	ND	NA	NA
Dimethylphthalate	ND	NA	NA	Dibenz[a,h]anthracene	ND	NA	NA
2,6-Dinitrotoluene	ND	NA	NA	Benzo[g,h,i]perylene	ND	NA	NA
Acenaphthene	37.3	55.9	14.4	Benzo[g,h,i]perylene	ND	NA	NA

Surrogate	% Recovery
2-Fluorophenol	49.6
Phenol-d5	43.8
Nitrobenzene-d5	49.8
2-Fluorobiphenyl	45.6
2,4,6-Tribromophenol	67.5
Terphenyl-d14	79.6

ND = Not Detected, NA = Not Analyzed

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TABLE 76
MATRIX SPIKE RESULTS
Project ID: STN101

Client Project ID: WDEQ-Lobell
Sample Matrix: Water

Date Sampled: 10/11/13
Date Received: 10/12/13

EPA Method 8015C	MW-105-101113		MW-105-101113		Date Analyzed:	
ANALYTE	MATRIX SPIKE	% RECOVERY	MATRIX SPIKE DUP	% RECOVERY	%RSD	UNITS
TPH-DRO	3.88	68.0	4.02	70.4	3.54	mg/L
Surrogate Recoveries						
1-Chlorooctadecane	29.3	58.6	33.8	67.6	NA	mg/L

End of Report

APPENDIX A

METALS QUALITY CONTROL DATA

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Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Mercury	< .0002	mg/l			WG687267	10/17/13 09:58
Mercury	< .0002	mg/l			WG687268	10/17/13 12:07
Arsenic	< .02	mg/l			WG687869	10/22/13 00:48
Barium	< .005	mg/l			WG687869	10/22/13 00:48
Cadmium	< .005	mg/l			WG687869	10/22/13 00:48
Chromium	< .01	mg/l			WG687869	10/22/13 00:48
Lead	< .005	mg/l			WG687869	10/22/13 00:48
Selenium	< .02	mg/l			WG687869	10/22/13 00:48
Silver	< .01	mg/l			WG687869	10/22/13 00:48
Arsenic	< .02	mg/l			WG689421	10/29/13 08:05
Chromium	< .01	mg/l			WG689421	10/29/13 08:05
Selenium	< .02	mg/l			WG689421	10/29/13 08:05
Silver	< .01	mg/l			WG689421	10/29/13 08:05
Arsenic	< .02	mg/l			WG689360	10/28/13 23:13
Barium	< .005	mg/l			WG689360	10/28/13 23:13
Cadmium	< .005	mg/l			WG689360	10/28/13 23:13
Chromium	< .01	mg/l			WG689360	10/28/13 23:13
Lead	< .005	mg/l			WG689360	10/28/13 23:13
Selenium	< .02	mg/l			WG689360	10/28/13 23:13
Silver	< .01	mg/l			WG689360	10/28/13 23:13
Arsenic	< .02	mg/l			WG689424	10/29/13 12:33
Barium	< .005	mg/l			WG689424	10/29/13 12:33
Cadmium	< .005	mg/l			WG689424	10/29/13 12:33
Chromium	< .01	mg/l			WG689424	10/29/13 12:33
Lead	< .005	mg/l			WG689424	10/29/13 12:33
Selenium	< .02	mg/l			WG689560	10/30/13 01:24
Silver	< .01	mg/l			WG689560	10/30/13 01:24

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Mercury	mg/l	0.0	0.0000254	5.22	20	L663032-02	WG687267
Mercury	mg/l	0.0	0.0000483	41.4*	20	L663252-02	WG687268
Arsenic	mg/l	0.0	0.00719	64.0*	20	L663166-02	WG687869
Barium	mg/l	0.150	0.157	5.00	20	L663166-02	WG687869
Cadmium	mg/l	0.0	-0.00104	49.0*	20	L663166-02	WG687869
Chromium	mg/l	0.0	0.00403	7.00	20	L663166-02	WG687869
Lead	mg/l	0.00930	0.00950	2.00	20	L663166-02	WG687869
Selenium	mg/l	0.0240	0.0261	6.00	20	L663166-02	WG687869
Silver	mg/l	0.0	-0.000414	344.*	20	L663166-02	WG687869
Arsenic	mg/l	0.0	0.00850	27.0*	20	L665265-02	WG689421

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
			Duplicate				
Chromium	mg/l	0.0	0.00506	22.0*	20	L665265-02	WG689421
Selenium	mg/l	0.0250	0.0341	30.0*	20	L665265-02	WG689421
Silver	mg/l	0.0120	-0.00113	240.*	20	L665265-02	WG689421
Arsenic	mg/l	0.0280	0.0375	28.0*	20	L663156-16	WG689360
Barium	mg/l	1.10	1.05	2.00	20	L663156-16	WG689360
Cadmium	mg/l	0.0	0.00509	8.00	20	L663156-16	WG689360
Chromium	mg/l	0.0940	0.0939	0.0	20	L663156-16	WG689360
Lead	mg/l	0.0550	0.0493	11.0	20	L663156-16	WG689360
Selenium	mg/l	0.0	0.0120	44.0*	20	L663156-16	WG689360
Silver	mg/l	0.0	-0.00238	33.0*	20	L663156-16	WG689360
Arsenic	mg/l	0.0	0.00694	19.0	20	L664605-01	WG689424
Barium	mg/l	0.0200	0.0196	1.00	20	L664605-01	WG689424
Cadmium	mg/l	0.0	-0.0000353	325.*	20	L664605-01	WG689424
Chromium	mg/l	0.0	-0.000785	36.0*	20	L664605-01	WG689424
Lead	mg/l	0.0	0.00336	39.0*	20	L664605-01	WG689424
Selenium	mg/l	0.0	0.0139	114.*	20	L663804-06	WG689560
Silver	mg/l	0.0	0.00460	40.0*	20	L663804-06	WG689560

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
			Laboratory Control Sample			
Mercury	mg/l	.003	0.00324	108.	85-115	WG687267
Mercury	mg/l	.003	0.00289	96.5	85-115	WG687268
Arsenic	mg/l	1	1.01	101.	85-115	WG687869
Barium	mg/l	1	1.09	109.	85-115	WG687869
Cadmium	mg/l	1	1.09	109.	85-115	WG687869
Chromium	mg/l	1	1.10	110.	85-115	WG687869
Lead	mg/l	1	1.06	106.	85-115	WG687869
Selenium	mg/l	1	0.992	99.0	85-115	WG687869
Silver	mg/l	1	1.03	103.	85-115	WG687869
Arsenic	mg/l	1	1.01	101.	85-115	WG689421
Chromium	mg/l	1	1.05	105.	85-115	WG689421
Selenium	mg/l	1	1.02	102.	85-115	WG689421
Silver	mg/l	1	0.991	99.0	85-115	WG689421
Arsenic	mg/l	1	0.994	99.0	85-115	WG689360
Barium	mg/l	1	1.08	108.	85-115	WG689360
Cadmium	mg/l	1	1.08	108.	85-115	WG689360
Chromium	mg/l	1	1.05	105.	85-115	WG689360
Lead	mg/l	1	1.05	105.	85-115	WG689360
Selenium	mg/l	1	1.03	103.	85-115	WG689360
Silver	mg/l	1	1.01	101.	85-115	WG689360
Arsenic	mg/l	1	0.850	85.0	85-115	WG689424
Barium	mg/l	1	0.882	88.0	85-115	WG689424

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Cadmium	mg/l	1	0.884	88.0	85-115	WG689424
Chromium	mg/l	1	0.883	88.0	85-115	WG689424
Lead	mg/l	1	0.901	90.0	85-115	WG689424
Selenium	mg/l	1	1.01	101.	85-115	WG689560
Silver	mg/l	1	0.986	99.0	85-115	WG689560

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Mercury	mg/l	0.00334	0.0000254	.003	110.	80-120	L663032-02	WG687267
Mercury	mg/l	0.00312	0.0000483	.003	100.	80-120	L663252-02	WG687268
Arsenic	mg/l	1.03	0.00719	1	100.	75-125	L663166-02	WG687869
Barium	mg/l	1.11	0.157	1	95.0	75-125	L663166-02	WG687869
Cadmium	mg/l	0.976	-0.00104	1	98.0	75-125	L663166-02	WG687869
Chromium	mg/l	0.973	0.00403	1	97.0	75-125	L663166-02	WG687869
Lead	mg/l	0.960	0.00950	1	95.0	75-125	L663166-02	WG687869
Selenium	mg/l	1.04	0.0261	1	100.	75-125	L663166-02	WG687869
Silver	mg/l	0.121	-0.000414	1	12.0*	75-125	L663166-02	WG687869
Arsenic	mg/l	1.07	0.00850	1	110.	75-125	L665265-02	WG689421
Chromium	mg/l	1.05	0.00506	1	100.	75-125	L665265-02	WG689421
Selenium	mg/l	1.15	0.0341	1	110.	75-125	L665265-02	WG689421
Silver	mg/l	0.211	-0.00113	1	21.0*	75-125	L665265-02	WG689421
Arsenic	mg/l	1.03	0.0375	1	99.0	75-125	L663156-16	WG689360
Barium	mg/l	2.08	1.05	1	100.	75-125	L663156-16	WG689360
Cadmium	mg/l	1.02	0.00509	1	100.	75-125	L663156-16	WG689360
Chromium	mg/l	1.08	0.0939	1	99.0	75-125	L663156-16	WG689360
Lead	mg/l	1.01	0.0493	1	96.0	75-125	L663156-16	WG689360
Selenium	mg/l	1.00	0.0120	1	99.0	75-125	L663156-16	WG689360
Silver	mg/l	0.325	-0.00238	1	32.0*	75-125	L663156-16	WG689360
Arsenic	mg/l	0.990	0.00694	1	98.0	75-125	L664605-01	WG689424
Barium	mg/l	1.05	0.0196	1	100.	75-125	L664605-01	WG689424
Cadmium	mg/l	1.04	-0.000035	1	100.	75-125	L664605-01	WG689424
Chromium	mg/l	1.02	-0.000785	1	100.	75-125	L664605-01	WG689424
Lead	mg/l	1.04	0.00336	1	100.	75-125	L664605-01	WG689424
Selenium	mg/l	1.07	0.0139	1	100.	75-125	L663804-06	WG689560
Silver	mg/l	0.0381	0.00460	1	3.00*	75-125	L663804-06	WG689560

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Mercury	mg/l	0.00338	0.00334	112.	80-120	1.17	20	L663032-02	WG687267
Mercury	mg/l	0.00307	0.00312	101.	80-120	1.73	20	L663252-02	WG687268

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Fax (615) 758-5859

Tax I.D. 62-0814289

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ChemSolutions
John Graves
7388 South Revere Parkway #806

Centennial, CO 80112

Quality Assurance Report
Level II

L663156

October 30, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Arsenic	mg/l	1.08	1.03	107.	75-125	5.00	20	L663166-02	WG687869
Barium	mg/l	1.16	1.11	101.	75-125	5.00	20	L663166-02	WG687869
Cadmium	mg/l	1.03	0.976	103.	75-125	5.00	20	L663166-02	WG687869
Chromium	mg/l	1.03	0.973	102.	75-125	6.00	20	L663166-02	WG687869
Lead	mg/l	0.995	0.960	98.6	75-125	4.00	20	L663166-02	WG687869
Selenium	mg/l	1.06	1.04	103.	75-125	2.00	20	L663166-02	WG687869
Silver	mg/l	0.104	0.121	10.4*	75-125	15.0	20	L663166-02	WG687869
Arsenic	mg/l	1.08	1.07	108.	75-125	2.00	20	L665265-02	WG689421
Chromium	mg/l	1.08	1.05	108.	75-125	3.00	20	L665265-02	WG689421
Selenium	mg/l	1.16	1.15	113.	75-125	1.00	20	L665265-02	WG689421
Silver	mg/l	0.239	0.211	24.0*	75-125	12.0	20	L665265-02	WG689421
Arsenic	mg/l	1.09	1.03	105.	75-125	6.00	20	L663156-16	WG689360
Barium	mg/l	2.06	2.08	101.	75-125	1.00	20	L663156-16	WG689360
Cadmium	mg/l	1.02	1.02	102.	75-125	0.0	20	L663156-16	WG689360
Chromium	mg/l	1.13	1.08	104.	75-125	4.00	20	L663156-16	WG689360
Lead	mg/l	1.07	1.01	102.	75-125	5.00	20	L663156-16	WG689360
Selenium	mg/l	1.08	1.00	106.	75-125	7.00	20	L663156-16	WG689360
Silver	mg/l	0.256	0.325	25.8*	75-125	24.0*	20	L663156-16	WG689360
Arsenic	mg/l	0.970	0.990	96.3	75-125	2.00	20	L664605-01	WG689424
Barium	mg/l	1.02	1.05	100.	75-125	3.00	20	L664605-01	WG689424
Cadmium	mg/l	1.00	1.04	100.	75-125	3.00	20	L664605-01	WG689424
Chromium	mg/l	0.995	1.02	99.5	75-125	3.00	20	L664605-01	WG689424
Lead	mg/l	1.01	1.04	100.	75-125	3.00	20	L664605-01	WG689424
Selenium	mg/l	1.04	1.07	102.	75-125	3.00	20	L663804-06	WG689560
Silver	mg/l	0.0706	0.0381	6.60*	75-125	60.0*	20	L663804-06	WG689560

Post Spike

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Mt. Juliet, TN 37122
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John Graves
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Centennial, CO 80112

Quality Assurance Report
Level II

L663156

October 30, 2013

Post Spike

Serial Dilution

Batch number /Run number / Sample number cross reference

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Centennial, CO 80112

Quality Assurance Report
Level II

L663156

October 30, 2013

WG687267: R2841211: L663156-01 02 03 04 05 06 07 08
WG687268: R2841213: L663156-09 10 11 12 13 14 15 16 17 18 19 20
WG687869: R2843528 R2844625: L663156-17 18 19 20
WG689421: R2846449: L663156-01 02 03 04 05 06 07
WG689360: R2846482: L663156-13 14 15 16
WG689424: R2846665: L663156-08 09 10 11 12
WG689560: R2846842: L663156-08 09 10 11 12

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L663156

October 30, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Chain of Custody 1/2

ChemSolutions

7388 S. Revere Pkwy, #806
Centennial, CO 80112
Email: john@chemmobile.com
Phone: 303-771-5570
Fax: 303-771-5574

Client Name & Address: Russ Cirillo / Stantec, 2000 South Colorado Blvd, Suite 2-300, Denver, CO 80222	Client Project Name & Location: WPEQ - Lobell, Casper, WY	ChemSolutions Project #: STN101
Contact: Russ Cirillo	Sampler: Michael Sauerwein	Location Received: Base Lab
Phone #: (720) 934-5680	Client Project Number: 212205045	Custody Seals: Intact
E-mail: russ.cirillo@stantec.com	Invoice to: Russ Cirillo	Temperature Upon Receipt: 4°C

Sample ID	Date Sampled	Time Sampled	Grab or Comp	Matrix	# of Containers	VOCs (incl. BTEX) (8260B)	SVOCs (8270C)	TPH-DRO (C_{10}-C_{20}) (8015B)	RCRA Metals	(6010)/7470/7471				Remarks
MW-04-100913	10/9/2013	1125	grab	aqueous	7	X	X	X	X					
MW-07-100913		1245	grab	aqueous	7	X	X	X	X					
MW-10-100913		1450	grab	aqueous	7	X	X	X	X					
MW-03-100913		1710	grab	aqueous	7	X	X	X	X					
BDS-1-100913		—	grab	aqueous	7	X	X	X	X					
MW-06-101013	10/10/2013	1005	grab	aqueous	7	X	X	X	X					
MW-01-101013		1045	grab	aqueous	7	X	X	X	X					
MW-02-101013		1210	grab	aqueous	7	X	X	X	X					
MW-08-101013		1410	grab	aqueous	7	X	X	X	X					
MW-09-101013		1505	grab	aqueous	7	X	X	X	X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Michael Sauerwein, Stantec	10/11/2013	1800	[signature]	10/12/13	910
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Rec'd via FedEx

Chain of Custody 2/2

ChemSolutions

7388 S. Revere Pkwy, #806
Centennial, CO 80112
Email: john@chemmobile.com
Phone: 303-771-5570
Fax: 303-771-5574

Client Name & Address:
Russ Cirillo / Stantec
2000 South Colorado Blvd
Suite 2-300
Denver, CO 80222
Contact: Russ Cirillo
Phone #: (720) 934-5680
E-mail: russ.cirillo@stantec.com

Client Project Name & Location:
WDEQ - Lobell
Casper, WY
Sampler: Michael Sauerwein
Client Project Number: 2122-05045
Invoice to: Russ Cirillo

ChemSolutions Project #: STN101
Location Received: Base Lab
Custody Seals: Intact
Temperature Upon Receipt: ~~n/a~~ 4°C 10/12/13

Sample ID	Date Sampled	Time Sampled	Grab or Comp	Matrix	# of Containers	VOCs (incl. BTEX) (8260B)	SVOCs (8270C)	TPH-DRO (C10-C32) (8015B)	RCRA Metals (6010/7470/7471)					Remarks
MW-11-101013	10/10/2013	1605	grab	aqueous	7	X	X	X	X					
MW-106-101113	10/11/2013	1000	grab	aqueous	7	X	X	X	X					
MW-102-101113		1055	grab	aqueous	7	X	X	X	X					
MW-101-101113		1150	grab	aqueous	7	X	X	X	X					
MW-103-101113		1240	grab	aqueous	7	X	X	X	X					
MW-105-101113		1435	grab	aqueous	7	X	X	X	X					
MW-104-101113		1515	grab	aqueous	7	X	X	X	X					
FD-1-101113		—	grab	aqueous	7	X	X	X	X					
FB-1-101113		0900	composite	aqueous	7	X	X	X	X					
EB-1-101113		0910	composite	aqueous	7	X	X	X	X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Michael Sauerwein	10/11/2013	1800	[illegible]	10/12/13	910
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Trip Blank-1
Trip Blank-2
Trip Blank-3
} Analyze for VOCs per R. Cirillo email 10-12-13.

ChemSolutions

7388 S. Revere Parkway #806
Centennial, CO 80112
303.771.5570

October 14, 2013

Russ Cirillo
Stantec Consulting
2000 South Colorado Blvd.
Suite 2-300
Denver, CO 80222

RE: STN099

Dear Russ,

Enclosed please find the analytical results for the Project #212205045 liquid samples collected on 10/9/13.

Sample Wastetote-2 appears to be an organic liquid with suspended solids. It is more accurate to report the results on a weight basis rather than a volume basis since it does not appear to be aqueous. Please note that it is reported in units of ug/Kg.

Tables 1-4 contain the analytical results for the samples. The quality control samples are summarized in Tables 5-7.

Thank you for the opportunity to work on this project. Please call if you have any questions. The invoice will follow shortly.

Sincerely,

John Graves
Laboratory Director
ChemSolutions LLC

10/14/13

ChemSolutions LLC

Table 1

Sample Results

Project ID: STN099

Client Sample ID: Wastetote-1 | Date Sampled: 10/9/13

Client Project ID: 212205045 WDEQ Lobell | Date Received: 10/10/13

EPA Method 8260C | Date Analyzed: 10/12-10/13/13

Units: ug/L | Sample Matrix: Liquid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	500	trans-1,3-Dichloropropene	ND	500
Chloromethane	ND	500	1,1,2-Trichloroethane	ND	200
Vinyl Chloride	ND	200	Tetrachloroethene	ND	400
Bromomethane	ND	500	Dibromochloromethane	ND	500
Chloroethane	ND	500	1,2-Dibromoethane	ND	500
Trichlorofluoromethane	ND	500	Chlorobenzene	ND	200
Acetone	2400	2000	1,1,1,2-Tetrachloroethane	ND	500
1,1-Dichloroethene	ND	200	Ethylbenzene	2500	500
Carbon Disulfide	ND	500	Total Xylene	31,000	500
Methyl-tert-butyl ether	ND	200	Styrene	ND	500
Methylene Chloride	ND	500	Isopropylbenzene	1700	500
trans-1,2-Dichloroethene	ND	200	Bromoform	ND	500
1,1-Dichloroethane	ND	200	n-Propylbenzene	4000	500
Vinyl acetate	ND	1000	1,2,3-Trichloropropane	ND	500
2-Butanone	ND	1000	2-Chlorotoluene	ND	500
cis-1,2-Dichloroethene	ND	200	1,3,5-Trimethylbenzene	12,000	500
Chloroform	ND	500	4-Chlorotoluene	ND	500
Tetrahydrofuran	ND	1000	t-Butylbenzene	ND	500
1,1,1-Trichloroethane	ND	200	1,2,4-Trimethylbenzene	8,200	1000
Carbon Tetrachloride	ND	500	sec-Butylbenzene	1600	500
Benzene	300	200	p-Isopropyltoluene	2200	500
1,2-Dichloroethane	240	200	1,1,2,2-Tetrachloroethane	ND	500
Trichloroethene	160 J	200	1,3-Dichlorobenzene	ND	500
1,2-Dichloropropane	4500	200	1,4-Dichlorobenzene	ND	500
Dibromomethane	ND	500	n-Butylbenzene	5700	500
Bromodichloromethane	ND	500	1,2 Dichlorobenzene	ND	500
cis-1,3-Dichloropropene	ND	500	1,2-Dibromo-3-chloropropane	ND	500
4-Methyl-2-pentanone	ND	500	1,2,4-Trichlorobenzene	ND	500
Toluene	2700	500	Hexachlorobutadiene	ND	500
2-Hexanone	ND	1000	1,2,3-Trichlorobenzene	ND	500
			Naphthalene	4400	500

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	51.0	102
1,2-Dichloroethane-D4	51.7	103
Toluene-D8	50.4	101
Bromofluorobenzene	60.5	121

ND= Not detected

J= The compound was detected and verified by its mass spectrum at a concentration less than the reporting limit.

10/14/13

ChemSolutions LLC

Table 2

Sample Results

Project ID: STN099

Client Sample ID: Wastetote-2 | Date Sampled: 10/9/13

Client Project ID: 212205045 WDEQ Lobell | Date Received: 10/10/13

EPA Method 8260C | Date Analyzed: 10/12-10/13/13

Units: ug/Kg | Sample Matrix: Liquid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	250,000	trans-1,3-Dichloropropene	ND	250,000
Chloromethane	ND	250,000	1,1,2-Trichloroethane	ND	100,000
Vinyl Chloride	ND	100,000	Tetrachloroethene	130,000	100,000
Bromomethane	ND	250,000	Dibromochloromethane	ND	250,000
Chloroethane	ND	250,000	1,2-Dibromoethane	ND	250,000
Trichlorofluoromethane	ND	250,000	Chlorobenzene	ND	100,000
Acetone	ND	1,000,000	1,1,1,2-Tetrachloroethane	ND	250,000
1,1-Dichloroethene	ND	100,000	Ethylbenzene	700,000	250,000
Carbon Disulfide	ND	250,000	Total Xylene	8,300,000	250,000
Methyl-tert-butyl ether	ND	100,000	Styrene	ND	250,000
Methylene Chloride	ND	250,000	Isopropylbenzene	1,000,000	250,000
trans-1,2-Dichloroethene	ND	100,000	Bromoform	ND	250,000
1,1-Dichloroethane	ND	100,000	n-Propylbenzene	2,800,000	250,000
Vinyl acetate	ND	500,000	1,2,3-Trichloropropane	ND	250,000
2-Butanone	770,000	500,000	2-Chlorotoluene	ND	250,000
cis-1,2-Dichloroethene	ND	100,000	1,3,5-Trimethylbenzene	8,300,000	250,000
Chloroform	ND	250,000	4-Chlorotoluene	ND	250,000
Tetrahydrofuran	ND	500,000	t-Butylbenzene	ND	250,000
1,1,1-Trichloroethane	ND	100,000	1,2,4-Trimethylbenzene	24,000,000	2,500,000
Carbon Tetrachloride	ND	250,000	sec-Butylbenzene	3,200,000	250,000
Benzene	ND	100,000	p-Isopropyltoluene	4,200,000	250,000
1,2-Dichloroethane	ND	100,000	1,1,2,2-Tetrachloroethane	ND	250,000
Trichloroethene	ND	100,000	1,3-Dichlorobenzene	ND	250,000
1,2-Dichloropropane	ND	100,000	1,4-Dichlorobenzene	ND	250,000
Dibromomethane	ND	250,000	n-Butylbenzene	5,800,000	250,000
Bromodichloromethane	ND	250,000	1,2 Dichlorobenzene	ND	250,000
cis-1,3-Dichloropropene	ND	250,000	1,2-Dibromo-3-chloropropane	ND	250,000
4-Methyl-2-pentanone	ND	250,000	1,2,4-Trichlorobenzene	ND	250,000
Toluene	270,000	250,000	Hexachlorobutadiene	ND	250,000
2-Hexanone	ND	500,000	1,2,3-Trichlorobenzene	ND	250,000
			Naphthalene	1,000,000	250,000

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	52.2	104
1,2-Dichloroethane-D4	53.0	106
Toluene-D8	57.1	114
Bromofluorobenzene	58.8	118

ND= Not detected

10/14/13

ChemSolutions LLC

Table 3

Sample Results

Project ID: STN099

Client Sample ID: Wastetote-3 | Date Sampled: 10/9/13

Client Project ID: 212205045 WDEQ Lobell | Date Received: 10/10/13

EPA Method 8260C | Date Analyzed: 10/12-10/13/13

Units: ug/L | Sample Matrix: Liquid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	500	trans-1,3-Dichloropropene	ND	500
Chloromethane	ND	500	1,1,2-Trichloroethane	ND	200
Vinyl Chloride	ND	200	Tetrachloroethene	ND	400
Bromomethane	ND	500	Dibromochloromethane	ND	500
Chloroethane	ND	500	1,2-Dibromoethane	ND	500
Trichlorofluoromethane	ND	500	Chlorobenzene	ND	200
Acetone	3400	2000	1,1,1,2-Tetrachloroethane	ND	500
1,1-Dichloroethene	ND	200	Ethylbenzene	2000	500
Carbon Disulfide	ND	500	Total Xylene	25,000	500
Methyl-tert-butyl ether	ND	200	Styrene	ND	500
Methylene Chloride	ND	500	Isopropylbenzene	1500	500
trans-1,2-Dichloroethene	ND	200	Bromoform	ND	500
1,1-Dichloroethane	ND	200	n-Propylbenzene	3300	500
Vinyl acetate	ND	1000	1,2,3-Trichloropropane	ND	500
2-Butanone	ND	1000	2-Chlorotoluene	ND	500
cis-1,2-Dichloroethene	ND	200	1,3,5-Trimethylbenzene	10,000	500
Chloroform	ND	500	4-Chlorotoluene	ND	500
Tetrahydrofuran	ND	1000	t-Butylbenzene	ND	500
1,1,1-Trichloroethane	ND	200	1,2,4-Trimethylbenzene	20,000	1000
Carbon Tetrachloride	ND	500	sec-Butylbenzene	1700	500
Benzene	ND	200	p-Isopropyltoluene	2400	500
1,2-Dichloroethane	ND	200	1,1,2,2-Tetrachloroethane	ND	500
Trichloroethene	1400	200	1,3-Dichlorobenzene	ND	500
1,2-Dichloropropane	2800	200	1,4-Dichlorobenzene	ND	500
Dibromomethane	ND	500	n-Butylbenzene	3800	500
Bromodichloromethane	ND	500	1,2 Dichlorobenzene	ND	500
cis-1,3-Dichloropropene	ND	500	1,2-Dibromo-3-chloropropane	ND	500
4-Methyl-2-pentanone	ND	500	1,2,4-Trichlorobenzene	ND	500
Toluene	1500	500	Hexachlorobutadiene	ND	500
2-Hexanone	ND	1000	1,2,3-Trichlorobenzene	ND	500
			Naphthalene	2900	500

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	50.1	100
1,2-Dichloroethane-D4	50.4	101
Toluene-D8	49.4	98.8
Bromofluorobenzene	55.3	111

ND= Not detected

10/14/13

ChemSolutions LLC

Table 4

Sample Results

Project ID: STN099

Client Sample ID: Wastetote-5 | Date Sampled: 10/9/13

Client Project ID: 212205045 WDEQ Lobell | Date Received: 10/10/13

EPA Method 8260C | Date Analyzed: 10/12-10/13/13

Units: ug/L | Sample Matrix: Liquid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	560	20
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	2	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	13	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	5	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	12	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	2	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	5	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	51.4	103
1,2-Dichloroethane-D4	51.8	104
Toluene-D8	49.7	99.4
Bromofluorobenzene	53.6	107

ND= Not detected

10/14/13

ChemSolutions LLC

Table 5

Method Blank Results

Project ID: STN099

Sample ID: Blank
Client Project ID: 212205045 WDEQ Lobell
EPA Method 8260C
Units: ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/12/13
Sample Matrix: Aqueous

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	5	trans-1,3-Dichloropropene	ND	5
Chloromethane	ND	5	1,1,2-Trichloroethane	ND	2
Vinyl Chloride	ND	2	Tetrachloroethene	ND	2
Bromomethane	ND	5	Dibromochloromethane	ND	5
Chloroethane	ND	5	1,2-Dibromoethane	ND	5
Trichlorofluoromethane	ND	5	Chlorobenzene	ND	2
Acetone	ND	20	1,1,1,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	2	Ethylbenzene	ND	5
Carbon Disulfide	ND	5	Total Xylene	ND	5
Methyl-tert-butyl ether	ND	2	Styrene	ND	5
Methylene Chloride	ND	5	Isopropylbenzene	ND	5
trans-1,2-Dichloroethene	ND	2	Bromoform	ND	5
1,1-Dichloroethane	ND	2	n-Propylbenzene	ND	5
Vinyl acetate	ND	10	1,2,3-Trichloropropane	ND	5
2-Butanone	ND	10	2-Chlorotoluene	ND	5
cis-1,2-Dichloroethene	ND	2	1,3,5-Trimethylbenzene	ND	5
Chloroform	ND	5	4-Chlorotoluene	ND	5
Tetrahydrofuran	ND	10	t-Butylbenzene	ND	5
1,1,1-Trichloroethane	ND	2	1,2,4-Trimethylbenzene	ND	5
Carbon Tetrachloride	ND	5	sec-Butylbenzene	ND	5
Benzene	ND	2	p-Isopropyltoluene	ND	5
1,2-Dichloroethane	ND	2	1,1,2,2-Tetrachloroethane	ND	5
Trichloroethene	ND	2	1,3-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	2	1,4-Dichlorobenzene	ND	5
Dibromomethane	ND	5	n-Butylbenzene	ND	5
Bromodichloromethane	ND	5	1,2 Dichlorobenzene	ND	5
cis-1,3-Dichloropropene	ND	5	1,2-Dibromo-3-chloropropane	ND	5
4-Methyl-2-pentanone	ND	5	1,2,4-Trichlorobenzene	ND	5
Toluene	ND	5	Hexachlorobutadiene	ND	5
2-Hexanone	ND	10	1,2,3-Trichlorobenzene	ND	5
			Naphthalene	ND	5

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	50.0	100
1,2-Dichloroethane-D4	50.5	101
Toluene-D8	49.5	99.0
Bromofluorobenzene	50.3	101

ND= Not detected

10/14/13

ChemSolutions LLC

Table 6

Laboratory Control Sample Results

Project ID: STN099

Sample ID: Water LCS
Client Project ID: 212205045 WDEQ Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/12/13
Sample Matrix: Aqueous

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	49.8	99.6
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	52.6	105	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methyl-tert-butyl ether	ND	NA	Styrene	ND	NA
Methylene Chloride	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	48.9	97.8	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	48.4	96.8	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	48.3	96.6	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	47.7	95.4
1,2-Dichloroethane-D4	45.6	91.2
Toluene-D8	48.0	96.0
Bromofluorobenzene	52.0	104

ND= Not detected

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Table 7 (Page 1 of 2)
Matrix Spike Results
Project ID: STN099

Client Sample ID: NA
Client Project ID: 212205045 WDEQ Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/12/13
Sample Matrix: Aqueous

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	51.3	103
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	55.8	112	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methyl-tert-butyl ether	ND	NA	Styrene	ND	NA
Methylene Chloride	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	50.7	101	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	24	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	51.2	102	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	49.2	98.4	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	48.7	97.4
1,2-Dichloroethane-D4	48.2	96.4
Toluene-D8	49.1	98.2
Bromofluorobenzene	52.0	104

ND = Not Detected, NA = Not Analyzed

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Table 7 (Page 2 of 2)
Matrix Spike Duplicate Results
Project ID: STN099

Client Sample ID: NA
Client Project ID: 212205045 WDEQ Lobell
EPA Method 8260C
Units: ug/L
Spike Amount: 50 ug/L

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/12/13
Sample Matrix: Aqueous

Analyte	Amount Recovered	% Recovery	RPD	Analyte	Amount Recovered	% Recovery	RPD
Dichlorodifluoromethane	ND	NA	NA	trans-1,3-Dichloropropene	ND	NA	NA
Chloromethane	ND	NA	NA	1,1,2-Trichloroethane	ND	NA	NA
Vinyl Chloride	ND	NA	NA	Tetrachloroethene	ND	NA	NA
Bromomethane	ND	NA	NA	Dibromochloromethane	ND	NA	NA
Chloroethane	ND	NA	NA	1,2-Dibromoethane	ND	NA	NA
Trichlorofluoromethane	ND	NA	NA	Chlorobenzene	51.4	103	0.2
Acetone	ND	NA	NA	1,1,1,2-Tetrachloroethane	ND	NA	NA
1,1-Dichloroethene	57.2	114	2.5	Ethylbenzene	ND	NA	NA
Carbon Disulfide	ND	NA	NA	Total Xylene	ND	NA	NA
Methyl-tert-butyl ether	ND	NA	NA	Styrene	ND	NA	NA
Methylene Chloride	ND	NA	NA	Isopropylbenzene	ND	NA	NA
trans-1,2-Dichloroethene	ND	NA	NA	Bromoform	ND	NA	NA
1,1-Dichloroethane	ND	NA	NA	n-Propylbenzene	ND	NA	NA
Vinyl acetate	ND	NA	NA	1,2,3-Trichloropropane	ND	NA	NA
2-Butanone	ND	NA	NA	2-Chlorotoluene	ND	NA	NA
cis-1,2-Dichloroethene	ND	NA	NA	1,3,5-Trimethylbenzene	ND	NA	NA
Chloroform	ND	NA	NA	4-Chlorotoluene	ND	NA	NA
Tetrahydrofuran	ND	NA	NA	t-Butylbenzene	ND	NA	NA
1,1,1-Trichloroethane	ND	NA	NA	1,2,4-Trimethylbenzene	ND	NA	NA
Carbon Tetrachloride	ND	NA	NA	sec-Butylbenzene	ND	NA	NA
Benzene	53.0	106	4.4	p-Isopropyltoluene	ND	NA	NA
1,2-Dichloroethane	26	NA	NA	1,1,2,2-Tetrachloroethane	ND	NA	NA
Trichloroethene	52.6	105	2.7	1,3-Dichlorobenzene	ND	NA	NA
1,2-Dichloropropane	ND	NA	NA	1,4-Dichlorobenzene	ND	NA	NA
Dibromomethane	ND	NA	NA	n-Butylbenzene	ND	NA	NA
Bromodichloromethane	ND	NA	NA	1,2 Dichlorobenzene	ND	NA	NA
cis-1,3-Dichloropropene	ND	NA	NA	1,2-Dibromo-3-chloropropane	ND	NA	NA
4-Methyl-2-pentanone	ND	NA	NA	1,2,4-Trichlorobenzene	ND	NA	NA
Toluene	50.2	100	2.0	Hexachlorobutadiene	ND	NA	NA
2-Hexanone	ND	NA	NA	1,2,3-Trichlorobenzene	ND	NA	NA
				Naphthalene	ND	NA	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	50.4	101
1,2-Dichloroethane-D4	50.2	100
Toluene-D8	50.3	101
Bromofluorobenzene	53.1	106

ND = Not Detected, NA = Not Analyzed

End of Report

1 of 1

Chain of Custody

ChemSolutions

7388 S. Revere Pkwy, #806
Centennial, CO 80112
Email: john@chemmobile.com
Phone: 303-771-5570
Fax: 303-771-5574

Client Name & Address: Russ Cirillo/Stantec 2000 South Colorado Blvd. Suite 2-300 Denver CO 80222	Client Project Name & Location: WDEQ-Lobell Casper WY	ChemSolutions Project #: STN099
Contact: Russ Cirillo	Sampler: Chris Beall CAB	Location Received: Base Lab
Phone #: 720-934-5680	Client Project Number: 212205045	Custody Seals: Intact
E-mail: russ.cirillo@stantec.com	Invoice to: Russ Cirillo/Stantec	Temperature Upon Receipt: 4°C

Sample ID	Date Sampled	Time Sampled	Grab or Comp	Matrix*	# of Containers	Requested Analysis/Preservative: VOC(8260B)+CL								Remarks
Wastetote-1	100913	1325	Grab	Liquid	3	X	pour 1" oil off of top							RUSH 24 Hour
wastetote-2	100913	1340	Grab	Liquid	3	X								Turn around Time
Wastetote-3	100913	1350	Grab	Liquid	3	X	pour 1" oil off of top							(TAT) on all four
Wastetote-5	100913	1430	Grab	Liquid	3	X								Samples
														*Matrix = Liquid Waste
														(Possible Product)

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	100913	1600	[signature]	10/10/13	1005
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Shipped via FedEx

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11/1/2013
Mr. Pat Vaughan
Stantec Consulting Corporation
9400 SW Barnes Road
Suite 200
Portland OR 97225

Project Name: Lobell
Project #:
Workorder #: 1310417

Dear Mr. Pat Vaughan

The following report includes the data for the above referenced project for sample(s) received on 10/18/2013 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1310417

Work Order Summary

CLIENT:	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225	**BILL TO:**	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225
PHONE:	503-297-1631	**P.O. #**	212205045
FAX:	503-297-5429	**PROJECT #**	Lobell
DATE RECEIVED:	10/18/2013	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/01/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	AA-1	Modified TO-15 SIM	11.0 "Hg	5 psi
02A	IA-1	Modified TO-15 SIM	9.0 "Hg	5 psi
03A	IA-2	Modified TO-15 SIM	8.4 "Hg	5 psi
04A	IA-6	Modified TO-15 SIM	9.4 "Hg	5 psi
05A	IA-7	Modified TO-15 SIM	6.6 "Hg	5 psi
06A	IA-8	Modified TO-15 SIM	9.6 "Hg	5 psi
07A	IA-9	Modified TO-15 SIM	4.8 "Hg	5 psi
08A	Lab Blank	Modified TO-15 SIM	NA	NA
09A	CCV	Modified TO-15 SIM	NA	NA
10A	LCS	Modified TO-15 SIM	NA	NA
10AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Mayo

Technical Director

DATE: 11/01/13

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
Stantec Consulting Corporation
Workorder# 1310417

Seven 6 Liter Summa Canister (SIM Certified) samples were received on October 18, 2013. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: AA-1

Lab ID#: 1310417-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.11	0.12	0.34	0.38
Toluene	0.042	0.25	0.16	0.94
Tetrachloroethene	0.042	0.51	0.29	3.4
m,p-Xylene	0.085	0.10	0.37	0.44

Client Sample ID: IA-1

Lab ID#: 1310417-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.038	0.63	0.15	2.5
Benzene	0.096	0.16	0.30	0.52
1,2-Dichloroethane	0.038	0.086	0.15	0.35
Trichloroethene	0.038	0.61	0.20	3.3
Toluene	0.038	1.8	0.14	6.8
Tetrachloroethene	0.038	19	0.26	130
Ethyl Benzene	0.038	0.20	0.16	0.88
m,p-Xylene	0.076	0.76	0.33	3.3
o-Xylene	0.038	0.31	0.16	1.4

Client Sample ID: IA-2

Lab ID#: 1310417-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	0.024	0.048	0.063
cis-1,2-Dichloroethene	0.037	0.61	0.15	2.4
Benzene	0.093	0.16	0.30	0.51
1,2-Dichloroethane	0.037	0.086	0.15	0.35
Trichloroethene	0.037	0.61	0.20	3.3
Toluene	0.037	1.9	0.14	7.1
Tetrachloroethene	0.037	18	0.25	120
Ethyl Benzene	0.037	0.21	0.16	0.91
m,p-Xylene	0.074	0.75	0.32	3.2
o-Xylene	0.037	0.30	0.16	1.3

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-2

Lab ID#: 1310417-03A

Client Sample ID: IA-6

Lab ID#: 1310417-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.098	0.21	0.31	0.68
1,2-Dichloroethane	0.039	0.041	0.16	0.16
Toluene	0.039	0.55	0.15	2.1
Tetrachloroethene	0.039	7.2	0.26	49
Ethyl Benzene	0.039	0.088	0.17	0.38
m,p-Xylene	0.078	0.26	0.34	1.1
o-Xylene	0.039	0.095	0.17	0.41

Client Sample ID: IA-7

Lab ID#: 1310417-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.034	0.067	0.19	0.36
Benzene	0.086	0.24	0.27	0.78
Trichloroethene	0.034	0.060	0.18	0.32
Toluene	0.034	1.6	0.13	6.2
Tetrachloroethene	0.034	20	0.23	140
Ethyl Benzene	0.034	0.10	0.15	0.44
m,p-Xylene	0.069	0.31	0.30	1.4
o-Xylene	0.034	0.12	0.15	0.50

Client Sample ID: IA-8

Lab ID#: 1310417-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.039	0.046	0.21	0.25
Benzene	0.098	0.20	0.31	0.62
Toluene	0.039	0.48	0.15	1.8
Tetrachloroethene	0.039	11	0.27	74

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-8

Lab ID#: 1310417-06A

Ethyl Benzene	0.039	0.066	0.17	0.28
m,p-Xylene	0.079	0.20	0.34	0.88
o-Xylene	0.039	0.077	0.17	0.34

Client Sample ID: IA-9

Lab ID#: 1310417-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.080	0.18	0.26	0.58
Toluene	0.032	0.37	0.12	1.4
Tetrachloroethene	0.032	0.10	0.22	0.70
Ethyl Benzene	0.032	0.050	0.14	0.22
m,p-Xylene	0.064	0.17	0.28	0.74
o-Xylene	0.032	0.064	0.14	0.28

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Client Sample ID: AA-1

Lab ID#: 1310417-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102911sim**	**Date of Collection:**	**10/16/13 4:42:00 PM**
Dil. Factor:	**2.12**	**Date of Analysis:**	**10/29/13 05:04 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.021	Not Detected	0.054	Not Detected
1,1-Dichloroethene	0.021	Not Detected	0.084	Not Detected
1,1-Dichloroethane	0.042	Not Detected	0.17	Not Detected
cis-1,2-Dichloroethene	0.042	Not Detected	0.17	Not Detected
1,1,1-Trichloroethane	0.042	Not Detected	0.23	Not Detected
Benzene	0.11	0.12	0.34	0.38
1,2-Dichloroethane	0.042	Not Detected	0.17	Not Detected
Trichloroethene	0.042	Not Detected	0.23	Not Detected
Toluene	0.042	0.25	0.16	0.94
1,1,2-Trichloroethane	0.042	Not Detected	0.23	Not Detected
Tetrachloroethene	0.042	0.51	0.29	3.4
Ethyl Benzene	0.042	Not Detected	0.18	Not Detected
m,p-Xylene	0.085	0.10	0.37	0.44
o-Xylene	0.042	Not Detected	0.18	Not Detected
1,1,2,2-Tetrachloroethane	0.042	Not Detected	0.29	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Methyl tert-butyl ether	0.21	Not Detected	0.76	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: IA-1

Lab ID#: 1310417-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102912sim**	**Date of Collection:**	**10/16/13 11:15:00 A**
Dil. Factor:	**1.91**	**Date of Analysis:**	**10/29/13 05:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	Not Detected	0.049	Not Detected
1,1-Dichloroethene	0.019	Not Detected	0.076	Not Detected
1,1-Dichloroethane	0.038	Not Detected	0.15	Not Detected
cis-1,2-Dichloroethene	0.038	0.63	0.15	2.5
1,1,1-Trichloroethane	0.038	Not Detected	0.21	Not Detected
Benzene	0.096	0.16	0.30	0.52
1,2-Dichloroethane	0.038	0.086	0.15	0.35
Trichloroethene	0.038	0.61	0.20	3.3
Toluene	0.038	1.8	0.14	6.8
1,1,2-Trichloroethane	0.038	Not Detected	0.21	Not Detected
Tetrachloroethene	0.038	19	0.26	130
Ethyl Benzene	0.038	0.20	0.16	0.88
m,p-Xylene	0.076	0.76	0.33	3.3
o-Xylene	0.038	0.31	0.16	1.4
1,1,2,2-Tetrachloroethane	0.038	Not Detected	0.26	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
Methyl tert-butyl ether	0.19	Not Detected	0.69	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: IA-2

Lab ID#: 1310417-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102913sim**	**Date of Collection:**	**10/16/13 11:20:00 A**
Dil. Factor:	**1.86**	**Date of Analysis:**	**10/29/13 06:35 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.019	0.024	0.048	0.063
1,1-Dichloroethene	0.019	Not Detected	0.074	Not Detected
1,1-Dichloroethane	0.037	Not Detected	0.15	Not Detected
cis-1,2-Dichloroethene	0.037	0.61	0.15	2.4
1,1,1-Trichloroethane	0.037	Not Detected	0.20	Not Detected
Benzene	0.093	0.16	0.30	0.51
1,2-Dichloroethane	0.037	0.086	0.15	0.35
Trichloroethene	0.037	0.61	0.20	3.3
Toluene	0.037	1.9	0.14	7.1
1,1,2-Trichloroethane	0.037	Not Detected	0.20	Not Detected
Tetrachloroethene	0.037	18	0.25	120
Ethyl Benzene	0.037	0.21	0.16	0.91
m,p-Xylene	0.074	0.75	0.32	3.2
o-Xylene	0.037	0.30	0.16	1.3
1,1,2,2-Tetrachloroethane	0.037	Not Detected	0.26	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Methyl tert-butyl ether	0.19	Not Detected	0.67	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: IA-6

Lab ID#: 1310417-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102914sim**	**Date of Collection:**	**10/15/13 1:15:00 PM**
Dil. Factor:	**1.95**	**Date of Analysis:**	**10/29/13 07:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
1,1-Dichloroethene	0.020	Not Detected	0.077	Not Detected
1,1-Dichloroethane	0.039	Not Detected	0.16	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.15	Not Detected
1,1,1-Trichloroethane	0.039	Not Detected	0.21	Not Detected
Benzene	0.098	0.21	0.31	0.68
1,2-Dichloroethane	0.039	0.041	0.16	0.16
Trichloroethene	0.039	Not Detected	0.21	Not Detected
Toluene	0.039	0.55	0.15	2.1
1,1,2-Trichloroethane	0.039	Not Detected	0.21	Not Detected
Tetrachloroethene	0.039	7.2	0.26	49
Ethyl Benzene	0.039	0.088	0.17	0.38
m,p-Xylene	0.078	0.26	0.34	1.1
o-Xylene	0.039	0.095	0.17	0.41
1,1,2,2-Tetrachloroethane	0.039	Not Detected	0.27	Not Detected
trans-1,2-Dichloroethene	0.20	Not Detected	0.77	Not Detected
Methyl tert-butyl ether	0.20	Not Detected	0.70	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: IA-7

Lab ID#: 1310417-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102915sim**	**Date of Collection:**	**10/15/13 1:40:00 PM**
Dil. Factor:	**1.72**	**Date of Analysis:**	**10/29/13 07:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	0.067	0.19	0.36
Benzene	0.086	0.24	0.27	0.78
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	0.060	0.18	0.32
Toluene	0.034	1.6	0.13	6.2
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	20	0.23	140
Ethyl Benzene	0.034	0.10	0.15	0.44
m,p-Xylene	0.069	0.31	0.30	1.4
o-Xylene	0.034	0.12	0.15	0.50
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.24	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.62	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: IA-8

Lab ID#: 1310417-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102916sim**	**Date of Collection:**	**10/15/13 1:35:00 PM**
Dil. Factor:	**1.97**	**Date of Analysis:**	**10/29/13 09:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.020	Not Detected	0.050	Not Detected
1,1-Dichloroethene	0.020	Not Detected	0.078	Not Detected
1,1-Dichloroethane	0.039	Not Detected	0.16	Not Detected
cis-1,2-Dichloroethene	0.039	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.039	0.046	0.21	0.25
Benzene	0.098	0.20	0.31	0.62
1,2-Dichloroethane	0.039	Not Detected	0.16	Not Detected
Trichloroethene	0.039	Not Detected	0.21	Not Detected
Toluene	0.039	0.48	0.15	1.8
1,1,2-Trichloroethane	0.039	Not Detected	0.21	Not Detected
Tetrachloroethene	0.039	11	0.27	74
Ethyl Benzene	0.039	0.066	0.17	0.28
m,p-Xylene	0.079	0.20	0.34	0.88
o-Xylene	0.039	0.077	0.17	0.34
1,1,2,2-Tetrachloroethane	0.039	Not Detected	0.27	Not Detected
trans-1,2-Dichloroethene	0.20	Not Detected	0.78	Not Detected
Methyl tert-butyl ether	0.20	Not Detected	0.71	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: IA-9

Lab ID#: 1310417-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102917sim**	**Date of Collection:**	**10/15/13 1:25:00 PM**
Dil. Factor:	**1.60**	**Date of Analysis:**	**10/29/13 09:43 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.063	Not Detected
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.032	Not Detected	0.17	Not Detected
Benzene	0.080	0.18	0.26	0.58
1,2-Dichloroethane	0.032	Not Detected	0.13	Not Detected
Trichloroethene	0.032	Not Detected	0.17	Not Detected
Toluene	0.032	0.37	0.12	1.4
1,1,2-Trichloroethane	0.032	Not Detected	0.17	Not Detected
Tetrachloroethene	0.032	0.10	0.22	0.70
Ethyl Benzene	0.032	0.050	0.14	0.22
m,p-Xylene	0.064	0.17	0.28	0.74
o-Xylene	0.032	0.064	0.14	0.28
1,1,2,2-Tetrachloroethane	0.032	Not Detected	0.22	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.58	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1310417-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102908sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 02:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: CCV

Lab ID#: 1310417-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102902sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 09:34 AM**	

Compound	**%Recovery**
Vinyl Chloride	92
1,1-Dichloroethene	100
1,1-Dichloroethane	101
cis-1,2-Dichloroethene	97
1,1,1-Trichloroethane	109
Benzene	88
1,2-Dichloroethane	115
Trichloroethene	98
Toluene	99
1,1,2-Trichloroethane	105
Tetrachloroethene	108
Ethyl Benzene	111
m,p-Xylene	116
o-Xylene	114
1,1,2,2-Tetrachloroethane	111
trans-1,2-Dichloroethene	107
Methyl tert-butyl ether	110

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	108	70-130

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Client Sample ID: LCS

Lab ID#: 1310417-10A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102903sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 10:16 AM**	

Compound	**%Recovery**	**Method Limits**
Vinyl Chloride	92	70-130
1,1-Dichloroethene	112	70-130
1,1-Dichloroethane	100	70-130
cis-1,2-Dichloroethene	96	70-130
1,1,1-Trichloroethane	105	70-130
Benzene	87	70-130
1,2-Dichloroethane	110	70-130
Trichloroethene	96	70-130
Toluene	97	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	103	70-130
Ethyl Benzene	107	70-130
m,p-Xylene	117	70-130
o-Xylene	112	70-130
1,1,2,2-Tetrachloroethane	104	70-130
trans-1,2-Dichloroethene	109	60-140
Methyl tert-butyl ether	108	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	111	70-130

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Client Sample ID: LCSD

Lab ID#: 1310417-10AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c102904sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/29/13 10:57 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	91	70-130
1,1-Dichloroethene	113	70-130
1,1-Dichloroethane	100	70-130
cis-1,2-Dichloroethene	97	70-130
1,1,1-Trichloroethane	105	70-130
Benzene	87	70-130
1,2-Dichloroethane	111	70-130
Trichloroethene	96	70-130
Toluene	95	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	103	70-130
Ethyl Benzene	105	70-130
m,p-Xylene	110	70-130
o-Xylene	105	70-130
1,1,2,2-Tetrachloroethane	102	70-130
trans-1,2-Dichloroethene	109	60-140
Methyl tert-butyl ether	107	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	105	70-130

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Sample Transportation Notice
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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager: Russ Cirillo
Collected by: (Print and Sign) B. Collins
Company: Stantec Consulting Email: Russ.
Address: 2000 S. Colorado Suite 2-300 City: Denver State: CO Zip: 80222
Phone: 303 285 4600 Fax:

Project Info:
P.O. # 212205045
Project #
Project Name: Lobell

Turn Around Time:
❑ Normal
❑ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	AA-1	33773	10/16/13	1642	TO15 Selective Ion Mode (SIM)	-24.5	-7		
02A	IA-1	31140	10/16/13	1115		-26	-6		
03A	IA-2	35256	10/16/13	1120		-25	-4		
04A	IA-6	12667	10/15/13	1315		-26	-6		
05A	IA-7	5567	10/15/13	1340		-25	-4		
06A	IA-8	33877	10/15/13	1335		-25	-8		
07A	IA-9	96102	10/15/13	1325		-26	-0.5		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
B. Collins	10/17/13 1700	ATL	10/18/13 1000

Notes:
Samples listed on this COC shipped in two separate boxes.
Samples collected at 5,100' elevation

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	Good	Yes No None	1310417

Form 1293 rev.11

ChemSolutions

7388 S. Revere Parkway #806
Centennial, CO 80112
303.771.5570

October 14, 2013

Russ Cirillo
Stantec Consulting
2000 South Colorado Blvd.
Suite 2-300
Denver, CO 80222

RE: STN098

Dear Russ,

Enclosed please find the analytical results for the Project #212205045 solid samples collected on 10/8/13.

Tables 1-6 contain the analytical results for the samples. The quality control samples are summarized in Tables 7-9.

Thank you for the opportunity to work on this project. Please call if you have any questions. The invoice will follow shortly.

Sincerely,

John Graves
Laboratory Director
ChemSolutions LLC

10/14/13

ChemSolutions LLC

Table 1

Sample Results

Project ID: STN098

Client Sample ID: Drums-1-4

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260B

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/8/13

Date Received: 10/9/13

Date Analyzed: 10/13/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0433	86.6
1,2-Dichloroethane-D4	0.0413	82.6
Toluene-D8	0.0496	99.2
Bromofluorobenzene	0.0616	123

ND= Not detected

10/14/13

ChemSolutions LLC

Table 2

Sample Results

Project ID: STN098

Client Sample ID: Drums-6-8

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260B

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/8/13

Date Received: 10/9/13

Date Analyzed: 10/13/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0519	104
1,2-Dichloroethane-D4	0.0506	101
Toluene-D8	0.0514	103
Bromofluorobenzene	0.0497	99.4

ND= Not detected

10/14/13

ChemSolutions LLC

Table 3

Sample Results

Project ID: STN098

Client Sample ID: Drums-9-12

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260B

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/8/13

Date Received: 10/9/13

Date Analyzed: 10/13/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0426	85.2
1,2-Dichloroethane-D4	0.0423	84.6
Toluene-D8	0.0534	107
Bromofluorobenzene	0.0497	99.4

ND= Not detected

10/14/13

ChemSolutions LLC

Table 4

Sample Results

Project ID: STN098

Client Sample ID: Drums-13&14

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260B

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/8/13

Date Received: 10/9/13

Date Analyzed: 10/13/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0481	96.2
1,2-Dichloroethane-D4	0.0541	108
Toluene-D8	0.0586	117
Bromofluorobenzene	0.0510	102

ND= Not detected

10/14/13

ChemSolutions LLC

Table 5

Sample Results

Project ID: STN098

Client Sample ID: Rolloff(Haz)-1

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260B

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/8/13

Date Received: 10/9/13

Date Analyzed: 10/13/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	0.010	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	0.013	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	0.0069	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	0.043	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	0.0076	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	0.011	0.005
Benzene	ND	0.002	p-Isopropyltoluene	0.016	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	0.018	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0516	103
1,2-Dichloroethane-D4	0.0532	106
Toluene-D8	0.0378	75.6
Bromofluorobenzene	0.0642	128

ND= Not detected

10/14/13

ChemSolutions LLC

Table 6

Sample Results

Project ID: STN098

Client Sample ID: Rolloff(Haz)-2

Client Project ID: 212205045 WDEQ-Lobell

EPA Method 8260B

Units: mg/Kg, Dry Weight Basis

Date Sampled: 10/8/13

Date Received: 10/9/13

Date Analyzed: 10/13/13

Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	0.0032	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	0.020	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	0.0063	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0557	111
1,2-Dichloroethane-D4	0.0578	116
Toluene-D8	0.0383	76.6
Bromofluorobenzene	0.0568	114

ND= Not detected

10/14/13

ChemSolutions LLC

Table 7

Method Blank Results

Project ID: STN098

Sample ID: Blank
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg, Dry Weight Basis

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/13/13
Sample Matrix: Solid

Analyte	Concentration	Reporting Limit	Analyte	Concentration	Reporting Limit
Dichlorodifluoromethane	ND	0.005	trans-1,3-Dichloropropene	ND	0.005
Chloromethane	ND	0.005	1,1,2-Trichloroethane	ND	0.005
Vinyl Chloride	ND	0.002	Tetrachloroethene	ND	0.002
Bromomethane	ND	0.005	Dibromochloromethane	ND	0.005
Chloroethane	ND	0.005	1,2-Dibromoethane	ND	0.005
Trichlorofluoromethane	ND	0.005	Chlorobenzene	ND	0.002
Acetone	ND	0.02	1,1,1,2-Tetrachloroethane	ND	0.005
1,1-Dichloroethene	ND	0.002	Ethylbenzene	ND	0.005
Carbon Disulfide	ND	0.005	Total Xylene	ND	0.005
Methylene Chloride	ND	0.01	Styrene	ND	0.005
Methyl-t-butyl ether	ND	0.002	Isopropylbenzene	ND	0.005
trans-1,2-Dichloroethene	ND	0.002	Bromoform	ND	0.005
1,1-Dichloroethane	ND	0.002	n-Propylbenzene	ND	0.005
Vinyl acetate	ND	0.01	1,2,3-Trichloropropane	ND	0.005
2-Butanone	ND	0.01	2-Chlorotoluene	ND	0.005
cis-1,2-Dichloroethene	ND	0.002	1,3,5-Trimethylbenzene	ND	0.005
Chloroform	ND	0.005	4-Chlorotoluene	ND	0.005
Tetrahydrofuran	ND	0.01	t-Butylbenzene	ND	0.005
1,1,1-Trichloroethane	ND	0.002	1,2,4-Trimethylbenzene	ND	0.005
Carbon Tetrachloride	ND	0.005	sec-Butylbenzene	ND	0.005
Benzene	ND	0.002	p-Isopropyltoluene	ND	0.005
1,2-Dichloroethane	ND	0.002	1,1,2,2-Tetrachloroethane	ND	0.005
Trichloroethene	ND	0.002	1,3-Dichlorobenzene	ND	0.005
1,2-Dichloropropane	ND	0.002	1,4-Dichlorobenzene	ND	0.005
Dibromomethane	ND	0.005	n-Butylbenzene	ND	0.005
Bromodichloromethane	ND	0.005	1,2 Dichlorobenzene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005	1,2-Dibromo-3-chloropropane	ND	0.005
4-Methyl-2-pentanone	ND	0.01	1,2,4-Trichlorobenzene	ND	0.005
Toluene	ND	0.005	Hexachlorobutadiene	ND	0.005
2-Hexanone	ND	0.01	1,2,3-Trichlorobenzene	ND	0.005
			Naphthalene	ND	0.005

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0533	107
1,2-Dichloroethane-D4	0.0580	116
Toluene-D8	0.0511	102
Bromofluorobenzene	0.0515	103

ND= Not detected

10/14/13

ChemSolutions LLC

Table 8

LCS Spike Results

Project ID: STN098

Sample ID: Laboratory Control Sample
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg
Spike Amount: 0.050 mg/Kg

Date Sampled: NA
Date Received: NA
Date Analyzed: 10/13/13
Sample Matrix: Solid

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	0.0497	99.4
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	0.0614	123	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methylene Chloride	ND	NA	Styrene	ND	NA
Methyl-t-butyl ether	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	0.0546	109	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	0.0510	102	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	0.0535	107	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0537	107
1,2-Dichloroethane-D4	0.0551	110
Toluene-D8	0.0502	100
Bromofluorobenzene	0.0499	99.8

ND= Not detected

ChemSolutions LLC
Table 9 (Page 1 of 2)
Matrix Spike Results
Project ID: STN098

Client Sample ID: Drums-1-4
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg
Spike Amount: 0.050 mg/Kg

Date Sampled: 10/8/13
Date Received: 10/9/13
Date Analyzed: 10/13/13
Sample Matrix: Solid

Analyte	Amount Recovered	% Recovery	Analyte	Amount Recovered	% Recovery
Dichlorodifluoromethane	ND	NA	trans-1,3-Dichloropropene	ND	NA
Chloromethane	ND	NA	1,1,2-Trichloroethane	ND	NA
Vinyl Chloride	ND	NA	Tetrachloroethene	ND	NA
Bromomethane	ND	NA	Dibromochloromethane	ND	NA
Chloroethane	ND	NA	1,2-Dibromoethane	ND	NA
Trichlorofluoromethane	ND	NA	Chlorobenzene	0.0539	108
Acetone	ND	NA	1,1,1,2-Tetrachloroethane	ND	NA
1,1-Dichloroethene	0.0614	123	Ethylbenzene	ND	NA
Carbon Disulfide	ND	NA	Total Xylene	ND	NA
Methylene Chloride	ND	NA	Styrene	ND	NA
Methyl-t-butyl ether	ND	NA	Isopropylbenzene	ND	NA
trans-1,2-Dichloroethene	ND	NA	Bromoform	ND	NA
1,1-Dichloroethane	ND	NA	n-Propylbenzene	ND	NA
Vinyl acetate	ND	NA	1,2,3-Trichloropropane	ND	NA
2-Butanone	ND	NA	2-Chlorotoluene	ND	NA
cis-1,2-Dichloroethene	ND	NA	1,3,5-Trimethylbenzene	ND	NA
Chloroform	ND	NA	4-Chlorotoluene	ND	NA
Tetrahydrofuran	ND	NA	t-Butylbenzene	ND	NA
1,1,1-Trichloroethane	ND	NA	1,2,4-Trimethylbenzene	ND	NA
Carbon Tetrachloride	ND	NA	sec-Butylbenzene	ND	NA
Benzene	0.0539	108	p-Isopropyltoluene	ND	NA
1,2-Dichloroethane	ND	NA	1,1,2,2-Tetrachloroethane	ND	NA
Trichloroethene	0.0536	NA	1,3-Dichlorobenzene	ND	NA
1,2-Dichloropropane	ND	NA	1,4-Dichlorobenzene	ND	NA
Dibromomethane	ND	NA	n-Butylbenzene	ND	NA
Bromodichloromethane	ND	NA	1,2 Dichlorobenzene	ND	NA
cis-1,3-Dichloropropene	ND	NA	1,2-Dibromo-3-chloropropane	ND	NA
4-Methyl-2-pentanone	ND	NA	1,2,4-Trichlorobenzene	ND	NA
Toluene	0.0414	82.8	Hexachlorobutadiene	ND	NA
2-Hexanone	ND	NA	1,2,3-Trichlorobenzene	ND	NA
			Naphthalene	ND	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0542	108
1,2-Dichloroethane-D4	0.0559	112
Toluene-D8	0.0411	82.2
Bromofluorobenzene	0.0642	128

ND = Not Detected, NA = Not Analyzed or Not Applicable

ChemSolutions LLC
Table 9 (Page 2 of 2)
Matrix Spike Duplicate Results
Project ID: STN098

Client Sample ID: Drums-1-4
Client Project ID: 212205045 WDEQ-Lobell
EPA Method 8260B
Units: mg/Kg
Spike Amount: 0.050 mg/Kg

Date Sampled: 10/8/13
Date Received: 10/9/13
Date Analyzed: 10/13/13
Sample Matrix: Solid

Analyte	Amount Recovered	% Recovery	RPD	Analyte	Amount Recovered	% Recovery	RPD
Dichlorodifluoromethane	ND	NA	NA	trans-1,3-Dichloropropene	ND	NA	NA
Chloromethane	ND	NA	NA	1,1,2-Trichloroethane	ND	NA	NA
Vinyl Chloride	ND	NA	NA	Tetrachloroethene	ND	NA	NA
Bromomethane	ND	NA	NA	Dibromochloromethane	ND	NA	NA
Chloroethane	ND	NA	NA	1,2-Dibromoethane	ND	NA	NA
Trichlorofluoromethane	ND	NA	NA	Chlorobenzene	0.0480	96.0	11.6
Acetone	ND	NA	NA	1,1,1,2-Tetrachloroethane	ND	NA	NA
1,1-Dichloroethene	0.0600	120	2.3	Ethylbenzene	ND	NA	NA
Carbon Disulfide	ND	NA	NA	Total Xylene	ND	NA	NA
Methylene Chloride	ND	NA	NA	Styrene	ND	NA	NA
Methyl-t-butyl ether	ND	NA	NA	Isopropylbenzene	ND	NA	NA
trans-1,2-Dichloroethene	ND	NA	NA	Bromoform	ND	NA	NA
1,1-Dichloroethane	ND	NA	NA	n-Propylbenzene	ND	NA	NA
Vinyl acetate	ND	NA	NA	1,2,3-Trichloropropane	ND	NA	NA
2-Butanone	ND	NA	NA	2-Chlorotoluene	ND	NA	NA
cis-1,2-Dichloroethene	ND	NA	NA	1,3,5-Trimethylbenzene	ND	NA	NA
Chloroform	ND	NA	NA	4-Chlorotoluene	ND	NA	NA
Tetrahydrofuran	ND	NA	NA	t-Butylbenzene	ND	NA	NA
1,1,1-Trichloroethane	ND	NA	NA	1,2,4-Trimethylbenzene	ND	NA	NA
Carbon Tetrachloride	ND	NA	NA	sec-Butylbenzene	ND	NA	NA
Benzene	0.0531	106	1.5	p-Isopropyltoluene	ND	NA	NA
1,2-Dichloroethane	ND	NA	NA	1,1,2,2-Tetrachloroethane	ND	NA	NA
Trichloroethene	0.0488	NA	NA	1,3-Dichlorobenzene	ND	NA	NA
1,2-Dichloropropane	ND	NA	NA	1,4-Dichlorobenzene	ND	NA	NA
Dibromomethane	ND	NA	NA	n-Butylbenzene	ND	NA	NA
Bromodichloromethane	ND	NA	NA	1,2 Dichlorobenzene	ND	NA	NA
cis-1,3-Dichloropropene	ND	NA	NA	1,2-Dibromo-3-chloropropane	ND	NA	NA
4-Methyl-2-pentanone	ND	NA	NA	1,2,4-Trichlorobenzene	ND	NA	NA
Toluene	0.0504	101	19.6	Hexachlorobutadiene	ND	NA	NA
2-Hexanone	ND	NA	NA	1,2,3-Trichlorobenzene	ND	NA	NA
				Naphthalene	ND	NA	NA

Surrogate	Amount Recovered	% Recovery
Dibromofluoromethane	0.0548	110
1,2-Dichloroethane-D4	0.0573	115
Toluene-D8	0.0504	101
Bromofluorobenzene	0.0563	113

ND = Not Detected, NA = Not Analyzed or Not Applicable

End of Report

Chain of Custody

ChemSolutions

7388 S. Revere Pkwy, #806
Centennial, CO 80112
Email: john@chemmobile.com
Phone: 303-771-5570
Fax: 303-771-5574

Client Name & Address: Russ Cirillo, 2000 South Colorado Blvd, Suite 2-300, Denver CO 80222	Client Project Name & Location: WDEQ Lobell, Casper WY	ChemSolutions Project #: STN098
		Location Received: Base Lab
		Custody Seals: Intact
Contact: Russ Cirillo	Sampler: Chris Beall CAB	Temperature Upon Receipt: 4°C
Phone #: 720-934-5680	Client Project Number: 212205045	
E-mail: russ.cirillo@stantec.com	Invoice to: Russ Cirillo / Stantec	

Sample ID	Date Sampled	Time Sampled	Grab or Comp	Matrix	# of Containers	Requested Analysis/Preservative: VOC (8260B)	Remarks
Drums-1-4	100813	1300	Comp.	Soil	1	X	← Rush Turn Around Time (TAT) 3-5 Days
Drums-6-8	100813	1320	Comp	Soil	1	X	
Drums-9-12	100813	1340	Comp	Soil	1	X	
Drums-13+14	100813	1355	Comp	Soil	1	X	
Rolloff (Haz)-1	100813	1405	Comp	Soil	1	X	
Rolloff (Haz)-2	100813	1425	Comp	Soil	1	X	3 Day TAT per R. Cirillo email 10/9/13 JG

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
[signature]	100813	1630	[signature]	10/9/13	1000
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Shipped via FedEx
Standard RLs per R. Cirillo verbal 10/9/13 1650. JG

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

October 30, 2013

Lisa Graves
ChemSolutions, LLC
7388 S. Revere Pkwy #806
Centennial, CO 80112

Re: PTS File No: 43673
Physical Properties Data
WDEQ – Lobell; STN100

Dear Ms. Graves:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your WDEQ – Lobell; STN100 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Rachel Spitz at (562) 347-2504.

Sincerely,
PTS Laboratories, Inc.

for Rachel Spitz

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: WDEQ - Lobell
Project Number: STN100

PTS File No: 43673
Client: ChemSolutions, LLC.

TEST PROGRAM - 20131015

CORE ID	Depth ft.	Core Recovery ft.	Dry Bulk Density API RP40	Total/Air/Water Porosity API RP 40			Notes
		Plugs:	Vert. 1.5"	Vert. 1.5"			
Date Received: 20131015							
VP-11R-13'-15'	13-15	2.00	X	X			
VP-101-10'-12'	10-12	2.00	X	X			
VP-102-13'-15'	13-15	2.00	X	X			
VP-103-5'-7'	5-7	2.25	X	X			
VP-104-5'-7'	5-7	1.65	X	X			
VP-105-11'-12'	11-12	2.00	X	X			
VP-106-13'-15'	13-15	2.00	X	X			
TOTALS:	7 cores	13.90	7	7			14

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10 business days.

PTS Laboratories

PTS File No: 43673
Client: ChemSolutions, LLC.
Report Date: 10/29/13

PHYSICAL PROPERTIES DATA

Project Name: WDEQ - Lobell
Project No: STN100

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR-FILLED	WATER-FILLED
VP-11R-13'-15'	13-15	V	--	1.77	--	33.8	30.4	3.4
VP-101-10'-12'	10-12	V	--	1.73	--	35.3	30.8	4.5
VP-102-13'-15'	13-15	V	--	1.62	--	38.5	34.3	4.2
VP-103-5'-7'	5.2	V	--	1.59	--	39.8	33.4	6.4
VP-104-5'-7'	5-7	V	--	1.41	--	46.0	31.8	14.2
VP-105-11'-12'	11-12	V	--	1.77	--	33.6	20.8	12.8
VP-106-13'-15'	13-15	V	--	1.67	--	36.9	31.4	5.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

Vb = Bulk Volume, cc; - - = Analysis not requested.

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: ChemSolutions LLC

ADDRESS: 7388 S. Revere Pkwy #806 | CITY: Centennial, CO | ZIP CODE: 80112

PROJECT MANAGER: Lisa Graves

PROJECT NAME: WDEQ - Lobell | PHONE NUMBER: 303-771-5574

PROJECT NUMBER: STN 100 | FAX NUMBER:

SITE LOCATION: Casper, WY

SAMPLER SIGNATURE:

PO# 131011

TURNAROUND TIME: 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ NORMAL ☒

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT ✓ ON ICE ____ 7.9°

PTS QUOTE NO.

PTS FILE: 43673

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/NRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100, API RP40, D5084	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	Porosity: Water Filled				COMMENTS
VP-11R-13'-15'	10/7/13			1									X			X						X				
VP-101-10'-12'	10/7/13			1									X			X						X				
VP-102-13'-15'	10/8/13			1									X			X						X				
VP-103-5'-7'	10/7/13			1									X			X						X				
VP-104-5'-7'	10/8/13			1									X			X						X				
VP-105-11'-12'	10/7/13			1									X			X						X				
VP-106-13'-15'	10/7/13			1									X			X						X				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Lisa Graves	[signature]		
COMPANY: ChemSolutions LLC	COMPANY: PTS LABS	COMPANY:	COMPANY:
DATE: 10/11/13 TIME: 1600	DATE: 10/15/13 TIME: 14:02	DATE: TIME:	DATE: TIME:

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11/6/2013
Mr. Pat Vaughan
Stantec Consulting Corporation
9400 SW Barnes Road
Suite 200
Portland OR 97225

Project Name: Lobell
Project #:
Workorder #: 1310487A

Dear Mr. Pat Vaughan

The following report includes the data for the above referenced project for sample(s) received on 10/22/2013 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1310487A

Work Order Summary

CLIENT:	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225	**BILL TO:**	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225
PHONE:	503-297-1631	**P.O. #**	212205045
FAX:	503-297-5429	**PROJECT #**	Lobell
DATE RECEIVED:	10/22/2013	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/06/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	VP-01	TO-15	0.1 psi	14.9 psi
02A	VP-02	TO-15	8.2 "Hg	15 psi
03A	VP-03	TO-15	7.6 "Hg	15.1 psi
04A	VP-04	TO-15	9 "Hg	14.9 psi
05A	VP-05	TO-15	8.2 "Hg	15 psi
06A	VP-06	TO-15	6.5 "Hg	14.9 psi
07A	VP-09	TO-15	8.6 "Hg	14.7 psi
08A	VP-10	TO-15	8.6 "Hg	14.9 psi
09A	VP-11	TO-15	8.2 "Hg	15 psi
10A	VP-11R	TO-15	7.3 "Hg	14.9 psi
11A	VP-12	TO-15	8.2 "Hg	15.2 psi
12A	VP-13	TO-15	7.6 "Hg	14.9 psi
13A	VP-14	TO-15	8.2 "Hg	14.7 psi
14A	VP-101	TO-15	8.4 "Hg	15 psi
15A	VP-102	TO-15	8.6 "Hg	14.9 psi
16A	VP-103	TO-15	8 "Hg	15.3 psi
17A	VP-104	TO-15	7.3 "Hg	14.9 psi
18A	VP-105	TO-15	8 "Hg	15.1 psi
19A	VP-106	TO-15	9 "Hg	14.7 psi
20A	VP-08	TO-15	6.5 "Hg	14.8 psi
21A	Lab Blank	TO-15	NA	NA
21B	Lab Blank	TO-15	NA	NA
21C	Lab Blank	TO-15	NA	NA

Continued on next page

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WORK ORDER #: 1310487A

Work Order Summary

CLIENT:	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225	**BILL TO:**	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225
PHONE:	503-297-1631	**P.O. #**	212205045
FAX:	503-297-5429	**PROJECT #**	Lobell
DATE RECEIVED:	10/22/2013	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/06/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
22A	CCV	TO-15	NA	NA
22B	CCV	TO-15	NA	NA
22C	CCV	TO-15	NA	NA
23A	LCS	TO-15	NA	NA
23AA	LCSD	TO-15	NA	NA
23B	LCS	TO-15	NA	NA
23BB	LCSD	TO-15	NA	NA
23C	LCS	TO-15	NA	NA
23CC	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 11/06/13

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Stantec Consulting Corporation
Workorder# 1310487A

Twenty 1 Liter Summa Canister samples were received on October 22, 2013. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Dilution was performed on samples VP-01, VP-11R, VP-12 and VP-14 due to the presence of high level target species.

Due to the linear calibration range of the instrument, the reporting limit for Ethanol was raised from 2.0ppbv to 5.0ppbv for sample VP-12.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-01

Lab ID#: 1310487A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	10	20	19	38
Trichloroethene	2.5	5.6	13	30
Toluene	2.5	55	9.4	210
Tetrachloroethene	2.5	650	17	4400

Client Sample ID: VP-02

Lab ID#: 1310487A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.6	6.1	10	12
Trichloroethene	1.4	7.0	7.5	38
Tetrachloroethene	1.4	370	9.4	2500

Client Sample ID: VP-03

Lab ID#: 1310487A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.4	7.3	10	14
Toluene	1.4	19	5.1	73
Tetrachloroethene	1.4	46	9.2	310

Client Sample ID: VP-04

Lab ID#: 1310487A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.8	9.2	11	17
Toluene	1.4	29	5.4	110
Tetrachloroethene	1.4	28	9.8	190
m,p-Xylene	1.4	1.4	6.2	6.2

Client Sample ID: VP-05

Lab ID#: 1310487A-05A

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-05

Lab ID#: 1310487A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	1.4	65	7.8	370
Ethanol	5.6	22	10	41
Acetone	14	48	33	110
Toluene	1.4	74	5.2	280
Tetrachloroethene	1.4	6.7	9.4	45
m,p-Xylene	1.4	2.1	6.0	9.3

Client Sample ID: VP-06

Lab ID#: 1310487A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.1	17	9.7	32
Trichloroethene	1.3	4.8	6.9	26
Toluene	1.3	46	4.8	170
Tetrachloroethene	1.3	310	8.7	2100
m,p-Xylene	1.3	1.8	5.6	7.7

Client Sample ID: VP-09

Lab ID#: 1310487A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.4	1.5	7.5	8.1
Toluene	1.4	42	5.3	160
Tetrachloroethene	1.4	220	9.5	1500
m,p-Xylene	1.4	1.4	6.1	6.2

Client Sample ID: VP-10

Lab ID#: 1310487A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.6	20	11	38
Acetone	14	15	33	37

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-10

Lab ID#: 1310487A-08A

Toluene	1.4	68	5.3	250
Tetrachloroethene	1.4	80	9.6	540
Ethyl Benzene	1.4	1.5	6.1	6.7
m,p-Xylene	1.4	2.6	6.1	11

Client Sample ID: VP-11

Lab ID#: 1310487A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.6	6.9	10	13
Tetrachloroethene	1.4	1.9	9.4	13

Client Sample ID: VP-11R

Lab ID#: 1310487A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	13	29	71	160
Toluene	13	51	50	190
Tetrachloroethene	13	3200	90	21000

Client Sample ID: VP-12

Lab ID#: 1310487A-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	70	97	260	360
Tetrachloroethene	70	14000	470	93000

Client Sample ID: VP-13

Lab ID#: 1310487A-12A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.4	29	9.2	200

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-14

Lab ID#: 1310487A-13A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	5.5	25	30	130
Tetrachloroethene	5.5	1900	37	13000

Client Sample ID: VP-101

Lab ID#: 1310487A-14A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.6	11	10	21
Hexane	1.4	1.8	5.0	6.2
Tetrahydrofuran	1.4	1.5	4.1	4.4
Toluene	1.4	38	5.3	140
Tetrachloroethene	1.4	85	9.5	570
m,p-Xylene	1.4	2.1	6.1	9.2

Client Sample ID: VP-102

Lab ID#: 1310487A-15A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.6	10	11	19
Toluene	1.4	63	5.3	240
Tetrachloroethene	1.4	290	9.6	2000
m,p-Xylene	1.4	2.2	6.1	9.5

Client Sample ID: VP-103

Lab ID#: 1310487A-16A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.6	23	10	43
Toluene	1.4	13	5.2	50
Ethyl Benzene	1.4	2.0	6.0	8.5
m,p-Xylene	1.4	8.7	6.0	38
o-Xylene	1.4	2.6	6.0	11

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-103

Lab ID#: 1310487A-16A

4-Ethyltoluene	1.4	2.5	6.8	12
1,2,4-Trimethylbenzene	1.4	2.4	6.8	12

Client Sample ID: VP-104

Lab ID#: 1310487A-17A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.3	9.2	10	17
Toluene	1.3	35	5.0	130
Tetrachloroethene	1.3	21	9.0	140
m,p-Xylene	1.3	1.4	5.8	6.1

Client Sample ID: VP-105

Lab ID#: 1310487A-18A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.4	21	5.2	78
Tetrachloroethene	1.4	43	9.4	290
Ethyl Benzene	1.4	4.1	6.0	18
m,p-Xylene	1.4	16	6.0	72
o-Xylene	1.4	4.0	6.0	17
4-Ethyltoluene	1.4	3.8	6.8	18
1,2,4-Trimethylbenzene	1.4	3.1	6.8	15

Client Sample ID: VP-106

Lab ID#: 1310487A-19A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.7	8.4	11	16
Hexane	1.4	1.9	5.0	6.6
Cyclohexane	1.4	1.5	4.9	5.1
Toluene	1.4	43	5.4	160
Tetrachloroethene	1.4	100	9.7	700
m,p-Xylene	1.4	1.9	6.2	8.1

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: VP-08

Lab ID#: 1310487A-20A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.1	14	9.6	26
Chloroform	1.3	3.6	6.2	18
Toluene	1.3	53	4.8	200
Tetrachloroethene	1.3	6.9	8.7	47
m,p-Xylene	1.3	1.7	5.6	7.4

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Client Sample ID: VP-01

Lab ID#: 1310487A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110426**	**Date of Collection:**	**10/17/13 1:50:00 PM**
Dil. Factor:	**5.00**	**Date of Analysis:**	**11/4/13 11:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.5	Not Detected	12	Not Detected
Freon 114	2.5	Not Detected	17	Not Detected
Chloromethane	25	Not Detected	52	Not Detected
Vinyl Chloride	2.5	Not Detected	6.4	Not Detected
1,3-Butadiene	2.5	Not Detected	5.5	Not Detected
Bromomethane	25	Not Detected	97	Not Detected
Chloroethane	10	Not Detected	26	Not Detected
Freon 11	2.5	Not Detected	14	Not Detected
Ethanol	10	20	19	38
Freon 113	2.5	Not Detected	19	Not Detected
1,1-Dichloroethene	2.5	Not Detected	9.9	Not Detected
Acetone	25	Not Detected	59	Not Detected
2-Propanol	10	Not Detected	24	Not Detected
Carbon Disulfide	10	Not Detected	31	Not Detected
3-Chloropropene	10	Not Detected	31	Not Detected
Methylene Chloride	25	Not Detected	87	Not Detected
Methyl tert-butyl ether	2.5	Not Detected	9.0	Not Detected
trans-1,2-Dichloroethene	2.5	Not Detected	9.9	Not Detected
Hexane	2.5	Not Detected	8.8	Not Detected
1,1-Dichloroethane	2.5	Not Detected	10	Not Detected
2-Butanone (Methyl Ethyl Ketone)	10	Not Detected	29	Not Detected
cis-1,2-Dichloroethene	2.5	Not Detected	9.9	Not Detected
Tetrahydrofuran	2.5	Not Detected	7.4	Not Detected
Chloroform	2.5	Not Detected	12	Not Detected
1,1,1-Trichloroethane	2.5	Not Detected	14	Not Detected
Cyclohexane	2.5	Not Detected	8.6	Not Detected
Carbon Tetrachloride	2.5	Not Detected	16	Not Detected
2,2,4-Trimethylpentane	2.5	Not Detected	12	Not Detected
Benzene	2.5	Not Detected	8.0	Not Detected
1,2-Dichloroethane	2.5	Not Detected	10	Not Detected
Heptane	2.5	Not Detected	10	Not Detected
Trichloroethene	2.5	5.6	13	30
1,2-Dichloropropane	2.5	Not Detected	12	Not Detected
1,4-Dioxane	10	Not Detected	36	Not Detected
Bromodichloromethane	2.5	Not Detected	17	Not Detected
cis-1,3-Dichloropropene	2.5	Not Detected	11	Not Detected
4-Methyl-2-pentanone	2.5	Not Detected	10	Not Detected
Toluene	2.5	55	9.4	210
trans-1,3-Dichloropropene	2.5	Not Detected	11	Not Detected
1,1,2-Trichloroethane	2.5	Not Detected	14	Not Detected
Tetrachloroethene	2.5	650	17	4400
2-Hexanone	10	Not Detected	41	Not Detected

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Client Sample ID: VP-01

Lab ID#: 1310487A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110426**	**Date of Collection:**	**10/17/13 1:50:00 PM**
Dil. Factor:	**5.00**	**Date of Analysis:**	**11/4/13 11:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.5	Not Detected	21	Not Detected
1,2-Dibromoethane (EDB)	2.5	Not Detected	19	Not Detected
Chlorobenzene	2.5	Not Detected	12	Not Detected
Ethyl Benzene	2.5	Not Detected	11	Not Detected
m,p-Xylene	2.5	Not Detected	11	Not Detected
o-Xylene	2.5	Not Detected	11	Not Detected
Styrene	2.5	Not Detected	11	Not Detected
Bromoform	2.5	Not Detected	26	Not Detected
Cumene	2.5	Not Detected	12	Not Detected
1,1,2,2-Tetrachloroethane	2.5	Not Detected	17	Not Detected
Propylbenzene	2.5	Not Detected	12	Not Detected
4-Ethyltoluene	2.5	Not Detected	12	Not Detected
1,3,5-Trimethylbenzene	2.5	Not Detected	12	Not Detected
1,2,4-Trimethylbenzene	2.5	Not Detected	12	Not Detected
1,3-Dichlorobenzene	2.5	Not Detected	15	Not Detected
1,4-Dichlorobenzene	2.5	Not Detected	15	Not Detected
alpha-Chlorotoluene	2.5	Not Detected	13	Not Detected
1,2-Dichlorobenzene	2.5	Not Detected	15	Not Detected
1,2,4-Trichlorobenzene	10	Not Detected	74	Not Detected
Hexachlorobutadiene	10	Not Detected	110	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: VP-02

Lab ID#: 1310487A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110417**	**Date of Collection:**	**10/18/13 9:45:00 AM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/4/13 07:58 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.9	Not Detected
Freon 114	1.4	Not Detected	9.7	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.8	Not Detected
Ethanol	5.6	6.1	10	12
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	17	Not Detected
3-Chloropropene	5.6	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	48	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.8	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.7	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.5	Not Detected
Benzene	1.4	Not Detected	4.4	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.6	Not Detected
Heptane	1.4	Not Detected	5.7	Not Detected
Trichloroethene	1.4	7.0	7.5	38
1,2-Dichloropropane	1.4	Not Detected	6.4	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.3	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.7	Not Detected
Toluene	1.4	Not Detected	5.2	Not Detected
trans-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Tetrachloroethene	1.4	370	9.4	2500
2-Hexanone	5.6	Not Detected	23	Not Detected

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Client Sample ID: VP-02

Lab ID#: 1310487A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110417**	**Date of Collection:**	**10/18/13 9:45:00 AM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/4/13 07:58 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	Not Detected	6.0	Not Detected
m,p-Xylene	1.4	Not Detected	6.0	Not Detected
o-Xylene	1.4	Not Detected	6.0	Not Detected
Styrene	1.4	Not Detected	5.9	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.8	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.5	Not Detected
Propylbenzene	1.4	Not Detected	6.8	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.8	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.2	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	41	Not Detected
Hexachlorobutadiene	5.6	Not Detected	59	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: VP-03

Lab ID#: 1310487A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110418**	**Date of Collection:**	**10/18/13 8:20:00 AM**
Dil. Factor:	**2.72**	**Date of Analysis:**	**11/4/13 08:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.7	Not Detected
Freon 114	1.4	Not Detected	9.5	Not Detected
Chloromethane	14	Not Detected	28	Not Detected
Vinyl Chloride	1.4	Not Detected	3.5	Not Detected
1,3-Butadiene	1.4	Not Detected	3.0	Not Detected
Bromomethane	14	Not Detected	53	Not Detected
Chloroethane	5.4	Not Detected	14	Not Detected
Freon 11	1.4	Not Detected	7.6	Not Detected
Ethanol	5.4	7.3	10	14
Freon 113	1.4	Not Detected	10	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Acetone	14	Not Detected	32	Not Detected
2-Propanol	5.4	Not Detected	13	Not Detected
Carbon Disulfide	5.4	Not Detected	17	Not Detected
3-Chloropropene	5.4	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	47	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	4.9	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Hexane	1.4	Not Detected	4.8	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.4	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.0	Not Detected
Chloroform	1.4	Not Detected	6.6	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.4	Not Detected
Cyclohexane	1.4	Not Detected	4.7	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.6	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.4	Not Detected
Benzene	1.4	Not Detected	4.3	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.5	Not Detected
Heptane	1.4	Not Detected	5.6	Not Detected
Trichloroethene	1.4	Not Detected	7.3	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.3	Not Detected
1,4-Dioxane	5.4	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.1	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.2	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.6	Not Detected
Toluene	1.4	19	5.1	73
trans-1,3-Dichloropropene	1.4	Not Detected	6.2	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.4	Not Detected
Tetrachloroethene	1.4	46	9.2	310
2-Hexanone	5.4	Not Detected	22	Not Detected

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Client Sample ID: VP-03

Lab ID#: 1310487A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110418**	**Date of Collection:**	**10/18/13 8:20:00 AM**
Dil. Factor:	**2.72**	**Date of Analysis:**	**11/4/13 08:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	10	Not Detected
Chlorobenzene	1.4	Not Detected	6.3	Not Detected
Ethyl Benzene	1.4	Not Detected	5.9	Not Detected
m,p-Xylene	1.4	Not Detected	5.9	Not Detected
o-Xylene	1.4	Not Detected	5.9	Not Detected
Styrene	1.4	Not Detected	5.8	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.7	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.3	Not Detected
Propylbenzene	1.4	Not Detected	6.7	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.7	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.7	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.7	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.2	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.2	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.0	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.2	Not Detected
1,2,4-Trichlorobenzene	5.4	Not Detected	40	Not Detected
Hexachlorobutadiene	5.4	Not Detected	58	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: VP-04

Lab ID#: 1310487A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110419**	**Date of Collection:**	**10/18/13 9:10:00 AM**
Dil. Factor:	**2.88**	**Date of Analysis:**	**11/4/13 08:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	7.1	Not Detected
Freon 114	1.4	Not Detected	10	Not Detected
Chloromethane	14	Not Detected	30	Not Detected
Vinyl Chloride	1.4	Not Detected	3.7	Not Detected
1,3-Butadiene	1.4	Not Detected	3.2	Not Detected
Bromomethane	14	Not Detected	56	Not Detected
Chloroethane	5.8	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	8.1	Not Detected
Ethanol	5.8	9.2	11	17
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Acetone	14	Not Detected	34	Not Detected
2-Propanol	5.8	Not Detected	14	Not Detected
Carbon Disulfide	5.8	Not Detected	18	Not Detected
3-Chloropropene	5.8	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	50	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.2	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Hexane	1.4	Not Detected	5.1	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.8	Not Detected	17	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.2	Not Detected
Chloroform	1.4	Not Detected	7.0	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.8	Not Detected
Cyclohexane	1.4	Not Detected	5.0	Not Detected
Carbon Tetrachloride	1.4	Not Detected	9.1	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.7	Not Detected
Benzene	1.4	Not Detected	4.6	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.8	Not Detected
Heptane	1.4	Not Detected	5.9	Not Detected
Trichloroethene	1.4	Not Detected	7.7	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.6	Not Detected
1,4-Dioxane	5.8	Not Detected	21	Not Detected
Bromodichloromethane	1.4	Not Detected	9.6	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.5	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.9	Not Detected
Toluene	1.4	29	5.4	110
trans-1,3-Dichloropropene	1.4	Not Detected	6.5	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.8	Not Detected
Tetrachloroethene	1.4	28	9.8	190
2-Hexanone	5.8	Not Detected	24	Not Detected

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Client Sample ID: VP-04

Lab ID#: 1310487A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110419**	**Date of Collection:**	**10/18/13 9:10:00 AM**
Dil. Factor:	**2.88**	**Date of Analysis:**	**11/4/13 08:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.6	Not Detected
Ethyl Benzene	1.4	Not Detected	6.2	Not Detected
m,p-Xylene	1.4	1.4	6.2	6.2
o-Xylene	1.4	Not Detected	6.2	Not Detected
Styrene	1.4	Not Detected	6.1	Not Detected
Bromoform	1.4	Not Detected	15	Not Detected
Cumene	1.4	Not Detected	7.1	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.9	Not Detected
Propylbenzene	1.4	Not Detected	7.1	Not Detected
4-Ethyltoluene	1.4	Not Detected	7.1	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	7.1	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	7.1	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.6	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.6	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.4	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.6	Not Detected
1,2,4-Trichlorobenzene	5.8	Not Detected	43	Not Detected
Hexachlorobutadiene	5.8	Not Detected	61	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	101	70-130

eurofins | Air Toxics

Client Sample ID: VP-05

Lab ID#: 1310487A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110420**	**Date of Collection:**	**10/18/13 10:10:00 AM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/4/13 09:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.9	Not Detected
Freon 114	1.4	Not Detected	9.7	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	65	7.8	370
Ethanol	5.6	22	10	41
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Acetone	14	48	33	110
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	17	Not Detected
3-Chloropropene	5.6	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	48	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.8	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.7	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.5	Not Detected
Benzene	1.4	Not Detected	4.4	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.6	Not Detected
Heptane	1.4	Not Detected	5.7	Not Detected
Trichloroethene	1.4	Not Detected	7.5	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.4	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.3	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.7	Not Detected
Toluene	1.4	74	5.2	280
trans-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Tetrachloroethene	1.4	6.7	9.4	45
2-Hexanone	5.6	Not Detected	23	Not Detected

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Client Sample ID: VP-05

Lab ID#: 1310487A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110420**	**Date of Collection:**	**10/18/13 10:10:00 AM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/4/13 09:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	Not Detected	6.0	Not Detected
m,p-Xylene	1.4	2.1	6.0	9.3
o-Xylene	1.4	Not Detected	6.0	Not Detected
Styrene	1.4	Not Detected	5.9	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.8	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.5	Not Detected
Propylbenzene	1.4	Not Detected	6.8	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.8	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.2	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	41	Not Detected
Hexachlorobutadiene	5.6	Not Detected	59	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VP-06

Lab ID#: 1310487A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110421**	**Date of Collection:**	**10/18/13 11:55:00 AM**
Dil. Factor:	**2.57**	**Date of Analysis:**	**11/4/13 09:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.4	Not Detected
Freon 114	1.3	Not Detected	9.0	Not Detected
Chloromethane	13	Not Detected	26	Not Detected
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	50	Not Detected
Chloroethane	5.1	Not Detected	14	Not Detected
Freon 11	1.3	Not Detected	7.2	Not Detected
Ethanol	5.1	17	9.7	32
Freon 113	1.3	Not Detected	9.8	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Acetone	13	Not Detected	30	Not Detected
2-Propanol	5.1	Not Detected	13	Not Detected
Carbon Disulfide	5.1	Not Detected	16	Not Detected
3-Chloropropene	5.1	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	45	Not Detected
Methyl tert-butyl ether	1.3	Not Detected	4.6	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Hexane	1.3	Not Detected	4.5	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.1	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrahydrofuran	1.3	Not Detected	3.8	Not Detected
Chloroform	1.3	Not Detected	6.3	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Cyclohexane	1.3	Not Detected	4.4	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.1	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	6.0	Not Detected
Benzene	1.3	Not Detected	4.1	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.2	Not Detected
Heptane	1.3	Not Detected	5.3	Not Detected
Trichloroethene	1.3	4.8	6.9	26
1,2-Dichloropropane	1.3	Not Detected	5.9	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.6	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.3	Not Detected
Toluene	1.3	46	4.8	170
trans-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Tetrachloroethene	1.3	310	8.7	2100
2-Hexanone	5.1	Not Detected	21	Not Detected

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Client Sample ID: VP-06

Lab ID#: 1310487A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110421**	**Date of Collection:**	**10/18/13 11:55:00 AM**
Dil. Factor:	**2.57**	**Date of Analysis:**	**11/4/13 09:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.9	Not Detected
Chlorobenzene	1.3	Not Detected	5.9	Not Detected
Ethyl Benzene	1.3	Not Detected	5.6	Not Detected
m,p-Xylene	1.3	1.8	5.6	7.7
o-Xylene	1.3	Not Detected	5.6	Not Detected
Styrene	1.3	Not Detected	5.5	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.3	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.8	Not Detected
Propylbenzene	1.3	Not Detected	6.3	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.3	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.6	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
1,2,4-Trichlorobenzene	5.1	Not Detected	38	Not Detected
Hexachlorobutadiene	5.1	Not Detected	55	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: VP-09

Lab ID#: 1310487A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110422**	**Date of Collection:**	**10/18/13 12:25:00 PM**
Dil. Factor:	**2.80**	**Date of Analysis:**	**11/4/13 09:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.9	Not Detected
Freon 114	1.4	Not Detected	9.8	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.9	Not Detected
Ethanol	5.6	Not Detected	10	Not Detected
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	17	Not Detected
3-Chloropropene	5.6	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	49	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.8	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.8	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.5	Not Detected
Benzene	1.4	Not Detected	4.5	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.7	Not Detected
Heptane	1.4	Not Detected	5.7	Not Detected
Trichloroethene	1.4	1.5	7.5	8.1
1,2-Dichloropropane	1.4	Not Detected	6.5	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.4	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.7	Not Detected
Toluene	1.4	42	5.3	160
trans-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Tetrachloroethene	1.4	220	9.5	1500
2-Hexanone	5.6	Not Detected	23	Not Detected

eurofins | Air Toxics

Client Sample ID: VP-09

Lab ID#: 1310487A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110422**	**Date of Collection:**	**10/18/13 12:25:00 PM**
Dil. Factor:	**2.80**	**Date of Analysis:**	**11/4/13 09:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	Not Detected	6.1	Not Detected
m,p-Xylene	1.4	1.4	6.1	6.2
o-Xylene	1.4	Not Detected	6.1	Not Detected
Styrene	1.4	Not Detected	6.0	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.9	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.6	Not Detected
Propylbenzene	1.4	Not Detected	6.9	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.9	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.2	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	42	Not Detected
Hexachlorobutadiene	5.6	Not Detected	60	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VP-10

Lab ID#: 1310487A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110416**	**Date of Collection:**	**10/18/13 11:10:00 AM**
Dil. Factor:	**2.82**	**Date of Analysis:**	**11/4/13 07:36 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	7.0	Not Detected
Freon 114	1.4	Not Detected	9.8	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	55	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.9	Not Detected
Ethanol	5.6	20	11	38
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Acetone	14	15	33	37
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	18	Not Detected
3-Chloropropene	5.6	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	49	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.1	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Hexane	1.4	Not Detected	5.0	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	17	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.2	Not Detected
Chloroform	1.4	Not Detected	6.9	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.9	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.6	Not Detected
Benzene	1.4	Not Detected	4.5	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.7	Not Detected
Heptane	1.4	Not Detected	5.8	Not Detected
Trichloroethene	1.4	Not Detected	7.6	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.5	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.4	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.8	Not Detected
Toluene	1.4	68	5.3	250
trans-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Tetrachloroethene	1.4	80	9.6	540
2-Hexanone	5.6	Not Detected	23	Not Detected

eurofins | Air Toxics

Client Sample ID: VP-10

Lab ID#: 1310487A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110416**	**Date of Collection:**	**10/18/13 11:10:00 AM**
Dil. Factor:	**2.82**	**Date of Analysis:**	**11/4/13 07:36 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.5	Not Detected
Ethyl Benzene	1.4	1.5	6.1	6.7
m,p-Xylene	1.4	2.6	6.1	11
o-Xylene	1.4	Not Detected	6.1	Not Detected
Styrene	1.4	Not Detected	6.0	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.9	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.7	Not Detected
Propylbenzene	1.4	Not Detected	6.9	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.9	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.3	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	42	Not Detected
Hexachlorobutadiene	5.6	Not Detected	60	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	102	70-130

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VP-15 CAB

Client Sample ID: VP-11

Lab ID#: 1310487A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110423**	**Date of Collection:**	**10/17/13 9:00:00 AM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/4/13 10:08 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.9	Not Detected
Freon 114	1.4	Not Detected	9.7	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.8	Not Detected
Ethanol	5.6	6.9	10	13
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	17	Not Detected
3-Chloropropene	5.6	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	48	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.8	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.7	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.5	Not Detected
Benzene	1.4	Not Detected	4.4	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.6	Not Detected
Heptane	1.4	Not Detected	5.7	Not Detected
Trichloroethene	1.4	Not Detected	7.5	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.4	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.3	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.7	Not Detected
Toluene	1.4	Not Detected	5.2	Not Detected
trans-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Tetrachloroethene	1.4	1.9	9.4	13
2-Hexanone	5.6	Not Detected	23	Not Detected

eurofins | Air Toxics

Client Sample ID: VP-11 VP-15 CAB

Lab ID#: 1310487A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110423**	**Date of Collection:**	**10/17/13 9:00:00 AM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/4/13 10:08 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	Not Detected	6.0	Not Detected
m,p-Xylene	1.4	Not Detected	6.0	Not Detected
o-Xylene	1.4	Not Detected	6.0	Not Detected
Styrene	1.4	Not Detected	5.9	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.8	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.5	Not Detected
Propylbenzene	1.4	Not Detected	6.8	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.8	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.2	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	41	Not Detected
Hexachlorobutadiene	5.6	Not Detected	59	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: VP-11R

Lab ID#: 1310487A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110428**	**Date of Collection:**	**10/17/13 3:50:00 PM**
Dil. Factor:	**26.6**	**Date of Analysis:**	**11/4/13 11:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	13	Not Detected	66	Not Detected
Freon 114	13	Not Detected	93	Not Detected
Chloromethane	130	Not Detected	270	Not Detected
Vinyl Chloride	13	Not Detected	34	Not Detected
1,3-Butadiene	13	Not Detected	29	Not Detected
Bromomethane	130	Not Detected	520	Not Detected
Chloroethane	53	Not Detected	140	Not Detected
Freon 11	13	Not Detected	75	Not Detected
Ethanol	53	Not Detected	100	Not Detected
Freon 113	13	Not Detected	100	Not Detected
1,1-Dichloroethene	13	Not Detected	53	Not Detected
Acetone	130	Not Detected	320	Not Detected
2-Propanol	53	Not Detected	130	Not Detected
Carbon Disulfide	53	Not Detected	160	Not Detected
3-Chloropropene	53	Not Detected	170	Not Detected
Methylene Chloride	130	Not Detected	460	Not Detected
Methyl tert-butyl ether	13	Not Detected	48	Not Detected
trans-1,2-Dichloroethene	13	Not Detected	53	Not Detected
Hexane	13	Not Detected	47	Not Detected
1,1-Dichloroethane	13	Not Detected	54	Not Detected
2-Butanone (Methyl Ethyl Ketone)	53	Not Detected	160	Not Detected
cis-1,2-Dichloroethene	13	Not Detected	53	Not Detected
Tetrahydrofuran	13	Not Detected	39	Not Detected
Chloroform	13	Not Detected	65	Not Detected
1,1,1-Trichloroethane	13	Not Detected	72	Not Detected
Cyclohexane	13	Not Detected	46	Not Detected
Carbon Tetrachloride	13	Not Detected	84	Not Detected
2,2,4-Trimethylpentane	13	Not Detected	62	Not Detected
Benzene	13	Not Detected	42	Not Detected
1,2-Dichloroethane	13	Not Detected	54	Not Detected
Heptane	13	Not Detected	54	Not Detected
Trichloroethene	13	29	71	160
1,2-Dichloropropane	13	Not Detected	61	Not Detected
1,4-Dioxane	53	Not Detected	190	Not Detected
Bromodichloromethane	13	Not Detected	89	Not Detected
cis-1,3-Dichloropropene	13	Not Detected	60	Not Detected
4-Methyl-2-pentanone	13	Not Detected	54	Not Detected
Toluene	13	51	50	190
trans-1,3-Dichloropropene	13	Not Detected	60	Not Detected
1,1,2-Trichloroethane	13	Not Detected	72	Not Detected
Tetrachloroethene	13	3200	90	21000
2-Hexanone	53	Not Detected	220	Not Detected

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Client Sample ID: VP-11R

Lab ID#: 1310487A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110428**	**Date of Collection:**	**10/17/13 3:50:00 PM**
Dil. Factor:	**26.6**	**Date of Analysis:**	**11/4/13 11:52 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	13	Not Detected	110	Not Detected
1,2-Dibromoethane (EDB)	13	Not Detected	100	Not Detected
Chlorobenzene	13	Not Detected	61	Not Detected
Ethyl Benzene	13	Not Detected	58	Not Detected
m,p-Xylene	13	Not Detected	58	Not Detected
o-Xylene	13	Not Detected	58	Not Detected
Styrene	13	Not Detected	57	Not Detected
Bromoform	13	Not Detected	140	Not Detected
Cumene	13	Not Detected	65	Not Detected
1,1,2,2-Tetrachloroethane	13	Not Detected	91	Not Detected
Propylbenzene	13	Not Detected	65	Not Detected
4-Ethyltoluene	13	Not Detected	65	Not Detected
1,3,5-Trimethylbenzene	13	Not Detected	65	Not Detected
1,2,4-Trimethylbenzene	13	Not Detected	65	Not Detected
1,3-Dichlorobenzene	13	Not Detected	80	Not Detected
1,4-Dichlorobenzene	13	Not Detected	80	Not Detected
alpha-Chlorotoluene	13	Not Detected	69	Not Detected
1,2-Dichlorobenzene	13	Not Detected	80	Not Detected
1,2,4-Trichlorobenzene	53	Not Detected	390	Not Detected
Hexachlorobutadiene	53	Not Detected	570	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: VP-12

Lab ID#: 1310487A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110519**	**Date of Collection:**	**10/17/13 2:30:00 PM**
Dil. Factor:	**140**	**Date of Analysis:**	**11/6/13 08:43 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	70	Not Detected	350	Not Detected
Freon 114	70	Not Detected	490	Not Detected
Chloromethane	700	Not Detected	1400	Not Detected
Vinyl Chloride	70	Not Detected	180	Not Detected
1,3-Butadiene	70	Not Detected	150	Not Detected
Bromomethane	700	Not Detected	2700	Not Detected
Chloroethane	280	Not Detected	740	Not Detected
Freon 11	70	Not Detected	390	Not Detected
Ethanol	700	Not Detected	1300	Not Detected
Freon 113	70	Not Detected	540	Not Detected
1,1-Dichloroethene	70	Not Detected	280	Not Detected
Acetone	700	Not Detected	1700	Not Detected
2-Propanol	280	Not Detected	690	Not Detected
Carbon Disulfide	280	Not Detected	870	Not Detected
3-Chloropropene	280	Not Detected	880	Not Detected
Methylene Chloride	700	Not Detected	2400	Not Detected
Methyl tert-butyl ether	70	Not Detected	250	Not Detected
trans-1,2-Dichloroethene	70	Not Detected	280	Not Detected
Hexane	70	Not Detected	250	Not Detected
1,1-Dichloroethane	70	Not Detected	280	Not Detected
2-Butanone (Methyl Ethyl Ketone)	280	Not Detected	820	Not Detected
cis-1,2-Dichloroethene	70	Not Detected	280	Not Detected
Tetrahydrofuran	70	Not Detected	210	Not Detected
Chloroform	70	Not Detected	340	Not Detected
1,1,1-Trichloroethane	70	Not Detected	380	Not Detected
Cyclohexane	70	Not Detected	240	Not Detected
Carbon Tetrachloride	70	Not Detected	440	Not Detected
2,2,4-Trimethylpentane	70	Not Detected	330	Not Detected
Benzene	70	Not Detected	220	Not Detected
1,2-Dichloroethane	70	Not Detected	280	Not Detected
Heptane	70	Not Detected	290	Not Detected
Trichloroethene	70	Not Detected	380	Not Detected
1,2-Dichloropropane	70	Not Detected	320	Not Detected
1,4-Dioxane	280	Not Detected	1000	Not Detected
Bromodichloromethane	70	Not Detected	470	Not Detected
cis-1,3-Dichloropropene	70	Not Detected	320	Not Detected
4-Methyl-2-pentanone	70	Not Detected	290	Not Detected
Toluene	70	97	260	360
trans-1,3-Dichloropropene	70	Not Detected	320	Not Detected
1,1,2-Trichloroethane	70	Not Detected	380	Not Detected
Tetrachloroethene	70	14000	470	93000
2-Hexanone	280	Not Detected	1100	Not Detected

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Client Sample ID: VP-12

Lab ID#: 1310487A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110519**	**Date of Collection:**	**10/17/13 2:30:00 PM**
Dil. Factor:	**140**	**Date of Analysis:**	**11/6/13 08:43 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	70	Not Detected	600	Not Detected
1,2-Dibromoethane (EDB)	70	Not Detected	540	Not Detected
Chlorobenzene	70	Not Detected	320	Not Detected
Ethyl Benzene	70	Not Detected	300	Not Detected
m,p-Xylene	70	Not Detected	300	Not Detected
o-Xylene	70	Not Detected	300	Not Detected
Styrene	70	Not Detected	300	Not Detected
Bromoform	70	Not Detected	720	Not Detected
Cumene	70	Not Detected	340	Not Detected
1,1,2,2-Tetrachloroethane	70	Not Detected	480	Not Detected
Propylbenzene	70	Not Detected	340	Not Detected
4-Ethyltoluene	70	Not Detected	340	Not Detected
1,3,5-Trimethylbenzene	70	Not Detected	340	Not Detected
1,2,4-Trimethylbenzene	70	Not Detected	340	Not Detected
1,3-Dichlorobenzene	70	Not Detected	420	Not Detected
1,4-Dichlorobenzene	70	Not Detected	420	Not Detected
alpha-Chlorotoluene	70	Not Detected	360	Not Detected
1,2-Dichlorobenzene	70	Not Detected	420	Not Detected
1,2,4-Trichlorobenzene	280	Not Detected	2100	Not Detected
Hexachlorobutadiene	280	Not Detected	3000	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: VP-13

Lab ID#: 1310487A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110424**	**Date of Collection:**	**10/17/13 10:00:00 AM**
Dil. Factor:	**2.70**	**Date of Analysis:**	**11/4/13 10:29 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.7	Not Detected
Freon 114	1.4	Not Detected	9.4	Not Detected
Chloromethane	14	Not Detected	28	Not Detected
Vinyl Chloride	1.4	Not Detected	3.4	Not Detected
1,3-Butadiene	1.4	Not Detected	3.0	Not Detected
Bromomethane	14	Not Detected	52	Not Detected
Chloroethane	5.4	Not Detected	14	Not Detected
Freon 11	1.4	Not Detected	7.6	Not Detected
Ethanol	5.4	Not Detected	10	Not Detected
Freon 113	1.4	Not Detected	10	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Acetone	14	Not Detected	32	Not Detected
2-Propanol	5.4	Not Detected	13	Not Detected
Carbon Disulfide	5.4	Not Detected	17	Not Detected
3-Chloropropene	5.4	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	47	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	4.9	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Hexane	1.4	Not Detected	4.8	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.4	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.4	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.0	Not Detected
Chloroform	1.4	Not Detected	6.6	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.4	Not Detected
Cyclohexane	1.4	Not Detected	4.6	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.5	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.3	Not Detected
Benzene	1.4	Not Detected	4.3	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.5	Not Detected
Heptane	1.4	Not Detected	5.5	Not Detected
Trichloroethene	1.4	Not Detected	7.2	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.2	Not Detected
1,4-Dioxane	5.4	Not Detected	19	Not Detected
Bromodichloromethane	1.4	Not Detected	9.0	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.1	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.5	Not Detected
Toluene	1.4	Not Detected	5.1	Not Detected
trans-1,3-Dichloropropene	1.4	Not Detected	6.1	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.4	Not Detected
Tetrachloroethene	1.4	29	9.2	200
2-Hexanone	5.4	Not Detected	22	Not Detected

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Client Sample ID: VP-13

Lab ID#: 1310487A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110424**	**Date of Collection:**	**10/17/13 10:00:00 AM**
Dil. Factor:	**2.70**	**Date of Analysis:**	**11/4/13 10:29 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	10	Not Detected
Chlorobenzene	1.4	Not Detected	6.2	Not Detected
Ethyl Benzene	1.4	Not Detected	5.9	Not Detected
m,p-Xylene	1.4	Not Detected	5.9	Not Detected
o-Xylene	1.4	Not Detected	5.9	Not Detected
Styrene	1.4	Not Detected	5.8	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.6	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.3	Not Detected
Propylbenzene	1.4	Not Detected	6.6	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.6	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.6	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.6	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.1	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.1	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.0	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.1	Not Detected
1,2,4-Trichlorobenzene	5.4	Not Detected	40	Not Detected
Hexachlorobutadiene	5.4	Not Detected	58	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VP-14

Lab ID#: 1310487A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110427**	**Date of Collection:**	**10/17/13 9:44:00 AM**
Dil. Factor:	**11.0**	**Date of Analysis:**	**11/4/13 11:31 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.5	Not Detected	27	Not Detected
Freon 114	5.5	Not Detected	38	Not Detected
Chloromethane	55	Not Detected	110	Not Detected
Vinyl Chloride	5.5	Not Detected	14	Not Detected
1,3-Butadiene	5.5	Not Detected	12	Not Detected
Bromomethane	55	Not Detected	210	Not Detected
Chloroethane	22	Not Detected	58	Not Detected
Freon 11	5.5	Not Detected	31	Not Detected
Ethanol	22	Not Detected	41	Not Detected
Freon 113	5.5	Not Detected	42	Not Detected
1,1-Dichloroethene	5.5	Not Detected	22	Not Detected
Acetone	55	Not Detected	130	Not Detected
2-Propanol	22	Not Detected	54	Not Detected
Carbon Disulfide	22	Not Detected	68	Not Detected
3-Chloropropene	22	Not Detected	69	Not Detected
Methylene Chloride	55	Not Detected	190	Not Detected
Methyl tert-butyl ether	5.5	Not Detected	20	Not Detected
trans-1,2-Dichloroethene	5.5	Not Detected	22	Not Detected
Hexane	5.5	Not Detected	19	Not Detected
1,1-Dichloroethane	5.5	Not Detected	22	Not Detected
2-Butanone (Methyl Ethyl Ketone)	22	Not Detected	65	Not Detected
cis-1,2-Dichloroethene	5.5	Not Detected	22	Not Detected
Tetrahydrofuran	5.5	Not Detected	16	Not Detected
Chloroform	5.5	Not Detected	27	Not Detected
1,1,1-Trichloroethane	5.5	Not Detected	30	Not Detected
Cyclohexane	5.5	Not Detected	19	Not Detected
Carbon Tetrachloride	5.5	Not Detected	35	Not Detected
2,2,4-Trimethylpentane	5.5	Not Detected	26	Not Detected
Benzene	5.5	Not Detected	18	Not Detected
1,2-Dichloroethane	5.5	Not Detected	22	Not Detected
Heptane	5.5	Not Detected	22	Not Detected
Trichloroethene	5.5	25	30	130
1,2-Dichloropropane	5.5	Not Detected	25	Not Detected
1,4-Dioxane	22	Not Detected	79	Not Detected
Bromodichloromethane	5.5	Not Detected	37	Not Detected
cis-1,3-Dichloropropene	5.5	Not Detected	25	Not Detected
4-Methyl-2-pentanone	5.5	Not Detected	22	Not Detected
Toluene	5.5	Not Detected	21	Not Detected
trans-1,3-Dichloropropene	5.5	Not Detected	25	Not Detected
1,1,2-Trichloroethane	5.5	Not Detected	30	Not Detected
Tetrachloroethene	5.5	1900	37	13000
2-Hexanone	22	Not Detected	90	Not Detected

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Client Sample ID: VP-14

Lab ID#: 1310487A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110427**	**Date of Collection:**	**10/17/13 9:44:00 AM**
Dil. Factor:	**11.0**	**Date of Analysis:**	**11/4/13 11:31 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.5	Not Detected	47	Not Detected
1,2-Dibromoethane (EDB)	5.5	Not Detected	42	Not Detected
Chlorobenzene	5.5	Not Detected	25	Not Detected
Ethyl Benzene	5.5	Not Detected	24	Not Detected
m,p-Xylene	5.5	Not Detected	24	Not Detected
o-Xylene	5.5	Not Detected	24	Not Detected
Styrene	5.5	Not Detected	23	Not Detected
Bromoform	5.5	Not Detected	57	Not Detected
Cumene	5.5	Not Detected	27	Not Detected
1,1,2,2-Tetrachloroethane	5.5	Not Detected	38	Not Detected
Propylbenzene	5.5	Not Detected	27	Not Detected
4-Ethyltoluene	5.5	Not Detected	27	Not Detected
1,3,5-Trimethylbenzene	5.5	Not Detected	27	Not Detected
1,2,4-Trimethylbenzene	5.5	Not Detected	27	Not Detected
1,3-Dichlorobenzene	5.5	Not Detected	33	Not Detected
1,4-Dichlorobenzene	5.5	Not Detected	33	Not Detected
alpha-Chlorotoluene	5.5	Not Detected	28	Not Detected
1,2-Dichlorobenzene	5.5	Not Detected	33	Not Detected
1,2,4-Trichlorobenzene	22	Not Detected	160	Not Detected
Hexachlorobutadiene	22	Not Detected	230	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: VP-101

Lab ID#: 1310487A-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110425**	**Date of Collection:**	**10/17/13 8:25:00 AM**
Dil. Factor:	**2.81**	**Date of Analysis:**	**11/4/13 10:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.9	Not Detected
Freon 114	1.4	Not Detected	9.8	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.9	Not Detected
Ethanol	5.6	11	10	21
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	18	Not Detected
3-Chloropropene	5.6	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	49	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.1	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Hexane	1.4	1.8	5.0	6.2
1,1-Dichloroethane	1.4	Not Detected	5.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Tetrahydrofuran	1.4	1.5	4.1	4.4
Chloroform	1.4	Not Detected	6.9	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.8	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.6	Not Detected
Benzene	1.4	Not Detected	4.5	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.7	Not Detected
Heptane	1.4	Not Detected	5.8	Not Detected
Trichloroethene	1.4	Not Detected	7.6	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.5	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.4	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.8	Not Detected
Toluene	1.4	38	5.3	140
trans-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Tetrachloroethene	1.4	85	9.5	570
2-Hexanone	5.6	Not Detected	23	Not Detected

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Client Sample ID: VP-101

Lab ID#: 1310487A-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110425**	**Date of Collection:**	**10/17/13 8:25:00 AM**
Dil. Factor:	**2.81**	**Date of Analysis:**	**11/4/13 10:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.5	Not Detected
Ethyl Benzene	1.4	Not Detected	6.1	Not Detected
m,p-Xylene	1.4	2.1	6.1	9.2
o-Xylene	1.4	Not Detected	6.1	Not Detected
Styrene	1.4	Not Detected	6.0	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.9	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.6	Not Detected
Propylbenzene	1.4	Not Detected	6.9	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.9	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.3	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	42	Not Detected
Hexachlorobutadiene	5.6	Not Detected	60	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: VP-102

Lab ID#: 1310487A-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110506**	**Date of Collection:**	**10/17/13 3:15:00 PM**
Dil. Factor:	**2.82**	**Date of Analysis:**	**11/5/13 12:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	7.0	Not Detected
Freon 114	1.4	Not Detected	9.8	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	55	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.9	Not Detected
Ethanol	5.6	10	11	19
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	18	Not Detected
3-Chloropropene	5.6	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	49	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.1	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Hexane	1.4	Not Detected	5.0	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	17	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.6	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.2	Not Detected
Chloroform	1.4	Not Detected	6.9	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.9	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.6	Not Detected
Benzene	1.4	Not Detected	4.5	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.7	Not Detected
Heptane	1.4	Not Detected	5.8	Not Detected
Trichloroethene	1.4	Not Detected	7.6	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.5	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.4	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.8	Not Detected
Toluene	1.4	63	5.3	240
trans-1,3-Dichloropropene	1.4	Not Detected	6.4	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.7	Not Detected
Tetrachloroethene	1.4	290	9.6	2000
2-Hexanone	5.6	Not Detected	23	Not Detected

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Client Sample ID: VP-102

Lab ID#: 1310487A-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110506**	**Date of Collection:**	**10/17/13 3:15:00 PM**
Dil. Factor:	**2.82**	**Date of Analysis:**	**11/5/13 12:19 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.5	Not Detected
Ethyl Benzene	1.4	Not Detected	6.1	Not Detected
m,p-Xylene	1.4	2.2	6.1	9.5
o-Xylene	1.4	Not Detected	6.1	Not Detected
Styrene	1.4	Not Detected	6.0	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.9	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.7	Not Detected
Propylbenzene	1.4	Not Detected	6.9	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.9	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.9	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.3	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.5	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	42	Not Detected
Hexachlorobutadiene	5.6	Not Detected	60	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: VP-103

Lab ID#: 1310487A-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110507**	**Date of Collection:**	**10/18/13 12:45:00 PM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/5/13 12:40 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.9	Not Detected
Freon 114	1.4	Not Detected	9.7	Not Detected
Chloromethane	14	Not Detected	29	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.1	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.6	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	7.8	Not Detected
Ethanol	5.6	23	10	43
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.6	Not Detected	14	Not Detected
Carbon Disulfide	5.6	Not Detected	17	Not Detected
3-Chloropropene	5.6	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	48	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.6	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.8	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.7	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.5	Not Detected
Benzene	1.4	Not Detected	4.4	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.6	Not Detected
Heptane	1.4	Not Detected	5.7	Not Detected
Trichloroethene	1.4	Not Detected	7.5	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.4	Not Detected
1,4-Dioxane	5.6	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.3	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.7	Not Detected
Toluene	1.4	13	5.2	50
trans-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.6	Not Detected
Tetrachloroethene	1.4	Not Detected	9.4	Not Detected
2-Hexanone	5.6	Not Detected	23	Not Detected

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Client Sample ID: VP-103

Lab ID#: 1310487A-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110507**	**Date of Collection:**	**10/18/13 12:45:00 PM**
Dil. Factor:	**2.78**	**Date of Analysis:**	**11/5/13 12:40 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	2.0	6.0	8.5
m,p-Xylene	1.4	8.7	6.0	38
o-Xylene	1.4	2.6	6.0	11
Styrene	1.4	Not Detected	5.9	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.8	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.5	Not Detected
Propylbenzene	1.4	Not Detected	6.8	Not Detected
4-Ethyltoluene	1.4	2.5	6.8	12
1,3,5-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,2,4-Trimethylbenzene	1.4	2.4	6.8	12
1,3-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.2	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.4	Not Detected
1,2,4-Trichlorobenzene	5.6	Not Detected	41	Not Detected
Hexachlorobutadiene	5.6	Not Detected	59	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: VP-104

Lab ID#: 1310487A-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110508**	**Date of Collection:**	**10/18/13 8:40:00 AM**
Dil. Factor:	**2.66**	**Date of Analysis:**	**11/5/13 01:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.6	Not Detected
Freon 114	1.3	Not Detected	9.3	Not Detected
Chloromethane	13	Not Detected	27	Not Detected
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,3-Butadiene	1.3	Not Detected	2.9	Not Detected
Bromomethane	13	Not Detected	52	Not Detected
Chloroethane	5.3	Not Detected	14	Not Detected
Freon 11	1.3	Not Detected	7.5	Not Detected
Ethanol	5.3	9.2	10	17
Freon 113	1.3	Not Detected	10	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.3	Not Detected
Acetone	13	Not Detected	32	Not Detected
2-Propanol	5.3	Not Detected	13	Not Detected
Carbon Disulfide	5.3	Not Detected	16	Not Detected
3-Chloropropene	5.3	Not Detected	17	Not Detected
Methylene Chloride	13	Not Detected	46	Not Detected
Methyl tert-butyl ether	1.3	Not Detected	4.8	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.3	Not Detected
Hexane	1.3	Not Detected	4.7	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.3	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.3	Not Detected
Tetrahydrofuran	1.3	Not Detected	3.9	Not Detected
Chloroform	1.3	Not Detected	6.5	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Cyclohexane	1.3	Not Detected	4.6	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.4	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	6.2	Not Detected
Benzene	1.3	Not Detected	4.2	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.4	Not Detected
Heptane	1.3	Not Detected	5.4	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
1,2-Dichloropropane	1.3	Not Detected	6.1	Not Detected
1,4-Dioxane	5.3	Not Detected	19	Not Detected
Bromodichloromethane	1.3	Not Detected	8.9	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	6.0	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.4	Not Detected
Toluene	1.3	35	5.0	130
trans-1,3-Dichloropropene	1.3	Not Detected	6.0	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Tetrachloroethene	1.3	21	9.0	140
2-Hexanone	5.3	Not Detected	22	Not Detected

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Client Sample ID: VP-104

Lab ID#: 1310487A-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110508**	**Date of Collection:**	**10/18/13 8:40:00 AM**
Dil. Factor:	**2.66**	**Date of Analysis:**	**11/5/13 01:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	10	Not Detected
Chlorobenzene	1.3	Not Detected	6.1	Not Detected
Ethyl Benzene	1.3	Not Detected	5.8	Not Detected
m,p-Xylene	1.3	1.4	5.8	6.1
o-Xylene	1.3	Not Detected	5.8	Not Detected
Styrene	1.3	Not Detected	5.7	Not Detected
Bromoform	1.3	Not Detected	14	Not Detected
Cumene	1.3	Not Detected	6.5	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	9.1	Not Detected
Propylbenzene	1.3	Not Detected	6.5	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.5	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	8.0	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	8.0	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.9	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	8.0	Not Detected
1,2,4-Trichlorobenzene	5.3	Not Detected	39	Not Detected
Hexachlorobutadiene	5.3	Not Detected	57	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VP-105

Lab ID#: 1310487A-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110509**	**Date of Collection:**	**10/18/13 7:55:00 AM**
Dil. Factor:	**2.76**	**Date of Analysis:**	**11/5/13 01:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.8	Not Detected
Freon 114	1.4	Not Detected	9.6	Not Detected
Chloromethane	14	Not Detected	28	Not Detected
Vinyl Chloride	1.4	Not Detected	3.5	Not Detected
1,3-Butadiene	1.4	Not Detected	3.0	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.5	Not Detected	14	Not Detected
Freon 11	1.4	Not Detected	7.8	Not Detected
Ethanol	5.5	Not Detected	10	Not Detected
Freon 113	1.4	Not Detected	10	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Acetone	14	Not Detected	33	Not Detected
2-Propanol	5.5	Not Detected	14	Not Detected
Carbon Disulfide	5.5	Not Detected	17	Not Detected
3-Chloropropene	5.5	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	48	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.5	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.7	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.5	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.7	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.4	Not Detected
Benzene	1.4	Not Detected	4.4	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.6	Not Detected
Heptane	1.4	Not Detected	5.6	Not Detected
Trichloroethene	1.4	Not Detected	7.4	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.4	Not Detected
1,4-Dioxane	5.5	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.2	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.6	Not Detected
Toluene	1.4	21	5.2	78
trans-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.5	Not Detected
Tetrachloroethene	1.4	43	9.4	290
2-Hexanone	5.5	Not Detected	23	Not Detected

eurofins | Air Toxics

Client Sample ID: VP-105

Lab ID#: 1310487A-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110509**	**Date of Collection:**	**10/18/13 7:55:00 AM**
Dil. Factor:	**2.76**	**Date of Analysis:**	**11/5/13 01:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	4.1	6.0	18
m,p-Xylene	1.4	16	6.0	72
o-Xylene	1.4	4.0	6.0	17
Styrene	1.4	Not Detected	5.9	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.8	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.5	Not Detected
Propylbenzene	1.4	Not Detected	6.8	Not Detected
4-Ethyltoluene	1.4	3.8	6.8	18
1,3,5-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,2,4-Trimethylbenzene	1.4	3.1	6.8	15
1,3-Dichlorobenzene	1.4	Not Detected	8.3	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.3	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.1	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.3	Not Detected
1,2,4-Trichlorobenzene	5.5	Not Detected	41	Not Detected
Hexachlorobutadiene	5.5	Not Detected	59	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VP-106

Lab ID#: 1310487A-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110510**	**Date of Collection:**	**10/18/13 1:00:00 PM**
Dil. Factor:	**2.86**	**Date of Analysis:**	**11/5/13 01:45 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	7.1	Not Detected
Freon 114	1.4	Not Detected	10	Not Detected
Chloromethane	14	Not Detected	30	Not Detected
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
1,3-Butadiene	1.4	Not Detected	3.2	Not Detected
Bromomethane	14	Not Detected	56	Not Detected
Chloroethane	5.7	Not Detected	15	Not Detected
Freon 11	1.4	Not Detected	8.0	Not Detected
Ethanol	5.7	8.4	11	16
Freon 113	1.4	Not Detected	11	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Acetone	14	Not Detected	34	Not Detected
2-Propanol	5.7	Not Detected	14	Not Detected
Carbon Disulfide	5.7	Not Detected	18	Not Detected
3-Chloropropene	5.7	Not Detected	18	Not Detected
Methylene Chloride	14	Not Detected	50	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.2	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Hexane	1.4	1.9	5.0	6.6
1,1-Dichloroethane	1.4	Not Detected	5.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.7	Not Detected	17	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.2	Not Detected
Chloroform	1.4	Not Detected	7.0	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.8	Not Detected
Cyclohexane	1.4	1.5	4.9	5.1
Carbon Tetrachloride	1.4	Not Detected	9.0	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.7	Not Detected
Benzene	1.4	Not Detected	4.6	Not Detected
1,2-Dichloroethane	1.4	Not Detected	5.8	Not Detected
Heptane	1.4	Not Detected	5.9	Not Detected
Trichloroethene	1.4	Not Detected	7.7	Not Detected
1,2-Dichloropropane	1.4	Not Detected	6.6	Not Detected
1,4-Dioxane	5.7	Not Detected	21	Not Detected
Bromodichloromethane	1.4	Not Detected	9.6	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.5	Not Detected
4-Methyl-2-pentanone	1.4	Not Detected	5.8	Not Detected
Toluene	1.4	43	5.4	160
trans-1,3-Dichloropropene	1.4	Not Detected	6.5	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.8	Not Detected
Tetrachloroethene	1.4	100	9.7	700
2-Hexanone	5.7	Not Detected	23	Not Detected

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Client Sample ID: VP-106

Lab ID#: 1310487A-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110510**	**Date of Collection:**	**10/18/13 1:00:00 PM**
Dil. Factor:	**2.86**	**Date of Analysis:**	**11/5/13 01:45 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.6	Not Detected
Ethyl Benzene	1.4	Not Detected	6.2	Not Detected
m,p-Xylene	1.4	1.9	6.2	8.1
o-Xylene	1.4	Not Detected	6.2	Not Detected
Styrene	1.4	Not Detected	6.1	Not Detected
Bromoform	1.4	Not Detected	15	Not Detected
Cumene	1.4	Not Detected	7.0	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.8	Not Detected
Propylbenzene	1.4	Not Detected	7.0	Not Detected
4-Ethyltoluene	1.4	Not Detected	7.0	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	7.0	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	7.0	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.6	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.6	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.4	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.6	Not Detected
1,2,4-Trichlorobenzene	5.7	Not Detected	42	Not Detected
Hexachlorobutadiene	5.7	Not Detected	61	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: VP-08

Lab ID#: 1310487A-20A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110513**	**Date of Collection:**	**10/18/13 10:40:00 AM**
Dil. Factor:	**2.56**	**Date of Analysis:**	**11/5/13 04:20 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.3	Not Detected
Freon 114	1.3	Not Detected	8.9	Not Detected
Chloromethane	13	Not Detected	26	Not Detected
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	50	Not Detected
Chloroethane	5.1	Not Detected	14	Not Detected
Freon 11	1.3	Not Detected	7.2	Not Detected
Ethanol	5.1	14	9.6	26
Freon 113	1.3	Not Detected	9.8	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Acetone	13	Not Detected	30	Not Detected
2-Propanol	5.1	Not Detected	12	Not Detected
Carbon Disulfide	5.1	Not Detected	16	Not Detected
3-Chloropropene	5.1	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	44	Not Detected
Methyl tert-butyl ether	1.3	Not Detected	4.6	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Hexane	1.3	Not Detected	4.5	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.1	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrahydrofuran	1.3	Not Detected	3.8	Not Detected
Chloroform	1.3	3.6	6.2	18
1,1,1-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Cyclohexane	1.3	Not Detected	4.4	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.0	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	6.0	Not Detected
Benzene	1.3	Not Detected	4.1	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.2	Not Detected
Heptane	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	6.9	Not Detected
1,2-Dichloropropane	1.3	Not Detected	5.9	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.6	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.2	Not Detected
Toluene	1.3	53	4.8	200
trans-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Tetrachloroethene	1.3	6.9	8.7	47
2-Hexanone	5.1	Not Detected	21	Not Detected

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Client Sample ID: VP-08

Lab ID#: 1310487A-20A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110513**	**Date of Collection:**	**10/18/13 10:40:00 AM**
Dil. Factor:	**2.56**	**Date of Analysis:**	**11/5/13 04:20 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.8	Not Detected
Chlorobenzene	1.3	Not Detected	5.9	Not Detected
Ethyl Benzene	1.3	Not Detected	5.6	Not Detected
m,p-Xylene	1.3	1.7	5.6	7.4
o-Xylene	1.3	Not Detected	5.6	Not Detected
Styrene	1.3	Not Detected	5.4	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.3	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.8	Not Detected
Propylbenzene	1.3	Not Detected	6.3	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.3	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.6	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
1,2,4-Trichlorobenzene	5.1	Not Detected	38	Not Detected
Hexachlorobutadiene	5.1	Not Detected	55	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1310487A-21A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110408**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 02:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1310487A-21A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110408**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 02:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1310487A-21B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110505**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 11:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1310487A-21B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110505**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 11:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1310487A-21C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110508**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 05:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1310487A-21C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110508**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 05:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CCV

Lab ID#: 1310487A-22A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110403**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 10:07 AM**

Compound	%Recovery
Freon 12	95
Freon 114	93
Chloromethane	98
Vinyl Chloride	98
1,3-Butadiene	90
Bromomethane	94
Chloroethane	94
Freon 11	95
Ethanol	92
Freon 113	86
1,1-Dichloroethene	88
Acetone	88
2-Propanol	92
Carbon Disulfide	112
3-Chloropropene	101
Methylene Chloride	87
Methyl tert-butyl ether	94
trans-1,2-Dichloroethene	104
Hexane	93
1,1-Dichloroethane	96
2-Butanone (Methyl Ethyl Ketone)	96
cis-1,2-Dichloroethene	95
Tetrahydrofuran	92
Chloroform	97
1,1,1-Trichloroethane	99
Cyclohexane	92
Carbon Tetrachloride	96
2,2,4-Trimethylpentane	85
Benzene	100
1,2-Dichloroethane	100
Heptane	94
Trichloroethene	98
1,2-Dichloropropane	100
1,4-Dioxane	95
Bromodichloromethane	99
cis-1,3-Dichloropropene	104
4-Methyl-2-pentanone	94
Toluene	100
trans-1,3-Dichloropropene	103
1,1,2-Trichloroethane	102
Tetrachloroethene	99
2-Hexanone	100

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Client Sample ID: CCV

Lab ID#: 1310487A-22A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110403**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 10:07 AM**	

Compound	**%Recovery**
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	102
Chlorobenzene	102
Ethyl Benzene	101
m,p-Xylene	102
o-Xylene	103
Styrene	112
Bromoform	99
Cumene	101
1,1,2,2-Tetrachloroethane	104
Propylbenzene	89
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	106
1,2,4-Trimethylbenzene	111
1,3-Dichlorobenzene	104
1,4-Dichlorobenzene	106
alpha-Chlorotoluene	105
1,2-Dichlorobenzene	106
1,2,4-Trichlorobenzene	134 Q
Hexachlorobutadiene	132 Q

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: CCV

Lab ID#: 1310487A-22B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110502**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 09:10 AM**

Compound	%Recovery
Freon 12	92
Freon 114	92
Chloromethane	93
Vinyl Chloride	94
1,3-Butadiene	86
Bromomethane	92
Chloroethane	92
Freon 11	93
Ethanol	88
Freon 113	84
1,1-Dichloroethene	88
Acetone	84
2-Propanol	88
Carbon Disulfide	109
3-Chloropropene	100
Methylene Chloride	82
Methyl tert-butyl ether	87
trans-1,2-Dichloroethene	103
Hexane	89
1,1-Dichloroethane	92
2-Butanone (Methyl Ethyl Ketone)	91
cis-1,2-Dichloroethene	94
Tetrahydrofuran	88
Chloroform	94
1,1,1-Trichloroethane	94
Cyclohexane	90
Carbon Tetrachloride	92
2,2,4-Trimethylpentane	82
Benzene	100
1,2-Dichloroethane	100
Heptane	92
Trichloroethene	99
1,2-Dichloropropane	101
1,4-Dioxane	93
Bromodichloromethane	98
cis-1,3-Dichloropropene	101
4-Methyl-2-pentanone	93
Toluene	100
trans-1,3-Dichloropropene	100
1,1,2-Trichloroethane	100
Tetrachloroethene	98
2-Hexanone	94

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Client Sample ID: CCV

Lab ID#: 1310487A-22B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110502**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 09:10 AM**

Compound	%Recovery
Dibromochloromethane	98
1,2-Dibromoethane (EDB)	101
Chlorobenzene	101
Ethyl Benzene	100
m,p-Xylene	100
o-Xylene	100
Styrene	110
Bromoform	96
Cumene	99
1,1,2,2-Tetrachloroethane	103
Propylbenzene	88
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	104
1,2,4-Trimethylbenzene	107
1,3-Dichlorobenzene	103
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	95
1,2-Dichlorobenzene	102
1,2,4-Trichlorobenzene	84
Hexachlorobutadiene	88

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV

Lab ID#: 1310487A-22C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110502**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 02:09 PM**

Compound	%Recovery
Freon 12	111
Freon 114	102
Chloromethane	92
Vinyl Chloride	99
1,3-Butadiene	88
Bromomethane	97
Chloroethane	97
Freon 11	113
Ethanol	78
Freon 113	100
1,1-Dichloroethene	96
Acetone	86
2-Propanol	86
Carbon Disulfide	96
3-Chloropropene	90
Methylene Chloride	96
Methyl tert-butyl ether	97
trans-1,2-Dichloroethene	94
Hexane	86
1,1-Dichloroethane	96
2-Butanone (Methyl Ethyl Ketone)	94
cis-1,2-Dichloroethene	92
Tetrahydrofuran	85
Chloroform	100
1,1,1-Trichloroethane	105
Cyclohexane	95
Carbon Tetrachloride	106
2,2,4-Trimethylpentane	89
Benzene	95
1,2-Dichloroethane	111
Heptane	92
Trichloroethene	97
1,2-Dichloropropane	92
1,4-Dioxane	97
Bromodichloromethane	105
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	84
Toluene	90
trans-1,3-Dichloropropene	100
1,1,2-Trichloroethane	94
Tetrachloroethene	98
2-Hexanone	82

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Client Sample ID: CCV

Lab ID#: 1310487A-22C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110502**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 02:09 PM**

Compound	%Recovery
Dibromochloromethane	101
1,2-Dibromoethane (EDB)	96
Chlorobenzene	95
Ethyl Benzene	98
m,p-Xylene	96
o-Xylene	98
Styrene	97
Bromoform	100
Cumene	97
1,1,2,2-Tetrachloroethane	94
Propylbenzene	100
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	101
1,2,4-Trimethylbenzene	100
1,3-Dichlorobenzene	102
1,4-Dichlorobenzene	100
alpha-Chlorotoluene	97
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	99
Hexachlorobutadiene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	115	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCS

Lab ID#: 1310487A-23A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 10:59 AM**	

Compound	%Recovery	Method Limits
Freon 12	96	70-130
Freon 114	95	70-130
Chloromethane	99	70-130
Vinyl Chloride	98	70-130
1,3-Butadiene	93	70-130
Bromomethane	95	70-130
Chloroethane	95	70-130
Freon 11	97	70-130
Ethanol	89	70-130
Freon 113	96	70-130
1,1-Dichloroethene	103	70-130
Acetone	86	70-130
2-Propanol	93	70-130
Carbon Disulfide	119	70-130
3-Chloropropene	105	70-130
Methylene Chloride	93	70-130
Methyl tert-butyl ether	95	70-130
trans-1,2-Dichloroethene	110	70-130
Hexane	93	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	97	70-130
Tetrahydrofuran	93	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	99	70-130
Cyclohexane	95	70-130
Carbon Tetrachloride	97	70-130
2,2,4-Trimethylpentane	86	70-130
Benzene	100	70-130
1,2-Dichloroethane	99	70-130
Heptane	95	70-130
Trichloroethene	100	70-130
1,2-Dichloropropane	100	70-130
1,4-Dioxane	95	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	96	70-130
Toluene	98	70-130
trans-1,3-Dichloropropene	99	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	97	70-130
2-Hexanone	97	70-130

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Client Sample ID: LCS

Lab ID#: 1310487A-23A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110404**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 10:59 AM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	101	70-130
Chlorobenzene	99	70-130
Ethyl Benzene	98	70-130
m,p-Xylene	101	70-130
o-Xylene	100	70-130
Styrene	109	70-130
Bromoform	99	70-130
Cumene	101	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	89	70-130
4-Ethyltoluene	95	70-130
1,3,5-Trimethylbenzene	103	70-130
1,2,4-Trimethylbenzene	104	70-130
1,3-Dichlorobenzene	100	70-130
1,4-Dichlorobenzene	99	70-130
alpha-Chlorotoluene	103	70-130
1,2-Dichlorobenzene	101	70-130
1,2,4-Trichlorobenzene	119	70-130
Hexachlorobutadiene	118	70-130

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCSD

Lab ID#: 1310487A-23AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110405**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 11:20 AM**	

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Freon 114	97	70-130
Chloromethane	97	70-130
Vinyl Chloride	101	70-130
1,3-Butadiene	94	70-130
Bromomethane	97	70-130
Chloroethane	99	70-130
Freon 11	100	70-130
Ethanol	92	70-130
Freon 113	99	70-130
1,1-Dichloroethene	106	70-130
Acetone	92	70-130
2-Propanol	96	70-130
Carbon Disulfide	122	70-130
3-Chloropropene	112	70-130
Methylene Chloride	97	70-130
Methyl tert-butyl ether	97	70-130
trans-1,2-Dichloroethene	114	70-130
Hexane	95	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	97	70-130
cis-1,2-Dichloroethene	101	70-130
Tetrahydrofuran	95	70-130
Chloroform	102	70-130
1,1,1-Trichloroethane	102	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	100	70-130
2,2,4-Trimethylpentane	88	70-130
Benzene	102	70-130
1,2-Dichloroethane	101	70-130
Heptane	98	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	102	70-130
1,4-Dioxane	97	70-130
Bromodichloromethane	106	70-130
cis-1,3-Dichloropropene	103	70-130
4-Methyl-2-pentanone	97	70-130
Toluene	101	70-130
trans-1,3-Dichloropropene	102	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	100	70-130
2-Hexanone	101	70-130

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Client Sample ID: LCSD

Lab ID#: 1310487A-23AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110405**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/4/13 11:20 AM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	104	70-130
1,2-Dibromoethane (EDB)	104	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	104	70-130
o-Xylene	102	70-130
Styrene	114	70-130
Bromoform	104	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	92	70-130
4-Ethyltoluene	101	70-130
1,3,5-Trimethylbenzene	106	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	104	70-130
1,4-Dichlorobenzene	103	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	107	70-130
1,2,4-Trichlorobenzene	132 Q	70-130
Hexachlorobutadiene	129	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCS

Lab ID#: 1310487A-23B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 09:53 AM**	

Compound	%Recovery	Method Limits
Freon 12	94	70-130
Freon 114	93	70-130
Chloromethane	90	70-130
Vinyl Chloride	96	70-130
1,3-Butadiene	90	70-130
Bromomethane	93	70-130
Chloroethane	92	70-130
Freon 11	94	70-130
Ethanol	86	70-130
Freon 113	95	70-130
1,1-Dichloroethene	102	70-130
Acetone	84	70-130
2-Propanol	88	70-130
Carbon Disulfide	117	70-130
3-Chloropropene	102	70-130
Methylene Chloride	91	70-130
Methyl tert-butyl ether	90	70-130
trans-1,2-Dichloroethene	107	70-130
Hexane	89	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	93	70-130
cis-1,2-Dichloroethene	96	70-130
Tetrahydrofuran	88	70-130
Chloroform	96	70-130
1,1,1-Trichloroethane	95	70-130
Cyclohexane	92	70-130
Carbon Tetrachloride	95	70-130
2,2,4-Trimethylpentane	84	70-130
Benzene	99	70-130
1,2-Dichloroethane	98	70-130
Heptane	95	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	98	70-130
1,4-Dioxane	95	70-130
Bromodichloromethane	102	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	94	70-130
Toluene	97	70-130
trans-1,3-Dichloropropene	94	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	97	70-130
2-Hexanone	93	70-130

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Client Sample ID: LCS

Lab ID#: 1310487A-23B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 09:53 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	98	70-130
1,2-Dibromoethane (EDB)	98	70-130
Chlorobenzene	97	70-130
Ethyl Benzene	95	70-130
m,p-Xylene	98	70-130
o-Xylene	97	70-130
Styrene	107	70-130
Bromoform	98	70-130
Cumene	99	70-130
1,1,2,2-Tetrachloroethane	98	70-130
Propylbenzene	86	70-130
4-Ethyltoluene	92	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	100	70-130
1,3-Dichlorobenzene	99	70-130
1,4-Dichlorobenzene	97	70-130
alpha-Chlorotoluene	97	70-130
1,2-Dichlorobenzene	100	70-130
1,2,4-Trichlorobenzene	119	70-130
Hexachlorobutadiene	119	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: LCSD

Lab ID#: 1310487A-23BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 10:14 AM**	

Compound	%Recovery	Method Limits
Freon 12	97	70-130
Freon 114	96	70-130
Chloromethane	94	70-130
Vinyl Chloride	99	70-130
1,3-Butadiene	91	70-130
Bromomethane	95	70-130
Chloroethane	95	70-130
Freon 11	98	70-130
Ethanol	91	70-130
Freon 113	98	70-130
1,1-Dichloroethene	103	70-130
Acetone	88	70-130
2-Propanol	92	70-130
Carbon Disulfide	119	70-130
3-Chloropropene	108	70-130
Methylene Chloride	93	70-130
Methyl tert-butyl ether	92	70-130
trans-1,2-Dichloroethene	109	70-130
Hexane	93	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	98	70-130
cis-1,2-Dichloroethene	98	70-130
Tetrahydrofuran	92	70-130
Chloroform	98	70-130
1,1,1-Trichloroethane	99	70-130
Cyclohexane	96	70-130
Carbon Tetrachloride	98	70-130
2,2,4-Trimethylpentane	86	70-130
Benzene	99	70-130
1,2-Dichloroethane	97	70-130
Heptane	94	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	98	70-130
1,4-Dioxane	95	70-130
Bromodichloromethane	102	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	93	70-130
Toluene	98	70-130
trans-1,3-Dichloropropene	100	70-130
1,1,2-Trichloroethane	103	70-130
Tetrachloroethene	101	70-130
2-Hexanone	99	70-130

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Client Sample ID: LCSD

Lab ID#: 1310487A-23BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17110504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 10:14 AM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	104	70-130
1,2-Dibromoethane (EDB)	104	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	104	70-130
o-Xylene	102	70-130
Styrene	114	70-130
Bromoform	104	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	92	70-130
4-Ethyltoluene	97	70-130
1,3,5-Trimethylbenzene	110	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	105	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	102	70-130
1,2-Dichlorobenzene	108	70-130
1,2,4-Trichlorobenzene	135 Q	70-130
Hexachlorobutadiene	132 Q	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCS

Lab ID#: 1310487A-23C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 03:07 PM**	

Compound	%Recovery	Method Limits
Freon 12	112	70-130
Freon 114	103	70-130
Chloromethane	90	70-130
Vinyl Chloride	98	70-130
1,3-Butadiene	91	70-130
Bromomethane	98	70-130
Chloroethane	104	70-130
Freon 11	116	70-130
Ethanol	78	70-130
Freon 113	114	70-130
1,1-Dichloroethene	111	70-130
Acetone	89	70-130
2-Propanol	89	70-130
Carbon Disulfide	102	70-130
3-Chloropropene	94	70-130
Methylene Chloride	103	70-130
Methyl tert-butyl ether	98	70-130
trans-1,2-Dichloroethene	100	70-130
Hexane	90	70-130
1,1-Dichloroethane	100	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	95	70-130
Tetrahydrofuran	84	70-130
Chloroform	102	70-130
1,1,1-Trichloroethane	105	70-130
Cyclohexane	96	70-130
Carbon Tetrachloride	109	70-130
2,2,4-Trimethylpentane	92	70-130
Benzene	100	70-130
1,2-Dichloroethane	115	70-130
Heptane	99	70-130
Trichloroethene	101	70-130
1,2-Dichloropropane	91	70-130
1,4-Dioxane	106	70-130
Bromodichloromethane	112	70-130
cis-1,3-Dichloropropene	97	70-130
4-Methyl-2-pentanone	91	70-130
Toluene	93	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	101	70-130
2-Hexanone	91	70-130

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Client Sample ID: LCS

Lab ID#: 1310487A-23C

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 03:07 PM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	109	70-130
1,2-Dibromoethane (EDB)	100	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	102	70-130
o-Xylene	99	70-130
Styrene	99	70-130
Bromoform	109	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Propylbenzene	105	70-130
4-Ethyltoluene	104	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	103	70-130
1,2-Dichlorobenzene	100	70-130
1,2,4-Trichlorobenzene	98	70-130
Hexachlorobutadiene	94	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: LCSD

Lab ID#: 1310487A-23CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110505**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 03:40 PM**	

Compound	%Recovery	Method Limits
Freon 12	121	70-130
Freon 114	111	70-130
Chloromethane	101	70-130
Vinyl Chloride	108	70-130
1,3-Butadiene	99	70-130
Bromomethane	105	70-130
Chloroethane	109	70-130
Freon 11	124	70-130
Ethanol	86	70-130
Freon 113	121	70-130
1,1-Dichloroethene	121	70-130
Acetone	99	70-130
2-Propanol	97	70-130
Carbon Disulfide	112	70-130
3-Chloropropene	102	70-130
Methylene Chloride	111	70-130
Methyl tert-butyl ether	107	70-130
trans-1,2-Dichloroethene	106	70-130
Hexane	95	70-130
1,1-Dichloroethane	108	70-130
2-Butanone (Methyl Ethyl Ketone)	104	70-130
cis-1,2-Dichloroethene	105	70-130
Tetrahydrofuran	95	70-130
Chloroform	110	70-130
1,1,1-Trichloroethane	114	70-130
Cyclohexane	108	70-130
Carbon Tetrachloride	115	70-130
2,2,4-Trimethylpentane	103	70-130
Benzene	102	70-130
1,2-Dichloroethane	112	70-130
Heptane	98	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	95	70-130
1,4-Dioxane	104	70-130
Bromodichloromethane	112	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	94	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	102	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	103	70-130
2-Hexanone	92	70-130

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Client Sample ID: LCSD

Lab ID#: 1310487A-23CC

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3110505**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/5/13 03:40 PM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	108	70-130
1,2-Dibromoethane (EDB)	98	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	102	70-130
o-Xylene	102	70-130
Styrene	98	70-130
Bromoform	109	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	97	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	107	70-130
1,3,5-Trimethylbenzene	102	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	104	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	103	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	99	70-130
Hexachlorobutadiene	96	70-130

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	118	70-130
4-Bromofluorobenzene	101	70-130

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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: Russ Carillo
Collected by: (Print and Sign) Byron Collins
Company: Stantec Consulting Email: Russ.Carillo@stantec.com
Address: 2000 S. Colorado Suite 2-700 City: Denver State: CO Zip: 80222
Phone: 303 285 1600 Fax:

Project Info:
P.O. #: Z122050415
Project #:
Project Name: Lobell

Turn Around Time:
☐ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	VP-01	31785	10/17/13	1350	TO15 GCMS, Helium, Fixed gas-O_2, CO_2, CH_4, N_2, Helium	-26.0	-5		
02A	VP-02	3001	10/18/13	945		-24.0	-5		
03A	VP-03	12027	10/18/13	820		-25.0	-5		
04A	VP-04	33716	10/18/13	910		-24.5	-5		
05A	VP-05	2097	10/18/13	1010		-25.5	-5		
06A	VP-06	15737	10/18/13	1155		-24.5	-5		
07A	VP-09	31777	10/18/13	1225		-25.0	-5		
08A	VP-10	9378	10/18/13	1110		-25.0	-5		
09A	VP-11 VP-15 CAB	3042	10/18/13	0900		-25	-5		
10A	VP-11R	8012	10/17/13	1550		-23	-5		

Relinquished by: (signature) Date/Time: 10/21/13 1400
Received by: (signature) Date/Time: ATL 10/22/13 0935
Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time
Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Notes: All samples collected at 5,100' elevation.

Lab Use Only	Shipper Name	Air Bill #	Temp °C	Condition	Custody Seals intact?	Work Order #
	Fedex		NA	Good	Yes No None	1310487A

Form 1208 rev.1

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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: Russ Cirillo
Collected by: (Print and Sign) B. Collins
Company: Stantec Consulting Email: Russ.Cirillo@stantec.com
Address: 2000 S. Colorado Suite 2-200 City: Denver State: CO Zip: 80222
Phone: 303 285 4600 Fax:

Project Info:
P.O. # 212205045
Project #
Project Name: Lobell

Turn Around Time:
☐ Normal
☐ Rush
Specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
11A	VP-12	15757	10/17/13	1430	TO15 GCMS, Helium, Fixed Gas O2 N2 He	-26	-5		
12A	VP-13	34600	10/17/13	1000		-26	-5		
13A	VP-14	9398	10/17/13	944		-24.5	-5		
14A	VP-101	30830	10/17/13	825		-24	-5		
15A	VP-102	31779	10/17/13	1515		-25.5	-5		
16A	VP-103	3390	10/18/13	1245		-23	-5		
17A	VP-104	36451	10/18/13	840		-23	-5		
18A	VP-105	37362	10/18/13	755		-24	-5		
19A	VP-106	33400	10/18/13	1300		-25	-5		
20A	VP-08	9506	10/18/13	1040		-25	-5		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
B. Collins	10/21/13 1405	[illegible] ATL	10/22/13 0935
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	Good	Yes No None	1310487A

Form 1292 rev. 1

AMPLIFIED GEOCHEMICAL IMAGING, LLC

Laboratory Report

Site: Former Lobell Refinery

Prepared for:

Stantec Consulting Services, Inc.
2000 South Colorado Blvd.
Suite 2-300
Denver, CO

Prepared on:
October 31, 2013

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Project Summary and Objective

Amplified Geochemical Imaging, LLC. (AGI) provided the AGI Environmental Survey used at:

Former Lobell Refinery

The service provided by AGI included delivery of the required quantity of AGI Universal Samplers, analysis by the method described below for the requested organic compounds, reporting of the data, and contour mapping (as needed).

This report includes results for only the samples noted under the Laboratory Sample Report section. If contour maps are part of the project deliverable, the maps will be prepared and issued under a separate report cover, upon receipt of a usable sitemap (electronic) and compound choices for contouring.

Written/submitted by:

Jim E Whetzel

Project Manager

Reviewed/approved by:

Dayna M Cobb

Project Manager

Analytical data approved by:

Jasmine R. Smith

Chemist

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Quality Assurance Statement

The AGI Laboratory, at Amplified Geochemical Imaging's facility in Elkton, MD USA, operates under the guidelines of its ISO Standard 17025 DoD ELAP accreditation, and its Quality Assurance Manual, Operating Procedures, and Methods (SPG-SOP-0462).

For this project, the analytical method, results, and observations reported do [ ] do not [√] fall within the scope of AGI's ISO 17025 accreditation.

Screening/Concentration Method

The AGI Universal Samplers are analyzed at AGI's fixed laboratory using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation following U.S. EPA Method 8260 (SPG-WI-0292) which includes the following:

- **BFB Tuning Frequency:** A BFB tune is analyzed at the start of each analytical run and after every 30 samples.
- **Initial Calibration:** A minimum of a five point calibration curve is analyzed prior to the analysis of samples.
- **Linearity of Target Compounds:** If the RSD of any target analyte is less than or equal to 25% then average response factor can be used for quantitation. If the RSD exceeds 25% for a target compound a regression equation can be used for quantitation.
- **Continuing Calibration Verification:** After every 10 samples, and at the end of each analytical batch, and a second-source Reference Standard is analyzed near the mid point of the calibration curve. The acceptance criteria for all target analytes in the reference standards are +/- 50% of the true value.
- **Method Blank:** Analyzed prior to the analysis of field samples and every 30 samples.

Note: Analyte levels reported for the field-deployed AGI Universal Samplers that exceed trip and method blank levels, and/or the reporting limit, are more likely to have originated from on-site sources.

Media Sampled:	SOIL GAS
Chemist - sample analysis:	Fatima Niazi
Chemist - data processor:	Fatima Niazi
Chemist - data review:	Jasmine R. Smith

Method deviations: The highest mass level response for MtBE was removed from the calibration curve due to poor linearity.

Please note that data file names ending with R are rerun samples using the second pair of sorbers, in which the original results were not reported. Data file names ending in D are duplicate analysis results for the second set of sorbers from the same sampler, and are reported.

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Additional Report Information

- Comments
- Laboratory Sample Report
- Chain of Custody
- Installation and Retrieval Log
- Data Table(s) and Key
- Concentration Calculation Method Summary
- Total Ion Chromatograms

Project Specific Comments

None.

Survey period [1]	Samplers were installed on October 7, 2013 and retrieved on October 10, 2013 for an exposure period of three days.
Tamper seal intact:	Yes
Date received:	10/16/2013 11:30 AM By: Clarence W Whigham
COC returned:	Yes

Comments:

Chain of custody was not signed by Stantec.

1 - Installation start to end of retrieval, as reported. See installation and retrieval log for individual deployment and retrieval dates and times (i.e., sampler exposure time).

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General Comments

Analytical QA/QC

Laboratory instrumentation consists of gas chromatographs equipped with mass selective detectors, coupled with automated thermal desorption units. Sample preparation involves cutting the tip off the bottom of the AGI Universal Sampler, and transferring one or more "sorbers" to a thermal desorption tube for analysis. The insertion/retrieval cord prevents soil, water and other interferences from coming in contact with the adsorbent. No further sample preparation is required. Any replicate sorbers not consumed in the initial analysis will be discarded fifteen (15) days from the date of the laboratory report.

Data are archived and stored in a secure manner as per AGI's Quality Assurance program (SPG-SOP-0462).

Total petroleum hydrocarbons (TPH), gasoline-range petroleum hydrocarbons (GRPH), and/or diesel range petroleum hydrocarbons (DRPH), when reported, are calculated using the area under the peaks observed in m/z 55 and 57 selected ion chromatograms. Quantitation of the mass values was performed using the response factor for a specific alkane (present in the calibration standards). TPH values include the entire chromatogram and provide estimates for aliphatic hydrocarbon ranges of C4 to C20. GRPH and DRPH include only the relevant regions of the chromatograms and provide estimates for C4 to C10 and C10 to C20 aliphatic hydrocarbons, respectively.

Trip blanks were provided to document potential exposures that were not part of the signal of interest (e.g., impact during sampler shipment, installation and/or retrieval, and storage). The trip blanks are identically manufactured and packaged AGI Universal Samplers to those samplers deployed in the field. The trip blanks remain unopened during all phases of the project. Levels reported on the trip blanks may indicate potential impact to the samplers other than the contaminant source of interest.

Unresolved peak envelopes (UPEs) are represented as a series of compound peaks clustered together around a central gas chromatograph elution time in the total ion chromatogram. UPEs may be indicative of complex fluid mixtures. UPEs observed early in the chromatograms are considered to indicate presence of more volatile fluids, while UPEs observed later in the chromatogram may indicate the presence of less volatile fluids. Multiple UPEs may indicate the presence of multiple complex fluids.

Total ion chromatograms (TICs) are included in the Attachments. The eight-digit serial number of each sampler is incorporated in the TIC identification (e.g., 12345678.D represents AGI Universal Sampler 12345678).

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General Comments

Soil Gas Sampling

For soil gas sampling, the AGI Environmental Survey reports mass levels migrating through the open pore spaces of the soil and diffusing through the sampler membrane for sorption by the engineered, hydrophobic adsorbents, housed within the membrane tube. During the migration of the soil gas away from the source to the AGI Universal Sampler, the vapors are subject to a variety of attenuation factors. The soil gas masses reported on the samplers compare favorably with the concentrations reported in the soil or groundwater (e.g., where soil gas levels are reported at greater levels to other sampled locations on the site, the matrix data should reveal the same pattern, and vice versa). However, due to a variety of factors, a perfect comparison between matrix data and soil gas levels can rarely be achieved.

Soil gas concentrations (µg/m3) are calculated following the method described in the Additional Report Information section.

Soil gas signals reported by this method cannot be correlated specifically to soil adsorbed, groundwater, and/or free-phase contamination. The soil gas signal reported from each AGI Universal Sampler can evolve from all of these sources. Differentiation between soil and groundwater contamination can only be achieved with prior knowledge of the site history (i.e., the site is known to have groundwater contamination only).

Air Sampling

For indoor, outdoor, and crawlspace air sampling, the AGI Environmental Survey reports mass levels present in the air and diffusing through the sampler membrane for sorption by the engineered adsorbents housed within the membrane tube.

Air concentrations (µg/m3) are calculated following the method described in the Additional Report Information section.

Groundwater and Sediment Porewater Sampling

For groundwater and sediment porewater sampling, the AGI Environmental Survey reports the mass levels of compounds present in the water which, when coming in contact with the sampler membrane, partitions out of For groundwater and sediment porewater sampling, the AGI Environmental Survey reports the mass levels of compounds present in the water which, when coming in contact with the sampler membrane, partitions out of solution, and diffuses through the sampler membrane for sorption by the engineered adsorbents.

Water concentrations (µg/L) are calculated using the quantified mass, exposure period and the compound specific uptake rate. The rates were measured under controlled experimental conditions. The uptake rates are corrected for water pressure (depth of the AGI Universal Sampler below the water table), water temperature and the aquifer flow rate. For sediment porewater, the uptake rate is corrected for the reduced colume of water in the sediment, by multiplying the uptake rate by the pore water fraction.

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LABORATORY SAMPLE REPORT

Project: ENV 30000121 **Site Name: Former Lobell Refinery** **Module Type: SPG0008**

Module ID	Sample Type	Field ID
00718413	FIELD_SAMPLE	PSG-05
00718414	FIELD_SAMPLE	PSG-04
00718415	FIELD_SAMPLE	PSG-10
00718416	FIELD_SAMPLE	PSG-06
00718417	TRIP_BLANK	TRIP BLANK
00718418	FIELD_SAMPLE	PSG-08
00718419	FIELD_SAMPLE	PSG-03
00718420	FIELD_SAMPLE	PSG-01
00718421	FIELD_SAMPLE	PSG-02
00718422	FIELD_SAMPLE	PSG-09
00718423	FIELD_SAMPLE	PSG-07
00718424	TRIP_BLANK	TRIP BLANK

Total # "FIELD SAMPLES"	Total # "TRIP BLANKS"	Total # "UNUSED"	Total # "LOST"
10	2	0	0

Duplicate samples: **0**

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AGI Universal Passive Sampler Chain of Custody
Soil gas and/or Air Sampling

Production Order #: 30000121

Customer Name: Stantec consulting Service Inc.
Address: 2000 South Colorado Blvd.
Suite 2-300

Denver, CO 80222

Site Name: Former Lobell Refinery
Site Address:

Project Manager:

Serial # of Samplers Shipped
00718413 - 00718424

# of Samplers for Installation	10.00	# of Trip Blanks	2
Total Samplers Shipped	12.00	Pieces	
Total Samplers Received		Pieces	
Total Samplers Installed		Pieces	

Serial # of Trip Blanks (Client Decides)

Prepared By: Mary Anne Merghi
Verified By: Clarence Whyte

Installation Method: (Circle those that apply)
Slide Hammer Hammer Drill Auger
Other

Installation Performed By:
Name:
Company:

Retrieval Performed By:
Name:
Company:

Installation Start Date / Time:
Installation Complete Date / Time:

Retrieval Start Date / Time:
Retrieval Complete Date / Time

Total Samplers Retrieved:
Total Samplers Lost In Field:
Total Unused Samplers Returned:

Relinquished By	Mary Anne Merghi	**Date/Time** 9/27/13 9:00	**Received By:**
Company:	HGI		**Company:**
Relinquished By		**Date/Time**	**Received By:** Clarence Whyte
Company:			**Company:** HGI

Date/Time 10/16/13 11:30

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AGI Project No. ENV 30000121
Site Name: Former Lobell Refinery
Site Location: Casper WY

Company Name: Stantec Consulting Service Inc
Location: 2000 S. Colorado Blvd Suite 2-300 Denver 80222
Samples collected by: Russ Cirillo / Chris Beall

AGI Soil Gas Sampling
Installation & Retrieval Log

*** Optional or as needed**

SAMPLER SERIAL NO.	FIELD ID* (e.g., arbitrary, US EPA)	SAMPLE TYPE (Field Sample, Trip Blank, Field Blank, etc.)	INSTALLATION DATE & TIME MM/DD/YYYY HH:MM (24 Hour) ex. 12/27/2000 13:00	RETRIEVAL DATE & TIME MM/DD/YYYY HH:MM (24 Hour) ex. 12/30/2000 13:00	OBSERVATIONS/COMMENTS* (e.g., sample depth, location description, missing, pulled from hole, etc. - as needed)
00718413	PSG-05	FIELD_SAMPLE	10/07/2013 14:57	10/10/2013 07:33	PSG-05 @ 19 inches below ground surface (bgs)
00718414	PSG-04	FIELD_SAMPLE	10/07/2013 15:05	10/10/2013 07:29	PSG-04 @ 17 inches bgs
00718415	PSG-10	FIELD_SAMPLE	10/07/2013 16:23	10/10/2013 07:45	PSG-10 @ 20 inches bgs
00718416	PSG-06	FIELD_SAMPLE	10/07/2013 17:28	10/10/2013 07:59	PSG-06 @ 19 inches bgs
00718417	Trip Blank	~~FIELD_SAMPLE~~ Trip Blank	NA	NA	—
00718418	PSG-08	FIELD_SAMPLE	10/07/2013 17:45	10/10/2013 07:53	PSG-08 @ 19 inches bgs
00718419	PSG-03	FIELD_SAMPLE	10/07/2013 15:15	10/10/2013 07:25	PSG-03 @ 18 inches bgs
00718420	PSG-01	FIELD_SAMPLE	10/07/2013 15:34	10/10/2013 07:14	PSG-01 @ 20 inches bgs
00718421	PSG-02	FIELD_SAMPLE	10/07/2013 15:23	10/10/2013 07:20	PSG-02 @ 18 inches bgs
00718422	PSG-09	FIELD_SAMPLE	10/07/2013 16:56	10/10/2013 07:50	PSG-09 @ 16 inches bgs
00718423	PSG-07	~~TRIP_BLANK~~ Field Sample	~~NA~~ CAB 10/07/2013 17:30	10/10/2013 07:55	PSG-07 @ 19 inches bgs
00718424	Trip Blank	TRIP_BLANK	~~10/07/2013 CAB~~ NA	NA	—

SPG-FCD-5929 Soil Gas R4

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AGI Soil Gas Sampling
Installation & Retrieval Log

*** Optional or as needed**

SAMPLER SERIAL NO.	SAMPLE ENVIRONMENT* (e.g., grass, bare soil, through slab)	YES / NO			AT MINIMUM PROVIDE SOIL TYPE			PROJECTED COORDINATES X (EASTING)
		EVIDENCE OF LIQUID PETROLEUM HYDROCARBONS?	ODOR ?	WATER IN INSTALLATION HOLE?	SOIL TYPE AT MODULE DEPTH (clay, loamy sand etc.)	TOTAL SOIL POROSITY AT MODULE DEPTH* (total volume of pores/total volume)	WATER FILLED SOIL POROSITY AT MODULE DEPTH* (volume of water/volume of pores)	
00718413	through street	No	No	No	Sandy Silt			
00718414	through street	No	No	No	Sandy Silt			
00718415	through street	No	No	No	Sandy Silt			
00718416	throug street	No	No	No	Sandy Silt			
00718417	NA	—	—	—	—			
00718418	through street	No	No	No	Sandy Silt			
00718419	through street	No	No	No	Sand Silt			
00718420	through street	No	No	No	Sandy Silt			
00718421	through street	No	No	No	Sandy Silt			
00718422	through street	No	No	No	Sandy Silt			
00718423	throug street	No	No	No	Sandy Silt			
00718424	NA	—	—	—	—			

SPG-FCD-8929 Soil Gas R4

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AGI Soil Gas Sampling
Installation & Retrieval Log

*** Optional or as needed**

SAMPLER SERIAL NO.	PROJECTED COORDINATES Y (NORTHING)	COORDINATE SYSTEM* (e.g., UTM Zone, Stateplane, etc.)	COORDINATE DATUM* (e.g., WGS 84)
00718413			
00718414			
00718415			
00718416			
00718417			
00718418			
00718419			
00718420			
00718421			
00718422			
00718423			
00718424			

SPG-FCD-8929 Soil Gas R4

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718413 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-05 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 2:57:00PM
Retrieval Date: 10/10/2013 7:33:00AM Date Analyzed: 10/25/2013 4:58:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**10.17**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.03**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	79-01-6	<0.02	0.02
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.26**	**0.02**
Octane	**111-65-9**	**0.09**	**0.02**
Tetrachloroethene	**127-18-4**	**0.41**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.06**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.18**	**0.02**
o-Xylene	**95-47-6**	**0.13**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.11**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.27**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.18**	**0.05**
Naphthalene	**91-20-3**	**0.08**	**0.05**
Tridecane	**629-50-5**	**0.10**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.09**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121
SITE NAME: Former Lobell Refinery
SITE ADDRESS:

FOR: Stantec Consulting Services, Inc.

Denver, CO 80222

SAMPLER ID: 00718413 FIELD_SAMPLE
Matrix: SOIL GAS
Product: SPG0008
Dilution Factor: 1
Field ID: PSG-05
Porosity: 0.40
Water Filled Voids: 0.37
Installation Date: 10/7/2013 2:57:00PM
Retrieval Date: 10/10/2013 7:33:00AM
Date Analyzed: 10/25/2013 4:58:00AM
Analyst: Fatima Niazi
Method: SPG-WI-0292
Batch: ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	629-62-9	<0.05	0.05
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.65**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718414 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-04 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:05:00PM
Retrieval Date: 10/10/2013 7:29:00AM Date Analyzed: 10/25/2013 8:16:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**35.66**	**0.50**
BTEX		**2.65**	**0.02**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	**67-66-3**	**0.03**	**0.02**
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.10**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**0.73**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.79**	**0.02**
Octane	**111-65-9**	**0.56**	**0.02**
Tetrachloroethene	**127-18-4**	**65.10**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.21**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**1.01**	**0.02**
o-Xylene	**95-47-6**	**0.53**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.39**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**1.19**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**1.47**	**0.05**
Naphthalene	**91-20-3**	**0.38**	**0.05**
Tridecane	**629-50-5**	**0.76**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.33**	**0.05**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718414 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-04 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:05:00PM
Retrieval Date: 10/10/2013 7:29:00AM Date Analyzed: 10/25/2013 8:16:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Acenaphthylene	208-96-8	<0.05	0.05
Pentadecane	**629-62-9**	**0.11**	**0.05**
Acenaphthene	**83-32-9**	**0.28**	**0.05**
Fluorene	**86-73-7**	**0.11**	**0.05**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718415 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-10 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 4:23:00PM
Retrieval Date: 10/10/2013 7:45:00AM Date Analyzed: 10/25/2013 5:55:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**11.71**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.05**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**0.04**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.14**	**0.02**
Octane	**111-65-9**	**0.09**	**0.02**
Tetrachloroethene	**127-18-4**	**18.63**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.04**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.10**	**0.02**
o-Xylene	**95-47-6**	**0.05**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.03**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.08**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.42**	**0.05**
Naphthalene	91-20-3	<0.05	0.05
Tridecane	**629-50-5**	**0.25**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.09**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121
SITE NAME: Former Lobell Refinery
SITE ADDRESS:

FOR: Stantec Consulting Services, Inc.

Denver, CO 80222

SAMPLER ID: 00718415 FIELD_SAMPLE
Matrix: SOIL GAS
Product: SPG0008
Dilution Factor: 1
Field ID: PSG-10
Porosity: 0.40
Water Filled Voids: 0.37
Installation Date: 10/7/2013 4:23:00PM
Retrieval Date: 10/10/2013 7:45:00AM
Date Analyzed: 10/25/2013 5:55:00AM
Analyst: Fatima Niazi
Method: SPG-WI-0292
Batch: ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	629-62-9	<0.05	0.05
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.38**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718416 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-06 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 5:28:00PM
Retrieval Date: 10/10/2013 7:59:00AM Date Analyzed: 10/25/2013 7:48:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**26.43**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.03**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	79-01-6	<0.02	0.02
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.10**	**0.02**
Octane	**111-65-9**	**0.16**	**0.02**
Tetrachloroethene	**127-18-4**	**3.22**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.03**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.11**	**0.02**
o-Xylene	**95-47-6**	**0.05**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.05**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.14**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**1.07**	**0.05**
Naphthalene	**91-20-3**	**0.06**	**0.05**
Tridecane	**629-50-5**	**0.91**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.15**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718416 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-06 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 5:28:00PM
Retrieval Date: 10/10/2013 7:59:00AM Date Analyzed: 10/25/2013 7:48:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	**629-62-9**	**0.18**	**0.05**
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.32**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718417 TRIP_BLANK Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: TRIP BLANK Porosity: 0.40 Water Filled Voids: 0.37

Date Analyzed: 10/25/2013 4:01:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		<0.50	0.50
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	71-43-2	<0.02	0.02
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	79-01-6	<0.02	0.02
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	108-88-3	<0.02	0.02
Octane	111-65-9	<0.02	0.02
Tetrachloroethene	127-18-4	<0.02	0.02
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	100-41-4	<0.02	0.02
m,p-Xylene	108-38-3/106-42-3	<0.02	0.02
o-Xylene	95-47-6	<0.02	0.02
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	108-67-8	<0.02	0.02
1,2,4-Trimethylbenzene	95-63-6	<0.02	0.02
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	1120-21-4	<0.05	0.05
Naphthalene	91-20-3	<0.05	0.05
Tridecane	629-50-5	<0.05	0.05
2-Methylnaphthalene	91-57-6	<0.05	0.05
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718417 TRIP_BLANK Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: TRIP BLANK Porosity: 0.40 Water Filled Voids: 0.37

Date Analyzed: 10/25/2013 4:01:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	629-62-9	<0.05	0.05
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		<0.02	0.02

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718418 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-08 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 5:45:00PM
Retrieval Date: 10/10/2013 7:53:00AM Date Analyzed: 10/25/2013 9:41:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**21.17**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	**156-59-2**	**0.25**	**0.02**
Chloroform	67-66-3	0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.03**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**1.65**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.21**	**0.02**
Octane	**111-65-9**	**0.39**	**0.02**
Tetrachloroethene	**127-18-4**	**186.70**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.08**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.31**	**0.02**
o-Xylene	**95-47-6**	**0.11**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.09**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.27**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.97**	**0.05**
Naphthalene	**91-20-3**	**0.12**	**0.05**
Tridecane	**629-50-5**	**0.55**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.22**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718418 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-08 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 5:45:00PM
Retrieval Date: 10/10/2013 7:53:00AM Date Analyzed: 10/25/2013 9:41:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	**629-62-9**	**0.06**	**0.05**
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.74**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718419 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-03 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:15:00PM
Retrieval Date: 10/10/2013 7:25:00AM Date Analyzed: 10/25/2013 9:13:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**5.21**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	**156-60-5**	**1.70**	**0.02**
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.03**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**0.57**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.11**	**0.02**
Octane	**111-65-9**	**0.07**	**0.02**
Tetrachloroethene	**127-18-4**	**75.28**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.02**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.06**	**0.02**
o-Xylene	**95-47-6**	**0.03**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	108-67-8	0.02	0.02
1,2,4-Trimethylbenzene	**95-63-6**	**0.05**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.06**	**0.05**
Naphthalene	91-20-3	<0.05	0.05
Tridecane	629-50-5	<0.05	0.05
2-Methylnaphthalene	91-57-6	<0.05	0.05
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121
SITE NAME: Former Lobell Refinery
SITE ADDRESS:

FOR: Stantec Consulting Services, Inc.

Denver, CO 80222

SAMPLER ID: 00718419 FIELD_SAMPLE
Matrix: SOIL GAS
Product: SPG0008
Dilution Factor: 1
Field ID: PSG-03
Porosity: 0.40
Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:15:00PM
Retrieval Date: 10/10/2013 7:25:00AM
Date Analyzed: 10/25/2013 9:13:00AM
Analyst: Fatima Niazi
Method: SPG-WI-0292
Batch: ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	629-62-9	<0.05	0.05
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.25**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718420 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-01 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:34:00PM
Retrieval Date: 10/10/2013 7:14:00AM Date Analyzed: 10/25/2013 5:26:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**7.59**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.03**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	79-01-6	<0.02	0.02
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.12**	**0.02**
Octane	**111-65-9**	**0.09**	**0.02**
Tetrachloroethene	**127-18-4**	**0.06**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.03**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.10**	**0.02**
o-Xylene	**95-47-6**	**0.05**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.04**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.09**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.12**	**0.05**
Naphthalene	91-20-3	<0.05	0.05
Tridecane	**629-50-5**	**0.10**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.05**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718420 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-01 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:34:00PM
Retrieval Date: 10/10/2013 7:14:00AM Date Analyzed: 10/25/2013 5:26:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	629-62-9	<0.05	0.05
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.32**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718421 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-02 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:23:00PM
Retrieval Date: 10/10/2013 7:20:00AM Date Analyzed: 10/25/2013 8:45:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**32.55**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.05**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**0.06**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.13**	**0.02**
Octane	**111-65-9**	**0.15**	**0.02**
Tetrachloroethene	**127-18-4**	**0.21**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.07**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.35**	**0.02**
o-Xylene	**95-47-6**	**0.16**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.33**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.96**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.81**	**0.05**
Naphthalene	**91-20-3**	**0.10**	**0.05**
Tridecane	**629-50-5**	**0.50**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.11**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718421 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-02 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 3:23:00PM
Retrieval Date: 10/10/2013 7:20:00AM Date Analyzed: 10/25/2013 8:45:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	**629-62-9**	**0.07**	**0.05**
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.75**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718422 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-09 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 4:56:00PM
Retrieval Date: 10/10/2013 7:50:00AM Date Analyzed: 10/25/2013 4:30:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**53.97**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.13**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**0.03**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.51**	**0.02**
Octane	**111-65-9**	**0.85**	**0.02**
Tetrachloroethene	**127-18-4**	**23.98**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.20**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.78**	**0.02**
o-Xylene	**95-47-6**	**0.30**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.25**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.80**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**4.21**	**0.05**
Naphthalene	**91-20-3**	**0.22**	**0.05**
Tridecane	**629-50-5**	**2.22**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.39**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718422 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-09 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 4:56:00PM
Retrieval Date: 10/10/2013 7:50:00AM Date Analyzed: 10/25/2013 4:30:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	**629-62-9**	**0.34**	**0.05**
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**1.92**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718423 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-07 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 5:30:00PM
Retrieval Date: 10/10/2013 7:55:00AM Date Analyzed: 10/25/2013 10:10:00AM
Analyst: Fatima Niazi **Method: SPG-WI-0292** **Batch: ENV-131021-1**
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		**19.43**	**0.50**
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	**71-43-2**	**0.03**	**0.02**
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	**79-01-6**	**0.15**	**0.02**
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	**108-88-3**	**0.18**	**0.02**
Octane	**111-65-9**	**0.30**	**0.02**
Tetrachloroethene	**127-18-4**	**89.79**	**0.02**
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	**100-41-4**	**0.06**	**0.02**
m,p-Xylene	**108-38-3/106-42-3**	**0.22**	**0.02**
o-Xylene	**95-47-6**	**0.08**	**0.02**
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	**108-67-8**	**0.05**	**0.02**
1,2,4-Trimethylbenzene	**95-63-6**	**0.15**	**0.02**
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	**1120-21-4**	**0.69**	**0.05**
Naphthalene	**91-20-3**	**0.06**	**0.05**
Tridecane	**629-50-5**	**0.55**	**0.05**
2-Methylnaphthalene	**91-57-6**	**0.13**	**0.05**
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718423 FIELD_SAMPLE Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: PSG-07 Porosity: 0.40 Water Filled Voids: 0.37
Installation Date: 10/7/2013 5:30:00PM
Retrieval Date: 10/10/2013 7:55:00AM Date Analyzed: 10/25/2013 10:10:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	**629-62-9**	**0.10**	**0.05**
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		**0.58**	**0.02**

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718424 TRIP_BLANK Matrix: SOIL GAS Product: SPG0008
Dilution Factor: 1 Field ID: TRIP BLANK Porosity: 0.40 Water Filled Voids: 0.37

Date Analyzed: 10/25/2013 7:20:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
TPH		<0.50	0.50
Methyl tert-butyl ether	1634-04-4	<0.02	0.02
trans-1,2-Dichloroethene	156-60-5	<0.02	0.02
1,1-Dichloroethane	75-34-3	<0.02	0.02
cis-1,2-Dichloroethene	156-59-2	<0.02	0.02
Chloroform	67-66-3	<0.02	0.02
1,1,1-Trichloroethane	71-55-6	<0.02	0.02
1,2-Dichloroethane	107-06-2	<0.02	0.02
Benzene	71-43-2	<0.02	0.02
Carbon Tetrachloride	56-23-5	<0.02	0.02
Trichloroethene	79-01-6	<0.02	0.02
1,1,2-Trichloroethane	79-00-5	<0.02	0.02
Toluene	108-88-3	<0.02	0.02
Octane	111-65-9	<0.02	0.02
Tetrachloroethene	127-18-4	<0.02	0.02
Chlorobenzene	108-90-7	<0.02	0.02
1,1,1,2-Tetrachloroethane	630-20-6	<0.02	0.02
Ethylbenzene	100-41-4	<0.02	0.02
m,p-Xylene	108-38-3/106-42-3	<0.02	0.02
o-Xylene	95-47-6	<0.02	0.02
1,1,2,2-Tetrachloroethane	79-34-5	<0.02	0.02
1,3,5-Trimethylbenzene	108-67-8	<0.02	0.02
1,2,4-Trimethylbenzene	95-63-6	<0.02	0.02
1,3-Dichlorobenzene	541-73-1	<0.02	0.02
1,4-Dichlorobenzene	106-46-7	<0.02	0.02
1,2-Dichlorobenzene	95-50-1	<0.02	0.02
Undecane	1120-21-4	<0.05	0.05
Naphthalene	91-20-3	<0.05	0.05
Tridecane	629-50-5	<0.05	0.05
2-Methylnaphthalene	91-57-6	<0.05	0.05
Acenaphthylene	208-96-8	<0.05	0.05

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PROJECT NUMBER: ENV 30000121 **FOR:** Stantec Consulting Services, Inc.
SITE NAME: Former Lobell Refinery
SITE ADDRESS: Denver, CO 80222

SAMPLER ID: 00718424 TRIP_BLANK
Dilution Factor: 1 Field ID: TRIP BLANK
Matrix: SOIL GAS Product: SPG0008
Porosity: 0.40 Water Filled Voids: 0.37

Date Analyzed: 10/25/2013 7:20:00AM
Analyst: Fatima Niazi **Method:** SPG-WI-0292 **Batch:** ENV-131021-1
Reviewer: Jasmine R. Smith

Compound	CAS #	Result (ug)	RL (ug)
Pentadecane	629-62-9	<0.05	0.05
Acenaphthene	83-32-9	<0.05	0.05
Fluorene	86-73-7	<0.05	0.05
BTEX		<0.02	0.02

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AGI SURVEYS ANALYTICAL RESULTS
STANTEC CONSULTING SERVICES INC, DENVER, CO
AGI STANDARD TARGET VOCs/SVOCs
ESTIMATED SOIL GAS CONCENTRATIONS
FORMER LOBELL REFINERY
PRODUCTION ORDER # 30000121

DATE ANALYZED	SAMPLE NAME	TPH, ug/m^3	BTEX, ug/m^3	BENZ, ug/m^3	TOL, ug/m^3	ETBENZ, ug/m^3	mpXYL, ug/m^3	oXYL, ug/m^3
	RL=	27.63		24.02	3.12	1.58	1.44	1.96
10/25/13	718413	492.73	91.95	29.38	34.06	4.23	12.73	11.55
10/25/13	718414	1652.79	314.84	87.69	99.62	15.21	68.82	43.51
10/25/13	718415	574.62	85.67	51.56	19.36	3.11	7.23	4.41
10/25/13	718416	1272.58	65.62	36.08	14.57	2.53	7.53	4.91
10/25/13	718418	1033.81	101.55	33.53	29.50	6.27	21.94	10.31
10/25/13	718419	260.39	58.20	33.91	15.61	1.64	4.37	2.67
10/25/13	718420	377.07	63.28	33.15	16.24	2.26	6.71	4.92
10/25/13	718421	1523.46	108.55	47.36	18.17	5.37	23.91	13.74
10/25/13	718422	>2515.16	270.57	108.91	66.96	14.81	54.01	25.86
10/25/13	718423	947.81	87.89	34.35	25.32	4.67	15.81	7.75
10/25/13	718417	bdl	nd	nd	nd	nd	nd	nd
10/25/13	718424	bdl	nd	nd	nd	nd	nd	nd
10/24/13	method blank	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

AGI SURVEYS ANALYTICAL RESULTS
STANTEC CONSULTING SERVICES INC, DENVER, CO
AGI STANDARD TARGET VOCs/SVOCs
ESTIMATED SOIL GAS CONCENTRATIONS
FORMER LOBELL REFINERY
PRODUCTION ORDER # 30000121

DATE ANALYZED	SAMPLE NAME	C11, C13, &C15, ug/m^3	UNDEC, ug/m^3	TRIDEC, ug/m^3	NTADEC, ug/m^3	TMBs, ug/m^3	124TMB, ug/m^3
	RL=		3.02	3.02	3.02		1.60
10/25/13	718413	15.40	9.90	5.50	bdl	29.59	19.09
10/25/13	718414	123.93	76.85	40.51	6.57	112.67	79.28
10/25/13	718415	37.42	23.22	14.20	bdl	9.29	6.05
10/25/13	718416	118.52	58.04	50.01	10.48	14.98	10.18
10/25/13	718418	87.70	53.41	30.63	3.66	28.28	20.04
10/25/13	718419	3.67	3.67	bdl	bdl	4.03	4.03
10/25/13	718420	12.66	6.75	5.91	bdl	10.47	6.96
10/25/13	718421	75.34	43.78	27.42	4.14	93.72	64.90
10/25/13	718422	351.96	216.02	116.79	19.15	77.12	55.13
10/25/13	718423	75.29	38.21	30.94	6.13	16.67	11.49
10/25/13	718417	0.00	bdl	bdl	bdl	nd	nd
10/25/13	718424	0.00	bdl	nd	bdl	nd	nd
10/24/13	method blank	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

AGI SURVEYS ANALYTICAL RESULTS
STANTEC CONSULTING SERVICES INC, DENVER, CO
AGI STANDARD TARGET VOCs/SVOCs
ESTIMATED SOIL GAS CONCENTRATIONS
FORMER LOBELL REFINERY
PRODUCTION ORDER # 30000121

DATE ANALYZED	SAMPLE NAME	135TMB, ug/m^3	ct12DCE, ug/m^3	t12DCE, ug/m^3	c12DCE, ug/m^3	NAPH&2-MN, ug/m^3	NAPH, ug/m^3
	RL=	2.09		237.20	83.49		3.02
10/25/13	718413	10.49	nd	nd	nd	10.22	4.83
10/25/13	718414	33.39	nd	nd	nd	39.20	21.09
10/25/13	718415	3.24	nd	nd	nd	5.26	bdl
10/25/13	718416	4.80	nd	nd	nd	12.32	3.58
10/25/13	718418	8.24	519.70	bdl	519.70	19.63	7.13
10/25/13	718419	bdl	3908.09	3908.09	bdl	0.00	bdl
10/25/13	718420	3.51	nd	nd	nd	3.06	bdl
10/25/13	718421	28.82	nd	nd	nd	12.11	5.77
10/25/13	718422	21.99	nd	nd	nd	34.23	12.47
10/25/13	718423	5.18	nd	nd	nd	11.60	3.76
10/25/13	718417	nd	nd	nd	nd	nd	nd
10/25/13	718424	nd	nd	nd	nd	nd	nd
10/24/13	method blank	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

AGI SURVEYS ANALYTICAL RESULTS
STANTEC CONSULTING SERVICES INC, DENVER, CO
AGI STANDARD TARGET VOCs/SVOCs
ESTIMATED SOIL GAS CONCENTRATIONS
FORMER LOBELL REFINERY
PRODUCTION ORDER # 30000121

DATE ANALYZED	SAMPLE NAME	2MeNAPH, ug/m^3	MTBE, ug/m^3	11DCA, ug/m^3	CHCl3, ug/m^3	111TCA, ug/m^3	12DCA, ug/m^3	TCE, ug/m^3
	RL=	3.02	124.55	87.25	46.93	31.05	24.06	11.02
10/25/13	718413	5.39	nd	nd	nd	nd	nd	bdl
10/25/13	718414	18.11	nd	nd	63.71	nd	nd	260.09
10/25/13	718415	5.26	nd	nd	nd	nd	nd	20.31
10/25/13	718416	8.73	nd	nd	nd	nd	nd	bdl
10/25/13	718418	12.50	nd	nd	47.26	nd	nd	543.87
10/25/13	718419	bdl	nd	nd	bdl	nd	nd	207.73
10/25/13	718420	3.06	nd	nd	nd	nd	nd	nd
10/25/13	718421	6.33	nd	nd	nd	nd	nd	27.59
10/25/13	718422	21.76	nd	nd	nd	nd	nd	17.22
10/25/13	718423	7.84	nd	nd	nd	nd	nd	65.64
10/25/13	718417	nd	nd	nd	nd	nd	nd	nd
10/25/13	718424	nd	nd	nd	nd	nd	nd	nd
10/24/13	method blank	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

AGI SURVEYS ANALYTICAL RESULTS
STANTEC CONSULTING SERVICES INC, DENVER, CO
AGI STANDARD TARGET VOCs/SVOCs
ESTIMATED SOIL GAS CONCENTRATIONS
FORMER LOBELL REFINERY
PRODUCTION ORDER # 30000121

DATE ANALYZED	SAMPLE NAME	OCT, ug/m^3	PCE, ug/m^3	14DCB, ug/m^3	enaphthene, ug/m^3	enaphthylene, ug/m^3	Fluorene, ug/m^3	CCl4, ug/m^3
	RL=	3.23	2.44	1.30	3.02	3.02	3.02	27.91
10/25/13	718413	12.74	47.84	nd	bdl	nd	bdl	nd
10/25/13	718414	75.70	>7302.2	nd	15.65	bdl	6.52	nd
10/25/13	718415	13.36	2140.96	nd	bdl	bdl	bdl	nd
10/25/13	718416	23.30	380.26	nd	bdl	bdl	bdl	nd
10/25/13	718418	55.51	>21376.12	bdl	bdl	bdl	bdl	nd
10/25/13	718419	10.96	>8458.56	nd	bdl	nd	bdl	nd
10/25/13	718420	12.74	7.11	nd	bdl	bdl	bdl	nd
10/25/13	718421	21.50	25.27	nd	bdl	bdl	bdl	nd
10/25/13	718422	114.03	2767.47	nd	bdl	bdl	nd	nd
10/25/13	718423	42.90	>10308.04	nd	bdl	bdl	bdl	nd
10/25/13	718417	nd	nd	nd	nd	nd	nd	nd
10/25/13	718424	nd	nd	nd	nd	nd	nd	nd
10/24/13	method blank	nd	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

AGI SURVEYS ANALYTICAL RESULTS
STANTEC CONSULTING SERVICES INC, DENVER, CO
AGI STANDARD TARGET VOCs/SVOCs
ESTIMATED SOIL GAS CONCENTRATIONS
FORMER LOBELL REFINERY
PRODUCTION ORDER # 30000121

DATE ANALYZED	SAMPLE NAME	112TCA, ug/m^3	ClBENZ, ug/m^3	1112TetCA, ug/m^3	1122TetCA, ug/m^3	13DCB, ug/m^3	12DCB, ug/m^3
	RL=	2.20	1.63	1.25	1.25	1.30	1.25
10/25/13	718413	nd	nd	nd	nd	nd	nd
10/25/13	718414	nd	nd	nd	nd	nd	nd
10/25/13	718415	nd	nd	nd	nd	nd	nd
10/25/13	718416	nd	nd	nd	nd	nd	nd
10/25/13	718418	nd	nd	nd	nd	nd	nd
10/25/13	718419	nd	nd	nd	nd	nd	bdl
10/25/13	718420	nd	nd	nd	nd	nd	nd
10/25/13	718421	nd	nd	nd	nd	nd	nd
10/25/13	718422	nd	nd	nd	nd	nd	nd
10/25/13	718423	nd	nd	nd	nd	nd	nd
10/25/13	718417	nd	nd	nd	nd	nd	nd
10/25/13	718424	nd	nd	nd	nd	nd	nd
10/24/13	method blank	nd	nd	nd	nd	nd	nd

No RL(Reporting Limit) is available for summed analytes. In summed columns (eg., BTEX), the reported values should be considered ESTIMATED if any of the individual compounds were reported as bdl.

KEY TO DATA TABLE

UNITS

µg	micrograms, relative mass value
µg/m^3	micrograms per cubic meter; estimated soil gas concentration
RL	reporting limit

(Note: the concentration reporting limit is a calculated average value, and may not be reflective of sample specific conditions.)

bdl	below reporting limit; compound was observed at level below the RL
nd	non-detect, compound was not detected at any level
>	greater than; value considered estimated due to high mass levels

ANALYTES

TPH	total petroleum hydrocarbons
BTEX	combined masses of benzene, toluene, ethylbenzene and total xylenes (Gasoline Range Aromatics)
BENZ	benzene
TOL	toluene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
C11,C13&C15	combined masses of undecane, tridecane, and pentadecane (C11+C13+C15) (Diesel Range Alkanes)
UNDEC	undecane
TRIDEC	tridecane
PENTADEC	pentadecane
TMBs	combined masses of 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
MTBE	methyl t-butyl ether
NAPH	naphthalene
2MeNAPH	2-methyl naphthalene
OCT	octane
ct12DCE	cis- & trans-1,2-dichloroethene
t12DCE	trans-1,2-dichloroethene
c12DCE	cis-1,2-dichloroethene
11DCA	1,1-dichloroethane
CHC13	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
CCl4	carbon tetrachloride
TCE	trichloroethene
PCE	tetrachloroethene
ClBENZ	chlorobenzene
14DCB	1,4-dichlorobenzene
112TCA	1,1,2-trichloroethane
1112TetCA	1,1,1,2-tetrachloroethane
1122TetCA	1,1,2,2-tetrachloroethane
13DCB	1,3-dichlorobenzene
12DCB	1,2-dichlorobenzene

BLANKS

method blank	QA/QC module, documents analytical conditions during analysis

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Concentration Method Summary for AGI Samplers

In environmental analysis obtaining a contaminate concentration value allows for quantifiable risk assessment. The following procedure outlines the method used to determine accurate concentration values from the AGI Sampler in soil gas and air sampling:

DERIVATION OF CONCENTRATION EQUATION

When a fresh sampler (which, by definition and verification, has a contaminate concentration of zero) is inserted into a locally homogeneous contaminated media (with a non-zero contaminant concentration), a concentration gradient is created between the sampler and the media. Due to the concentration gradient, contaminant will diffuse from the media across the permeable membrane to the enclosed adsorbents as described by Fick's first law of diffusion[1], often expressed in differential form as:

$$F = -D\left(\frac{dC}{dx}\right) \text{ or in the integral form as: } \frac{dm}{dt} = -D\left(\frac{A}{L}\right)(C_X - C_0) \qquad (1)$$

where m = mass, t = time, D = diffusion coefficient, (A/L) = geometric parameter describing shape of sampler, C_X = concentration of analyte in the sampler at time, $t = x$, C_0 = concentration at time, $t = 0$.

As we ultimately want to measure the concentration of the analyte, we rearrange equation (1) to solve for C_X:

$$C_X = -\left[\left(\frac{1}{D}\right)\left(\frac{L}{A}\right)\left(\frac{dm}{dt}\right)\right] + C_0 \qquad (2)$$

By using a fresh sampler, the initial concentration (C_0) in the sampler is zero. We combine the quantity $D\frac{A}{L}$, which is referred to as the sampling rate[2](S) of the sampler, measured in units of vol/time for the analyte of interest. This yields:

$$C_X = -\left[\left(\frac{1}{S}\right)\left(\frac{dm}{dt}\right)\right] \qquad (3)$$

Thus, concentration (C_X) can be calculated by using the mass (m) of the analyte adsorbed to the sampler after a given exposure time (t) and the sampling rate (S) for the analyte of interest. Two of these values are straightforward – the mass is measured using our standard thermal desorption GC/MS procedure, the time is documented by the field installation team. The third, sampling rate (S), is measured through a series of controlled chamber experiments for each analyte. Using these three values, an accurate contaminate concentration value can be calculated using the AGI Sampler. The process for determining S for the AGI Sampler is described briefly in the next section.

DETERMINING the *S* PARAMETER – AGI Sampler Sampling Rate

To determine *S* for the AGI Sampler we have exposed samplers for different times (*t*) at various concentrations (*C*). We then plot mass (*m*) vs. time (*t*) and divide the slope by concentration to gain a value for *S* for that compound as shown in equation (4) which is rearranged from equation (3).

$$S = -\left[\left(\frac{1}{C}\right)\left(\frac{dm}{dt}\right)\right] \qquad (4)$$

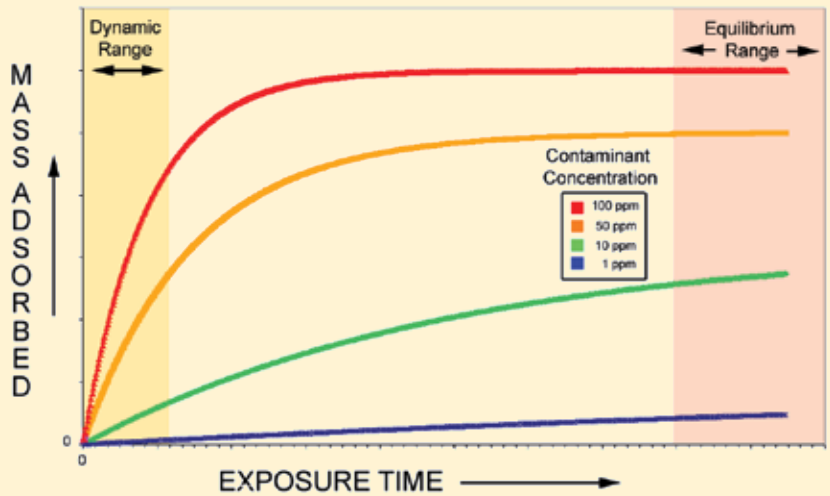

Figure 1 shows typical adsorption curves for a AGI Sampler exposed to a compound at various concentration levels. Notice that in the dynamic range that slopes vary in proportion to concentration.

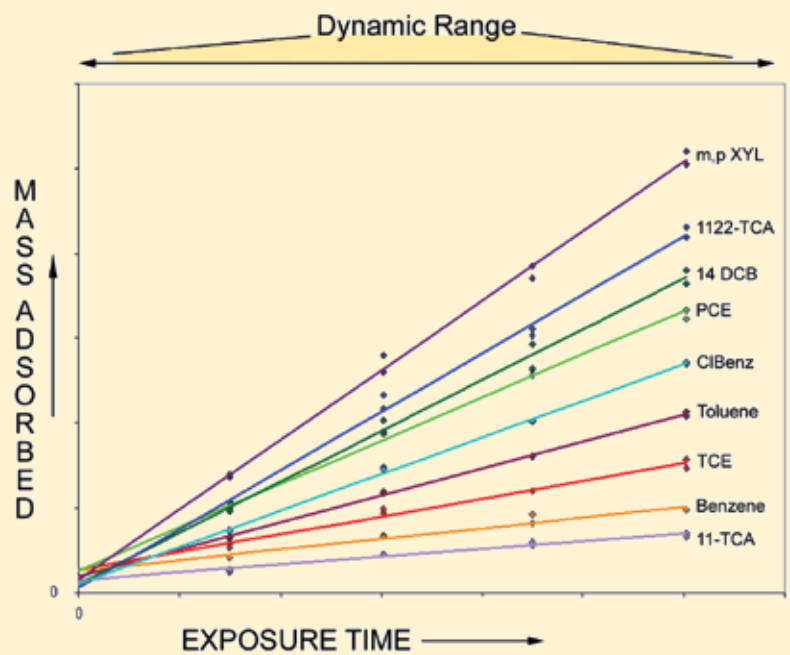

Figure 2 shows the uptake rate for various compounds typical of environmental investigations in the linear dynamic range.

When measuring *S*, we tested each compound at varying temperature (10 to 40°C), relative humidity (0 to 80%), flow rate (0.5 to 15cm/s) and vapor concentrations (0.1ppb to 100ppm).

Under typical sampling conditions, none of these variables were found to significantly impact the sampling rate.

ADJUSTMENTS FOR DIFFUSION RESISTANCE IN SOIL

When measuring gas concentration values in soils we must adjust the sampling rate (S_{air}) values to account for the increased tortuosity due to the presence of soil and moisture.

We previously defined the sampling rate of the module for the analyte of interest as:

$$S_{air} = D_{air}\,(A/L) \qquad (5)$$

In soil, the effective diffusion coefficient (D_{air}) is reduced due to the increased tortuosity, and can be described as:

$$D_{soil} = E(D_{air}) \qquad (6)$$

resulting in (when combined with (5))

$$S_{soil} = E(S_{air}) \qquad (7)$$

where E is the "Soil Effectiveness Factor."

As Millington & Quirk[3] showed, E is governed by the total soil porosity (θ, total volume of pores/total volume) and volumetric air content (Φ, volume of air/total volume) of the media and relates as:

$$E = \frac{(\Phi)^{10/3}}{(\theta)^{2}} \qquad (8)$$

Expressing E as a function of total soil porosity (θ) and water filled porosity (ε, volume of water/volume of pores), this relation can be rearranged as:

$$E = \theta^{(4/3)}(1-\varepsilon)^{(10/3)} \qquad (9)$$

: as Φ, θ and ε have the following relationship:

$$\Phi = \theta\,(1-\varepsilon)$$

Once we've solved for E, we can solve for D_{soil} using equation (5) and S_{soil} using equation (7).

Thus, with measurements for two of these three site-specific soil parameters (θ, ε or Φ), soil gas concentration values can be calculated for modules installed in soil.

REFERENCES

[1] Cussler, E. L., 1997, *Diffusion, Mass Transfer in Fluid Systems*, 2nd ed., Cambridge Univ., Press, 570p.

[2] James D. Mulik and Robert G. Lewis Advances in Air Sampling, AICHG (1990), ISN 0-87371-115-7, Chapter 9, "Recent Developments in Passive Sampling Devices."

[3] Millington, R.J., and J. M. Quirk, "Permeability of Porous Solids", Trans.Faraday Soc., 57, (1961), 1200-1207.

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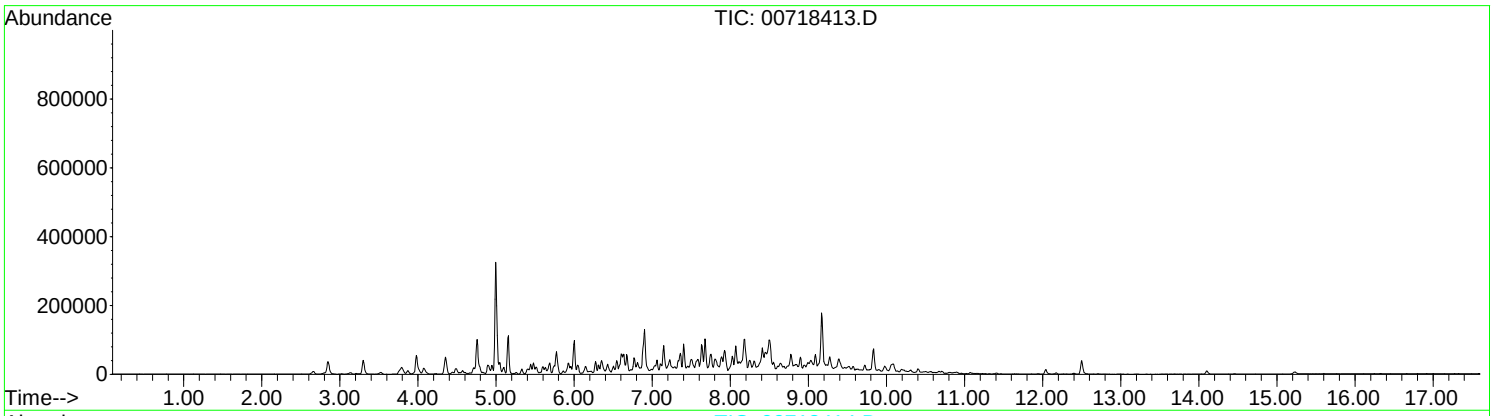
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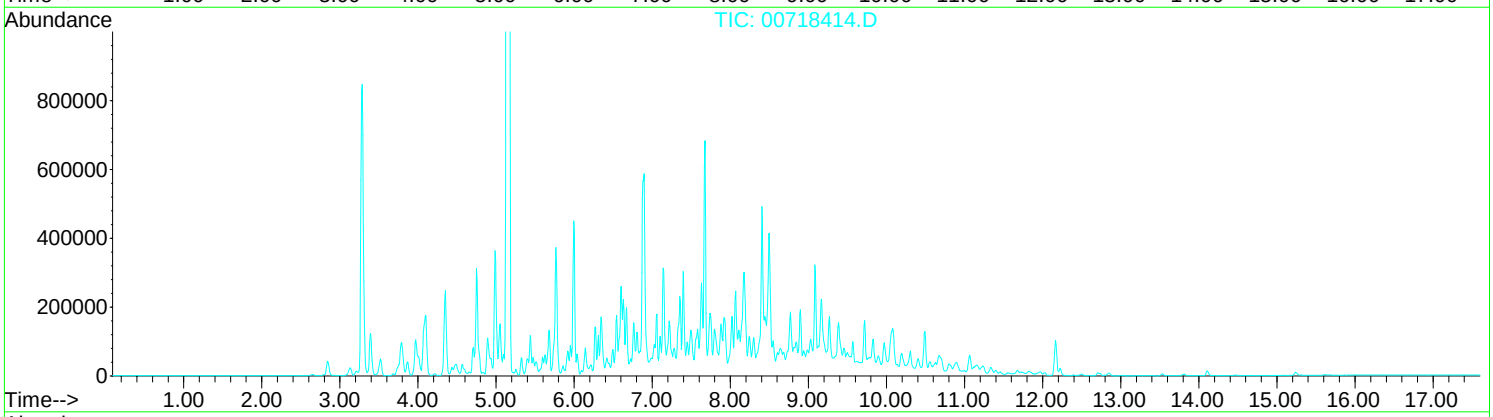
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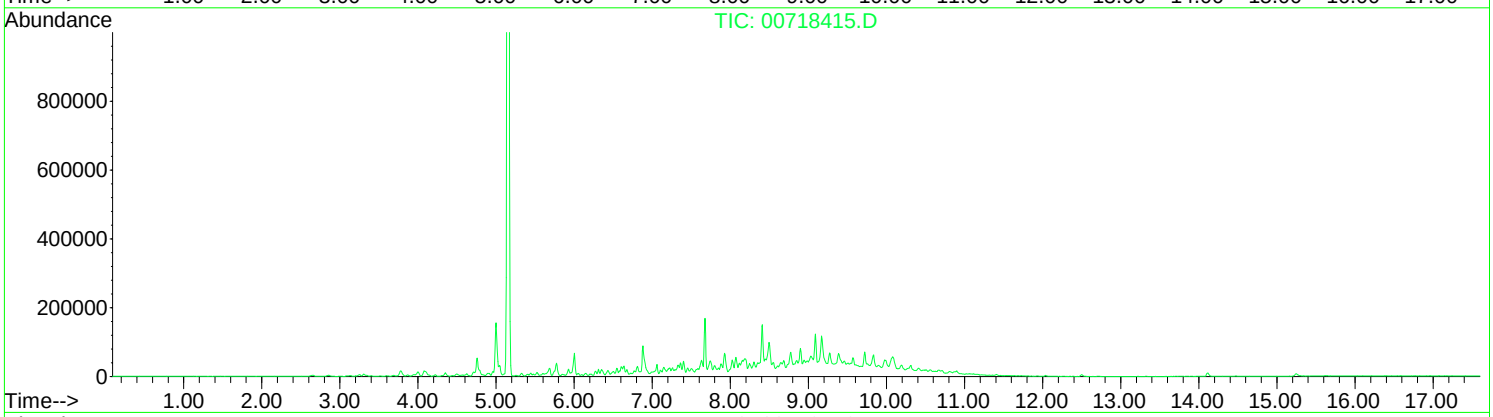
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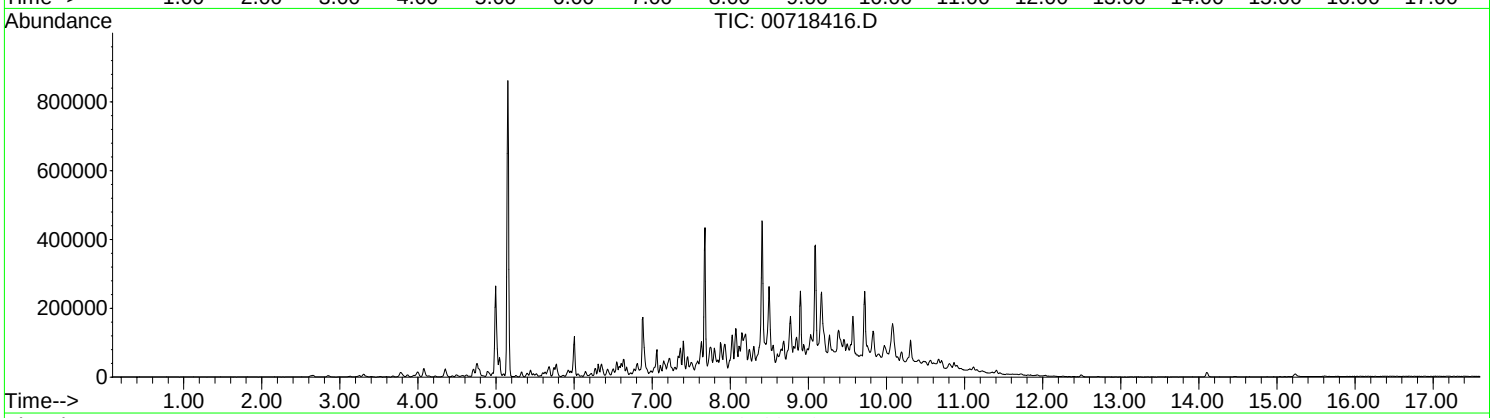
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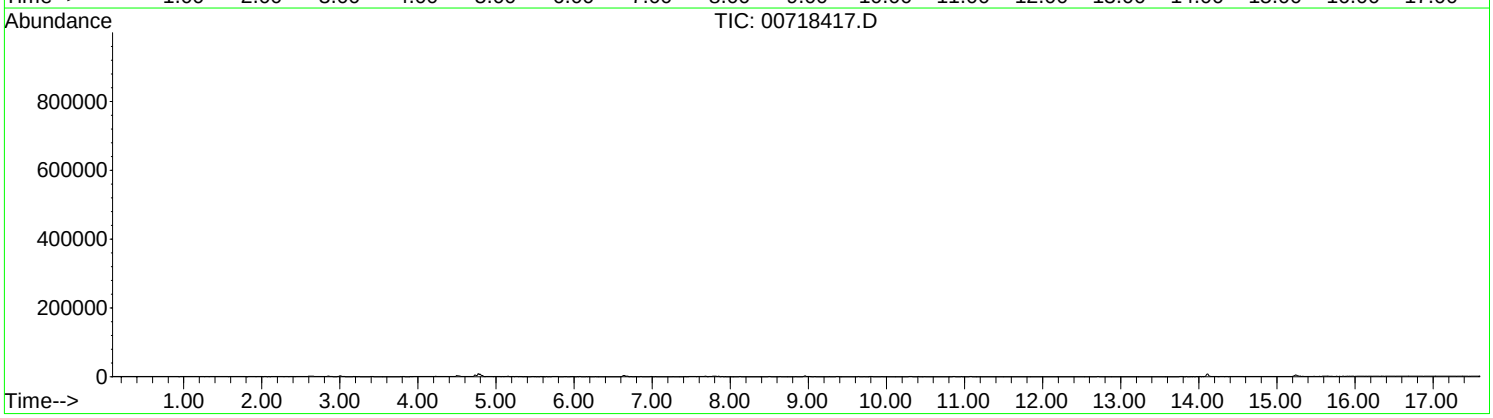
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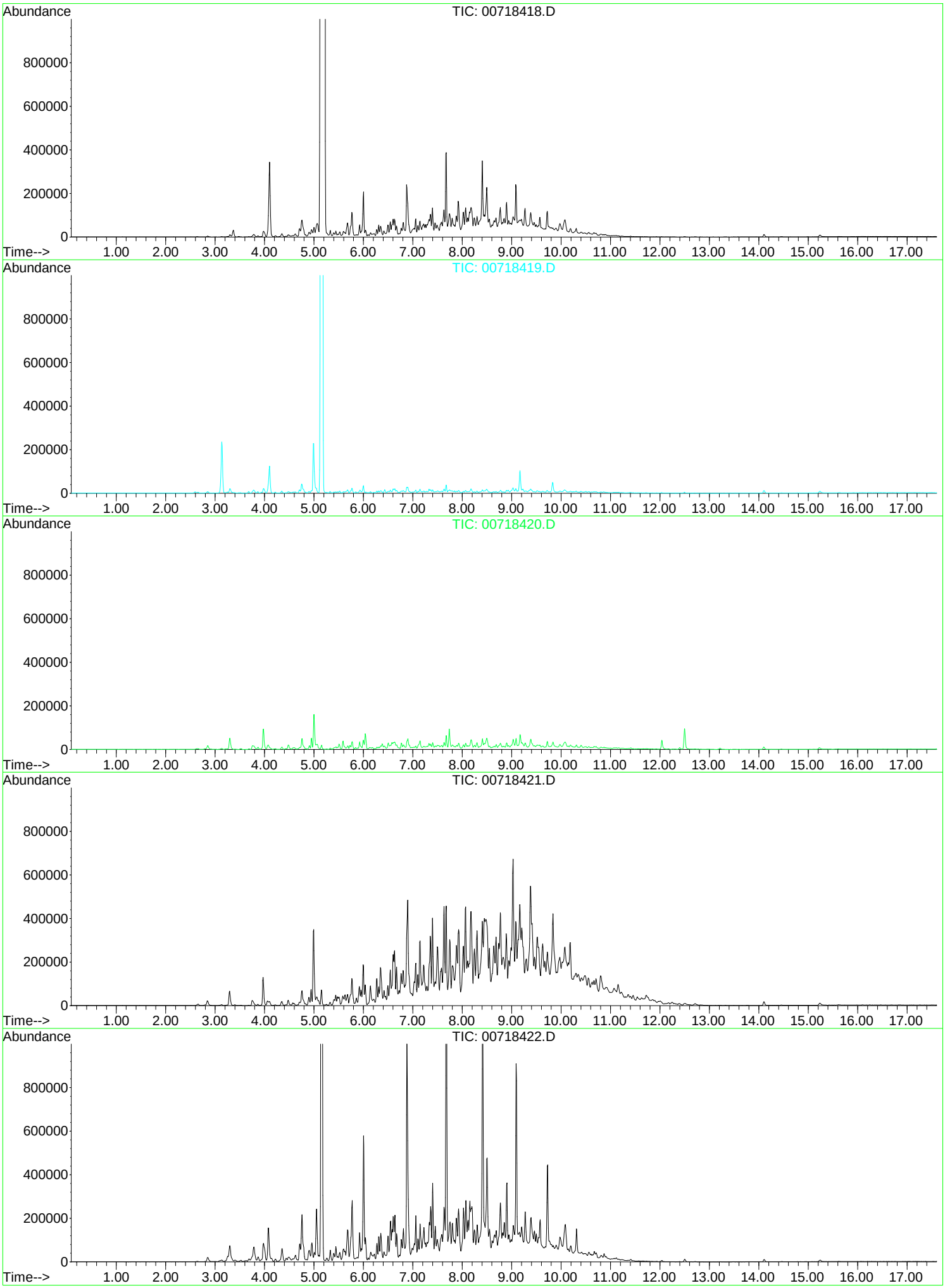
IN NUMERICAL ORDER



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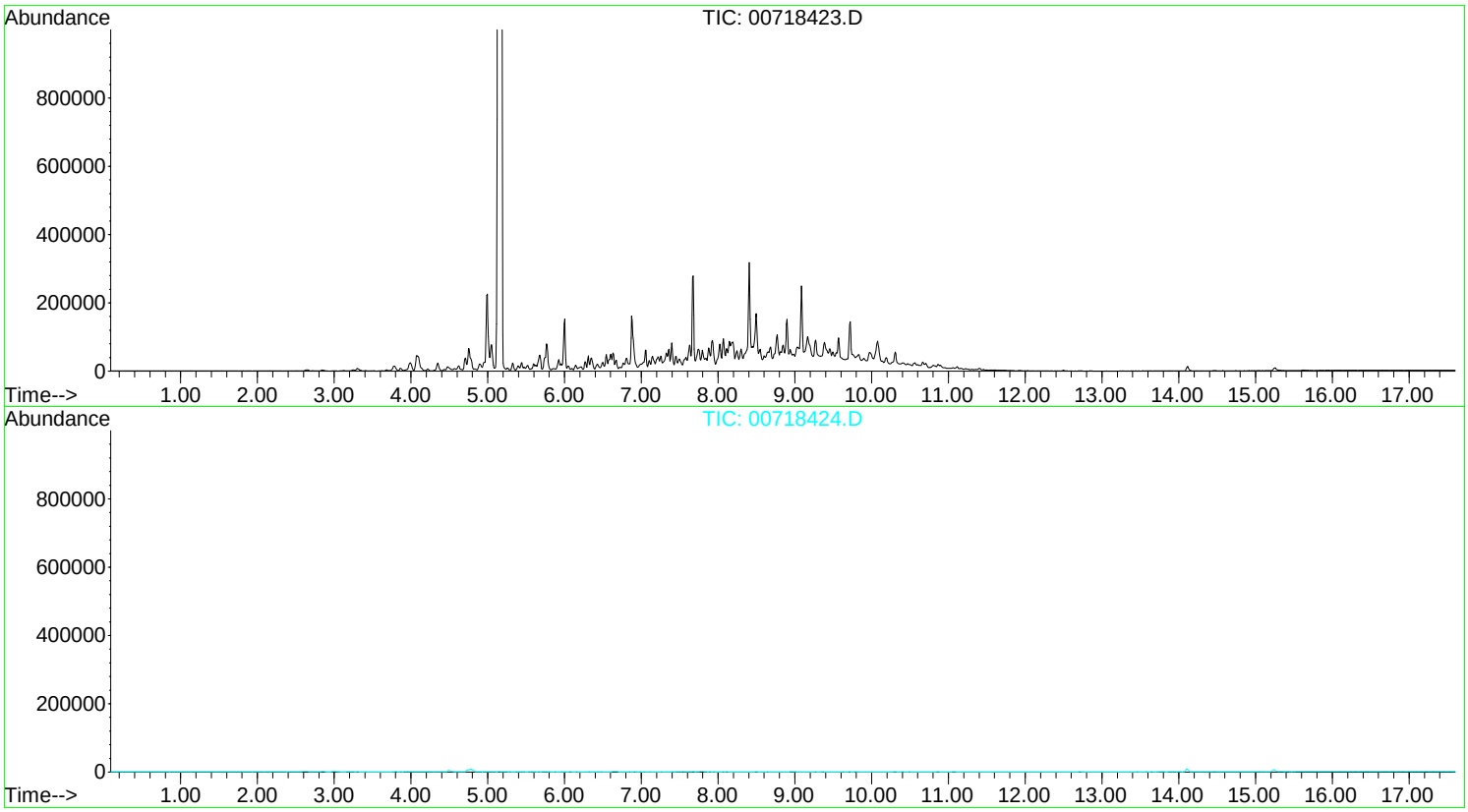

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11/3/2013
Mr. Pat Vaughan
Stantec Consulting Corporation
9400 SW Barnes Road
Suite 200
Portland OR 97225

Project Name: Lobell
Project #:
Workorder #: 1310418A

Dear Mr. Pat Vaughan

The following report includes the data for the above referenced project for sample(s) received on 10/18/2013 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1310418A

Work Order Summary

CLIENT:	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225	**BILL TO:**	Mr. Pat Vaughan Stantec Consulting Corporation 9400 SW Barnes Road Suite 200 Portland, OR 97225
PHONE:	503-297-1631	**P.O. #**	212205045
FAX:	503-297-5429	**PROJECT #**	Lobell
DATE RECEIVED:	10/18/2013	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/03/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSG-1	TO-15	8.0 "Hg	15 psi
02A	SSG-2	TO-15	7.0 "Hg	15 psi
03A	SSG-3	TO-15	1.0 "Hg	15 psi
04A	SSG-4	TO-15	3.0 "Hg	15 psi
05A	Lab Blank	TO-15	NA	NA
05B	Lab Blank	TO-15	NA	NA
06A	CCV	TO-15	NA	NA
06B	CCV	TO-15	NA	NA
07A	LCS	TO-15	NA	NA
07AA	LCSD	TO-15	NA	NA
07B	LCS	TO-15	NA	NA
07BB	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Mayo

Technical Director

DATE: 11/03/13

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Stantec Consulting Corporation
Workorder# 1310418A

Four 1 Liter Summa Canister samples were received on October 18, 2013. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilutions were performed on samples SSG-3 and SSG-4 due to the presence of high level target species.

Due to the linear calibration range of the instrument, the reporting limit for Ethanol was raised from 2.0 ppbv to 5.0 ppbv.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SSG-1

Lab ID#: 1310418A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.5	100	10	190
Acetone	14	19	33	45
2-Propanol	5.5	7.9	14	19
2-Butanone (Methyl Ethyl Ketone)	5.5	12	16	34
Benzene	1.4	2.0	4.4	6.3
1,2-Dichloroethane	1.4	2.8	5.6	11
1,2-Dichloropropane	1.4	3.2	6.4	15
4-Methyl-2-pentanone	1.4	4.3	5.6	18
Toluene	1.4	230	5.2	870
Tetrachloroethene	1.4	47	9.4	320
Ethyl Benzene	1.4	4.6	6.0	20
m,p-Xylene	1.4	7.6	6.0	33
o-Xylene	1.4	2.0	6.0	8.7

Client Sample ID: SSG-2

Lab ID#: 1310418A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.3	140	9.9	270
Acetone	13	50	31	120
2-Propanol	5.3	13	13	32
2-Butanone (Methyl Ethyl Ketone)	5.3	16	16	49
Benzene	1.3	2.4	4.2	7.6
1,2-Dichloroethane	1.3	3.3	5.3	13
1,2-Dichloropropane	1.3	3.9	6.1	18
4-Methyl-2-pentanone	1.3	5.4	5.4	22
Toluene	1.3	290	5.0	1100
Tetrachloroethene	1.3	11	9.0	78
Ethyl Benzene	1.3	5.9	5.7	26
m,p-Xylene	1.3	10	5.7	46
o-Xylene	1.3	2.9	5.7	12
Styrene	1.3	1.5	5.6	6.6
4-Ethyltoluene	1.3	1.4	6.5	6.8

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SSG-3

Lab ID#: 1310418A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	24	53	45	100
Trichloroethene	6.0	17	32	93
Toluene	6.0	96	22	360
Tetrachloroethene	6.0	1700	40	11000

Client Sample ID: SSG-4

Lab ID#: 1310418A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	9.0	100	17	190
2-Propanol	9.0	30	22	74
Benzene	2.2	2.4	7.2	7.6
Toluene	2.2	94	8.4	360
Tetrachloroethene	2.2	570	15	3900
m,p-Xylene	2.2	3.2	9.7	14

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Client Sample ID: SSG-1

Lab ID#: 1310418A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103117**	**Date of Collection:**	**10/16/13 9:57:00 AM**
Dil. Factor:	**2.76**	**Date of Analysis:**	**11/1/13 10:02 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.4	Not Detected	6.8	Not Detected
Freon 114	1.4	Not Detected	9.6	Not Detected
Chloromethane	14	Not Detected	28	Not Detected
Vinyl Chloride	1.4	Not Detected	3.5	Not Detected
1,3-Butadiene	1.4	Not Detected	3.0	Not Detected
Bromomethane	14	Not Detected	54	Not Detected
Chloroethane	5.5	Not Detected	14	Not Detected
Freon 11	1.4	Not Detected	7.8	Not Detected
Ethanol	5.5	100	10	190
Freon 113	1.4	Not Detected	10	Not Detected
1,1-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Acetone	14	19	33	45
2-Propanol	5.5	7.9	14	19
Carbon Disulfide	5.5	Not Detected	17	Not Detected
3-Chloropropene	5.5	Not Detected	17	Not Detected
Methylene Chloride	14	Not Detected	48	Not Detected
Methyl tert-butyl ether	1.4	Not Detected	5.0	Not Detected
trans-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Hexane	1.4	Not Detected	4.9	Not Detected
1,1-Dichloroethane	1.4	Not Detected	5.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.5	12	16	34
cis-1,2-Dichloroethene	1.4	Not Detected	5.5	Not Detected
Tetrahydrofuran	1.4	Not Detected	4.1	Not Detected
Chloroform	1.4	Not Detected	6.7	Not Detected
1,1,1-Trichloroethane	1.4	Not Detected	7.5	Not Detected
Cyclohexane	1.4	Not Detected	4.8	Not Detected
Carbon Tetrachloride	1.4	Not Detected	8.7	Not Detected
2,2,4-Trimethylpentane	1.4	Not Detected	6.4	Not Detected
Benzene	1.4	2.0	4.4	6.3
1,2-Dichloroethane	1.4	2.8	5.6	11
Heptane	1.4	Not Detected	5.6	Not Detected
Trichloroethene	1.4	Not Detected	7.4	Not Detected
1,2-Dichloropropane	1.4	3.2	6.4	15
1,4-Dioxane	5.5	Not Detected	20	Not Detected
Bromodichloromethane	1.4	Not Detected	9.2	Not Detected
cis-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
4-Methyl-2-pentanone	1.4	4.3	5.6	18
Toluene	1.4	230	5.2	870
trans-1,3-Dichloropropene	1.4	Not Detected	6.3	Not Detected
1,1,2-Trichloroethane	1.4	Not Detected	7.5	Not Detected
Tetrachloroethene	1.4	47	9.4	320
2-Hexanone	5.5	Not Detected	23	Not Detected

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Client Sample ID: SSG-1

Lab ID#: 1310418A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103117**	**Date of Collection:**	**10/16/13 9:57:00 AM**
Dil. Factor:	**2.76**	**Date of Analysis:**	**11/1/13 10:02 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.4	Not Detected	12	Not Detected
1,2-Dibromoethane (EDB)	1.4	Not Detected	11	Not Detected
Chlorobenzene	1.4	Not Detected	6.4	Not Detected
Ethyl Benzene	1.4	4.6	6.0	20
m,p-Xylene	1.4	7.6	6.0	33
o-Xylene	1.4	2.0	6.0	8.7
Styrene	1.4	Not Detected	5.9	Not Detected
Bromoform	1.4	Not Detected	14	Not Detected
Cumene	1.4	Not Detected	6.8	Not Detected
1,1,2,2-Tetrachloroethane	1.4	Not Detected	9.5	Not Detected
Propylbenzene	1.4	Not Detected	6.8	Not Detected
4-Ethyltoluene	1.4	Not Detected	6.8	Not Detected
1,3,5-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,2,4-Trimethylbenzene	1.4	Not Detected	6.8	Not Detected
1,3-Dichlorobenzene	1.4	Not Detected	8.3	Not Detected
1,4-Dichlorobenzene	1.4	Not Detected	8.3	Not Detected
alpha-Chlorotoluene	1.4	Not Detected	7.1	Not Detected
1,2-Dichlorobenzene	1.4	Not Detected	8.3	Not Detected
1,2,4-Trichlorobenzene	5.5	Not Detected	41	Not Detected
Hexachlorobutadiene	5.5	Not Detected	59	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SSG-2

Lab ID#: 1310418A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103118**	**Date of Collection:**	**10/16/13 10:41:00 A**
Dil. Factor:	**2.64**	**Date of Analysis:**	**11/1/13 10:52 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.5	Not Detected
Freon 114	1.3	Not Detected	9.2	Not Detected
Chloromethane	13	Not Detected	27	Not Detected
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,3-Butadiene	1.3	Not Detected	2.9	Not Detected
Bromomethane	13	Not Detected	51	Not Detected
Chloroethane	5.3	Not Detected	14	Not Detected
Freon 11	1.3	Not Detected	7.4	Not Detected
Ethanol	5.3	140	9.9	270
Freon 113	1.3	Not Detected	10	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Acetone	13	50	31	120
2-Propanol	5.3	13	13	32
Carbon Disulfide	5.3	Not Detected	16	Not Detected
3-Chloropropene	5.3	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	46	Not Detected
Methyl tert-butyl ether	1.3	Not Detected	4.8	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Hexane	1.3	Not Detected	4.6	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.3	16	16	49
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Tetrahydrofuran	1.3	Not Detected	3.9	Not Detected
Chloroform	1.3	Not Detected	6.4	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Cyclohexane	1.3	Not Detected	4.5	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.3	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	6.2	Not Detected
Benzene	1.3	2.4	4.2	7.6
1,2-Dichloroethane	1.3	3.3	5.3	13
Heptane	1.3	Not Detected	5.4	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
1,2-Dichloropropane	1.3	3.9	6.1	18
1,4-Dioxane	5.3	Not Detected	19	Not Detected
Bromodichloromethane	1.3	Not Detected	8.8	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	6.0	Not Detected
4-Methyl-2-pentanone	1.3	5.4	5.4	22
Toluene	1.3	290	5.0	1100
trans-1,3-Dichloropropene	1.3	Not Detected	6.0	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Tetrachloroethene	1.3	11	9.0	78
2-Hexanone	5.3	Not Detected	22	Not Detected

eurofins | Air Toxics

Client Sample ID: SSG-2

Lab ID#: 1310418A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103118**	**Date of Collection:**	**10/16/13 10:41:00 A**
Dil. Factor:	**2.64**	**Date of Analysis:**	**11/1/13 10:52 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	10	Not Detected
Chlorobenzene	1.3	Not Detected	6.1	Not Detected
Ethyl Benzene	1.3	5.9	5.7	26
m,p-Xylene	1.3	10	5.7	46
o-Xylene	1.3	2.9	5.7	12
Styrene	1.3	1.5	5.6	6.6
Bromoform	1.3	Not Detected	14	Not Detected
Cumene	1.3	Not Detected	6.5	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	9.1	Not Detected
Propylbenzene	1.3	Not Detected	6.5	Not Detected
4-Ethyltoluene	1.3	1.4	6.5	6.8
1,3,5-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.9	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.9	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.8	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.9	Not Detected
1,2,4-Trichlorobenzene	5.3	Not Detected	39	Not Detected
Hexachlorobutadiene	5.3	Not Detected	56	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: SSG-3

Lab ID#: 1310418A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103028**	**Date of Collection:**	**10/16/13 2:20:00 PM**
Dil. Factor:	**11.9**	**Date of Analysis:**	**10/31/13 04:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	6.0	Not Detected	29	Not Detected
Freon 114	6.0	Not Detected	42	Not Detected
Chloromethane	60	Not Detected	120	Not Detected
Vinyl Chloride	6.0	Not Detected	15	Not Detected
1,3-Butadiene	6.0	Not Detected	13	Not Detected
Bromomethane	60	Not Detected	230	Not Detected
Chloroethane	24	Not Detected	63	Not Detected
Freon 11	6.0	Not Detected	33	Not Detected
Ethanol	24	53	45	100
Freon 113	6.0	Not Detected	46	Not Detected
1,1-Dichloroethene	6.0	Not Detected	24	Not Detected
Acetone	60	Not Detected	140	Not Detected
2-Propanol	24	Not Detected	58	Not Detected
Carbon Disulfide	24	Not Detected	74	Not Detected
3-Chloropropene	24	Not Detected	74	Not Detected
Methylene Chloride	60	Not Detected	210	Not Detected
Methyl tert-butyl ether	6.0	Not Detected	21	Not Detected
trans-1,2-Dichloroethene	6.0	Not Detected	24	Not Detected
Hexane	6.0	Not Detected	21	Not Detected
1,1-Dichloroethane	6.0	Not Detected	24	Not Detected
2-Butanone (Methyl Ethyl Ketone)	24	Not Detected	70	Not Detected
cis-1,2-Dichloroethene	6.0	Not Detected	24	Not Detected
Tetrahydrofuran	6.0	Not Detected	18	Not Detected
Chloroform	6.0	Not Detected	29	Not Detected
1,1,1-Trichloroethane	6.0	Not Detected	32	Not Detected
Cyclohexane	6.0	Not Detected	20	Not Detected
Carbon Tetrachloride	6.0	Not Detected	37	Not Detected
2,2,4-Trimethylpentane	6.0	Not Detected	28	Not Detected
Benzene	6.0	Not Detected	19	Not Detected
1,2-Dichloroethane	6.0	Not Detected	24	Not Detected
Heptane	6.0	Not Detected	24	Not Detected
Trichloroethene	6.0	17	32	93
1,2-Dichloropropane	6.0	Not Detected	27	Not Detected
1,4-Dioxane	24	Not Detected	86	Not Detected
Bromodichloromethane	6.0	Not Detected	40	Not Detected
cis-1,3-Dichloropropene	6.0	Not Detected	27	Not Detected
4-Methyl-2-pentanone	6.0	Not Detected	24	Not Detected
Toluene	6.0	96	22	360
trans-1,3-Dichloropropene	6.0	Not Detected	27	Not Detected
1,1,2-Trichloroethane	6.0	Not Detected	32	Not Detected
Tetrachloroethene	6.0	1700	40	11000
2-Hexanone	24	Not Detected	97	Not Detected

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Client Sample ID: SSG-3

Lab ID#: 1310418A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103028**	**Date of Collection:**	**10/16/13 2:20:00 PM**
Dil. Factor:	**11.9**	**Date of Analysis:**	**10/31/13 04:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	6.0	Not Detected	51	Not Detected
1,2-Dibromoethane (EDB)	6.0	Not Detected	46	Not Detected
Chlorobenzene	6.0	Not Detected	27	Not Detected
Ethyl Benzene	6.0	Not Detected	26	Not Detected
m,p-Xylene	6.0	Not Detected	26	Not Detected
o-Xylene	6.0	Not Detected	26	Not Detected
Styrene	6.0	Not Detected	25	Not Detected
Bromoform	6.0	Not Detected	62	Not Detected
Cumene	6.0	Not Detected	29	Not Detected
1,1,2,2-Tetrachloroethane	6.0	Not Detected	41	Not Detected
Propylbenzene	6.0	Not Detected	29	Not Detected
4-Ethyltoluene	6.0	Not Detected	29	Not Detected
1,3,5-Trimethylbenzene	6.0	Not Detected	29	Not Detected
1,2,4-Trimethylbenzene	6.0	Not Detected	29	Not Detected
1,3-Dichlorobenzene	6.0	Not Detected	36	Not Detected
1,4-Dichlorobenzene	6.0	Not Detected	36	Not Detected
alpha-Chlorotoluene	6.0	Not Detected	31	Not Detected
1,2-Dichlorobenzene	6.0	Not Detected	36	Not Detected
1,2,4-Trichlorobenzene	24	Not Detected	180	Not Detected
Hexachlorobutadiene	24	Not Detected	250	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: SSG-4

Lab ID#: 1310418A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103119**	**Date of Collection:**	**10/16/13 1:53:00 PM**
Dil. Factor:	**4.48**	**Date of Analysis:**	**11/1/13 11:31 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.2	Not Detected	11	Not Detected
Freon 114	2.2	Not Detected	16	Not Detected
Chloromethane	22	Not Detected	46	Not Detected
Vinyl Chloride	2.2	Not Detected	5.7	Not Detected
1,3-Butadiene	2.2	Not Detected	5.0	Not Detected
Bromomethane	22	Not Detected	87	Not Detected
Chloroethane	9.0	Not Detected	24	Not Detected
Freon 11	2.2	Not Detected	12	Not Detected
Ethanol	9.0	100	17	190
Freon 113	2.2	Not Detected	17	Not Detected
1,1-Dichloroethene	2.2	Not Detected	8.9	Not Detected
Acetone	22	Not Detected	53	Not Detected
2-Propanol	9.0	30	22	74
Carbon Disulfide	9.0	Not Detected	28	Not Detected
3-Chloropropene	9.0	Not Detected	28	Not Detected
Methylene Chloride	22	Not Detected	78	Not Detected
Methyl tert-butyl ether	2.2	Not Detected	8.1	Not Detected
trans-1,2-Dichloroethene	2.2	Not Detected	8.9	Not Detected
Hexane	2.2	Not Detected	7.9	Not Detected
1,1-Dichloroethane	2.2	Not Detected	9.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	9.0	Not Detected	26	Not Detected
cis-1,2-Dichloroethene	2.2	Not Detected	8.9	Not Detected
Tetrahydrofuran	2.2	Not Detected	6.6	Not Detected
Chloroform	2.2	Not Detected	11	Not Detected
1,1,1-Trichloroethane	2.2	Not Detected	12	Not Detected
Cyclohexane	2.2	Not Detected	7.7	Not Detected
Carbon Tetrachloride	2.2	Not Detected	14	Not Detected
2,2,4-Trimethylpentane	2.2	Not Detected	10	Not Detected
Benzene	2.2	2.4	7.2	7.6
1,2-Dichloroethane	2.2	Not Detected	9.1	Not Detected
Heptane	2.2	Not Detected	9.2	Not Detected
Trichloroethene	2.2	Not Detected	12	Not Detected
1,2-Dichloropropane	2.2	Not Detected	10	Not Detected
1,4-Dioxane	9.0	Not Detected	32	Not Detected
Bromodichloromethane	2.2	Not Detected	15	Not Detected
cis-1,3-Dichloropropene	2.2	Not Detected	10	Not Detected
4-Methyl-2-pentanone	2.2	Not Detected	9.2	Not Detected
Toluene	2.2	94	8.4	360
trans-1,3-Dichloropropene	2.2	Not Detected	10	Not Detected
1,1,2-Trichloroethane	2.2	Not Detected	12	Not Detected
Tetrachloroethene	2.2	570	15	3900
2-Hexanone	9.0	Not Detected	37	Not Detected

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Client Sample ID: SSG-4

Lab ID#: 1310418A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103119**	**Date of Collection:**	**10/16/13 1:53:00 PM**
Dil. Factor:	**4.48**	**Date of Analysis:**	**11/1/13 11:31 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.2	Not Detected	19	Not Detected
1,2-Dibromoethane (EDB)	2.2	Not Detected	17	Not Detected
Chlorobenzene	2.2	Not Detected	10	Not Detected
Ethyl Benzene	2.2	Not Detected	9.7	Not Detected
m,p-Xylene	2.2	3.2	9.7	14
o-Xylene	2.2	Not Detected	9.7	Not Detected
Styrene	2.2	Not Detected	9.5	Not Detected
Bromoform	2.2	Not Detected	23	Not Detected
Cumene	2.2	Not Detected	11	Not Detected
1,1,2,2-Tetrachloroethane	2.2	Not Detected	15	Not Detected
Propylbenzene	2.2	Not Detected	11	Not Detected
4-Ethyltoluene	2.2	Not Detected	11	Not Detected
1,3,5-Trimethylbenzene	2.2	Not Detected	11	Not Detected
1,2,4-Trimethylbenzene	2.2	Not Detected	11	Not Detected
1,3-Dichlorobenzene	2.2	Not Detected	13	Not Detected
1,4-Dichlorobenzene	2.2	Not Detected	13	Not Detected
alpha-Chlorotoluene	2.2	Not Detected	12	Not Detected
1,2-Dichlorobenzene	2.2	Not Detected	13	Not Detected
1,2,4-Trichlorobenzene	9.0	Not Detected	66	Not Detected
Hexachlorobutadiene	9.0	Not Detected	96	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1310418A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103008**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 08:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1310418A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103008**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 08:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1310418A-05B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103111**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 10:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1310418A-05B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103111**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 10:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: CCV

Lab ID#: 1310418A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103002**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 05:17 PM**	

Compound	%Recovery
Freon 12	103
Freon 114	99
Chloromethane	85
Vinyl Chloride	94
1,3-Butadiene	84
Bromomethane	93
Chloroethane	91
Freon 11	105
Ethanol	78
Freon 113	96
1,1-Dichloroethene	94
Acetone	80
2-Propanol	86
Carbon Disulfide	95
3-Chloropropene	87
Methylene Chloride	92
Methyl tert-butyl ether	91
trans-1,2-Dichloroethene	92
Hexane	83
1,1-Dichloroethane	94
2-Butanone (Methyl Ethyl Ketone)	88
cis-1,2-Dichloroethene	90
Tetrahydrofuran	83
Chloroform	95
1,1,1-Trichloroethane	99
Cyclohexane	86
Carbon Tetrachloride	101
2,2,4-Trimethylpentane	84
Benzene	95
1,2-Dichloroethane	107
Heptane	84
Trichloroethene	96
1,2-Dichloropropane	90
1,4-Dioxane	97
Bromodichloromethane	102
cis-1,3-Dichloropropene	97
4-Methyl-2-pentanone	87
Toluene	90
trans-1,3-Dichloropropene	98
1,1,2-Trichloroethane	96
Tetrachloroethene	99
2-Hexanone	88

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Client Sample ID: CCV

Lab ID#: 1310418A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103002**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 05:17 PM**	

Compound	%Recovery
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	98
Chlorobenzene	97
Ethyl Benzene	95
m,p-Xylene	96
o-Xylene	96
Styrene	95
Bromoform	103
Cumene	95
1,1,2,2-Tetrachloroethane	95
Propylbenzene	97
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	98
1,2,4-Trimethylbenzene	96
1,3-Dichlorobenzene	101
1,4-Dichlorobenzene	100
alpha-Chlorotoluene	96
1,2-Dichlorobenzene	97
1,2,4-Trichlorobenzene	98
Hexachlorobutadiene	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: CCV

Lab ID#: 1310418A-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103105**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 07:38 PM**

Compound	%Recovery
Freon 12	111
Freon 114	106
Chloromethane	97
Vinyl Chloride	106
1,3-Butadiene	96
Bromomethane	100
Chloroethane	106
Freon 11	110
Ethanol	92
Freon 113	105
1,1-Dichloroethene	103
Acetone	96
2-Propanol	94
Carbon Disulfide	102
3-Chloropropene	96
Methylene Chloride	98
Methyl tert-butyl ether	99
trans-1,2-Dichloroethene	100
Hexane	94
1,1-Dichloroethane	103
2-Butanone (Methyl Ethyl Ketone)	100
cis-1,2-Dichloroethene	97
Tetrahydrofuran	94
Chloroform	102
1,1,1-Trichloroethane	105
Cyclohexane	98
Carbon Tetrachloride	107
2,2,4-Trimethylpentane	96
Benzene	101
1,2-Dichloroethane	110
Heptane	98
Trichloroethene	102
1,2-Dichloropropane	100
1,4-Dioxane	104
Bromodichloromethane	107
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	96
Toluene	97
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	100
Tetrachloroethene	102
2-Hexanone	95

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Client Sample ID: CCV

Lab ID#: 1310418A-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103105**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 07:38 PM**	

Compound	**%Recovery**
Dibromochloromethane	104
1,2-Dibromoethane (EDB)	101
Chlorobenzene	102
Ethyl Benzene	103
m,p-Xylene	102
o-Xylene	100
Styrene	103
Bromoform	104
Cumene	101
1,1,2,2-Tetrachloroethane	99
Propylbenzene	103
4-Ethyltoluene	102
1,3,5-Trimethylbenzene	103
1,2,4-Trimethylbenzene	103
1,3-Dichlorobenzene	102
1,4-Dichlorobenzene	102
alpha-Chlorotoluene	100
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	95
Hexachlorobutadiene	95

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCS

Lab ID#: 1310418A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 05:58 PM**	

Compound	%Recovery	Method Limits
Freon 12	114	70-130
Freon 114	108	70-130
Chloromethane	98	70-130
Vinyl Chloride	105	70-130
1,3-Butadiene	94	70-130
Bromomethane	105	70-130
Chloroethane	103	70-130
Freon 11	114	70-130
Ethanol	92	70-130
Freon 113	119	70-130
1,1-Dichloroethene	118	70-130
Acetone	93	70-130
2-Propanol	96	70-130
Carbon Disulfide	109	70-130
3-Chloropropene	97	70-130
Methylene Chloride	111	70-130
Methyl tert-butyl ether	102	70-130
trans-1,2-Dichloroethene	102	70-130
Hexane	90	70-130
1,1-Dichloroethane	106	70-130
2-Butanone (Methyl Ethyl Ketone)	98	70-130
cis-1,2-Dichloroethene	103	70-130
Tetrahydrofuran	90	70-130
Chloroform	108	70-130
1,1,1-Trichloroethane	107	70-130
Cyclohexane	99	70-130
Carbon Tetrachloride	110	70-130
2,2,4-Trimethylpentane	98	70-130
Benzene	104	70-130
1,2-Dichloroethane	114	70-130
Heptane	98	70-130
Trichloroethene	106	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	110	70-130
Bromodichloromethane	114	70-130
cis-1,3-Dichloropropene	103	70-130
4-Methyl-2-pentanone	99	70-130
Toluene	98	70-130
trans-1,3-Dichloropropene	102	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	105	70-130
2-Hexanone	102	70-130

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Client Sample ID: LCS

Lab ID#: 1310418A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 05:58 PM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	115	70-130
1,2-Dibromoethane (EDB)	107	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	103	70-130
o-Xylene	99	70-130
Styrene	102	70-130
Bromoform	113	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	102	70-130
Propylbenzene	108	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	103	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	105	70-130
1,4-Dichlorobenzene	103	70-130
alpha-Chlorotoluene	104	70-130
1,2-Dichlorobenzene	103	70-130
1,2,4-Trichlorobenzene	98	70-130
Hexachlorobutadiene	97	70-130

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: LCSD

Lab ID#: 1310418A-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103004**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 06:26 PM**	

Compound	%Recovery	Method Limits
Freon 12	114	70-130
Freon 114	111	70-130
Chloromethane	102	70-130
Vinyl Chloride	107	70-130
1,3-Butadiene	96	70-130
Bromomethane	104	70-130
Chloroethane	97	70-130
Freon 11	115	70-130
Ethanol	86	70-130
Freon 113	119	70-130
1,1-Dichloroethene	118	70-130
Acetone	95	70-130
2-Propanol	96	70-130
Carbon Disulfide	110	70-130
3-Chloropropene	95	70-130
Methylene Chloride	110	70-130
Methyl tert-butyl ether	103	70-130
trans-1,2-Dichloroethene	105	70-130
Hexane	95	70-130
1,1-Dichloroethane	106	70-130
2-Butanone (Methyl Ethyl Ketone)	99	70-130
cis-1,2-Dichloroethene	103	70-130
Tetrahydrofuran	93	70-130
Chloroform	108	70-130
1,1,1-Trichloroethane	109	70-130
Cyclohexane	99	70-130
Carbon Tetrachloride	111	70-130
2,2,4-Trimethylpentane	97	70-130
Benzene	104	70-130
1,2-Dichloroethane	114	70-130
Heptane	97	70-130
Trichloroethene	105	70-130
1,2-Dichloropropane	100	70-130
1,4-Dioxane	110	70-130
Bromodichloromethane	115	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	97	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	104	70-130
Tetrachloroethene	104	70-130
2-Hexanone	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1310418A-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103004**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/30/13 06:26 PM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	113	70-130
1,2-Dibromoethane (EDB)	106	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	103	70-130
o-Xylene	100	70-130
Styrene	100	70-130
Bromoform	113	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	101	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	103	70-130
1,2,4-Trimethylbenzene	102	70-130
1,3-Dichlorobenzene	106	70-130
1,4-Dichlorobenzene	103	70-130
alpha-Chlorotoluene	104	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	99	70-130
Hexachlorobutadiene	98	70-130

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: LCS

Lab ID#: 1310418A-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103106**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 08:14 PM**	

Compound	%Recovery	Method Limits
Freon 12	112	70-130
Freon 114	109	70-130
Chloromethane	100	70-130
Vinyl Chloride	107	70-130
1,3-Butadiene	98	70-130
Bromomethane	102	70-130
Chloroethane	108	70-130
Freon 11	114	70-130
Ethanol	91	70-130
Freon 113	121	70-130
1,1-Dichloroethene	120	70-130
Acetone	99	70-130
2-Propanol	98	70-130
Carbon Disulfide	110	70-130
3-Chloropropene	103	70-130
Methylene Chloride	108	70-130
Methyl tert-butyl ether	106	70-130
trans-1,2-Dichloroethene	108	70-130
Hexane	98	70-130
1,1-Dichloroethane	108	70-130
2-Butanone (Methyl Ethyl Ketone)	108	70-130
cis-1,2-Dichloroethene	103	70-130
Tetrahydrofuran	96	70-130
Chloroform	105	70-130
1,1,1-Trichloroethane	108	70-130
Cyclohexane	105	70-130
Carbon Tetrachloride	110	70-130
2,2,4-Trimethylpentane	102	70-130
Benzene	103	70-130
1,2-Dichloroethane	112	70-130
Heptane	101	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	102	70-130
1,4-Dioxane	110	70-130
Bromodichloromethane	110	70-130
cis-1,3-Dichloropropene	99	70-130
4-Methyl-2-pentanone	99	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	101	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	103	70-130
2-Hexanone	100	70-130

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Client Sample ID: LCS

Lab ID#: 1310418A-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103106**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 08:14 PM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	109	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	105	70-130
o-Xylene	100	70-130
Styrene	101	70-130
Bromoform	108	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	107	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	102	70-130
1,2,4-Trimethylbenzene	101	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	102	70-130
1,2-Dichlorobenzene	101	70-130
1,2,4-Trichlorobenzene	94	70-130
Hexachlorobutadiene	95	70-130

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCSD

Lab ID#: 1310418A-07BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103107**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 08:38 PM**	

Compound	%Recovery	Method Limits
Freon 12	110	70-130
Freon 114	104	70-130
Chloromethane	96	70-130
Vinyl Chloride	107	70-130
1,3-Butadiene	97	70-130
Bromomethane	102	70-130
Chloroethane	106	70-130
Freon 11	112	70-130
Ethanol	86	70-130
Freon 113	116	70-130
1,1-Dichloroethene	116	70-130
Acetone	96	70-130
2-Propanol	95	70-130
Carbon Disulfide	107	70-130
3-Chloropropene	99	70-130
Methylene Chloride	104	70-130
Methyl tert-butyl ether	102	70-130
trans-1,2-Dichloroethene	103	70-130
Hexane	96	70-130
1,1-Dichloroethane	105	70-130
2-Butanone (Methyl Ethyl Ketone)	102	70-130
cis-1,2-Dichloroethene	101	70-130
Tetrahydrofuran	92	70-130
Chloroform	103	70-130
1,1,1-Trichloroethane	106	70-130
Cyclohexane	100	70-130
Carbon Tetrachloride	106	70-130
2,2,4-Trimethylpentane	100	70-130
Benzene	105	70-130
1,2-Dichloroethane	112	70-130
Heptane	102	70-130
Trichloroethene	101	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	114	70-130
Bromodichloromethane	111	70-130
cis-1,3-Dichloropropene	103	70-130
4-Methyl-2-pentanone	98	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	103	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	103	70-130
2-Hexanone	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1310418A-07BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3103107**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/31/13 08:38 PM**	

Compound	**%Recovery**	**Method Limits**
Dibromochloromethane	110	70-130
1,2-Dibromoethane (EDB)	103	70-130
Chlorobenzene	103	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	105	70-130
o-Xylene	102	70-130
Styrene	103	70-130
Bromoform	109	70-130
Cumene	105	70-130
1,1,2,2-Tetrachloroethane	99	70-130
Propylbenzene	107	70-130
4-Ethyltoluene	107	70-130
1,3,5-Trimethylbenzene	103	70-130
1,2,4-Trimethylbenzene	102	70-130
1,3-Dichlorobenzene	103	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	104	70-130
1,2-Dichlorobenzene	100	70-130
1,2,4-Trichlorobenzene	99	70-130
Hexachlorobutadiene	96	70-130

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	99	70-130

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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager: Russ Cirillo
Collected by: (Print and Sign) B. Collins
Company: Stantec Consulting Email: Russ.Cirillo@Stantec.com
Address: 2000 S. Colorado 2-300 City: Denver State: CO Zip: 80222
Phone: 303 285 4600 Fax:

Project Info:
P.O. # 212205045
Project #
Project Name: Lobell

Turn Around Time:
☐ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SSG-1	37699	10/16/13	0957	TO15 GCMS; Helium; Fixed gas O_2, CO_2, CH_4, N_2, Helium	-25	-4		
02A	SSG-2	24402	10/16/13	1041		-24	-4		
03A	SSG-3	35619	10/16/13	1420		-23	-4		
04A	SSG-4	35626	10/16/13	1353		-23	-4		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
B. Collins	10/17/13	ATL	10/18/13 10:00
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:
Samples collected at 5,100' elevation.

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	Good	Yes No None	1310418

Form 1293 rev.11

APPENDIX F

AMPLIFIED GEOCHEMICAL IMAGING, LLC

Mapping Report

Site: Former Lobell Refinery

Prepared for:

Stantec Consulting Services, Inc.
2000 South Colorado Blvd.
Suite 2-300
Denver, CO

Prepared on:

October 31, 2013

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Project Summary

Amplified Geochemical Imaging, LLC. (AGI) provided the AGI Environmental Survey

Former Lobell Refinery

The service provided by AGI included delivery of the required quantity of AGI Universal Samplers, analysis by the method described for the requested organic compounds, and reporting of the data. A Laboratory Report was issued previously which summarized the field sampling and analytical procedures, and contained the

Normally, when printed at scale, the maps are 11 x 17 inch in size. Other sizes are available upon request. General and project specific comments on the contouring and mapping can be found on the next page.

Maps prepared by:

Jim E Whetzel

Project Manager

Maps reviewed/approved by:

Dayna M Cobb

Project Manager

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General Comments

A minimum curvature algorithm was used to interpolate the data from the sample locations to a regularly-spaced grid. The resulting surface is considered to be the smoothest possible surface that will fit the observed values at each sample location (i.e., data honoring). The interpolation is performed in log space, with grid cell sizes approximately one-tenth the average distance between sample locations. For example, when AGI Universal Samplers are placed about 50 feet apart, the grid cell size is set to five feet.

Where observations trend from lower to higher values, and moving towards the edge of the area sampled, the contour surface will continue to rise (showing warmer colors) as no additional data exist to constrain the interpolation. Where observations trend from high to low, towards the edge of the area sampled, the opposite is true.

Contour minimums and maximums used in the color interval assignment are established based on the QA blank levels (trip and method blanks), method detection limits, and maximum values observed. The minimum contour level (gray color) is established using the maximum QA blank level or method detection limit, whichever is greater, per compound or groups of compounds. The maximum contour level is set at the maximum value observed, per compound or groups of compounds. Contour interval assignments can be modified at the client's request.

Project Specific Comments

The lower contour limits for the BTEX and cis- & trans-1,2-DCE maps were set to the lowest calculated detection limit of the individual constituent compounds.

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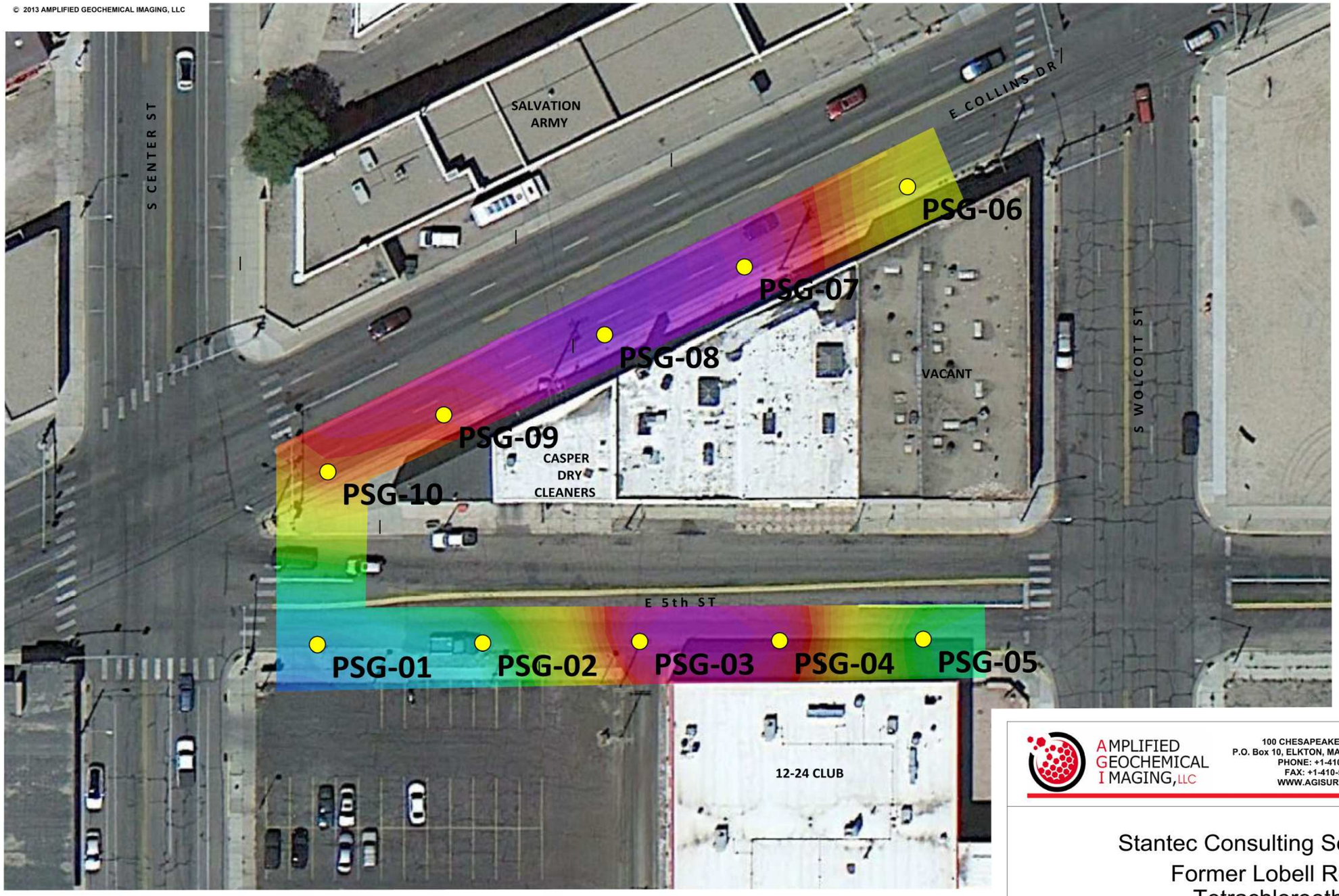

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1403.137
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144.994
92.087
58.486
37.145
23.591
14.983
9.516
6.044
3.838
2.438

PCE
ug/m^3

Scale 1:480

25 0 25 50 75
(feet)

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Stantec Consulting Services, Inc.

Former Lobell Refinery
Tetrachloroethene
Estimated Soil Gas Concentrations

DATE DRAWN: 31 Oct 2013	DRAWN BY: JW	ORIG. CAD: Casper...DWG	SITE CODE:
REV. DATE:	REV. #:	PROJECT NUMBER: 30000121	

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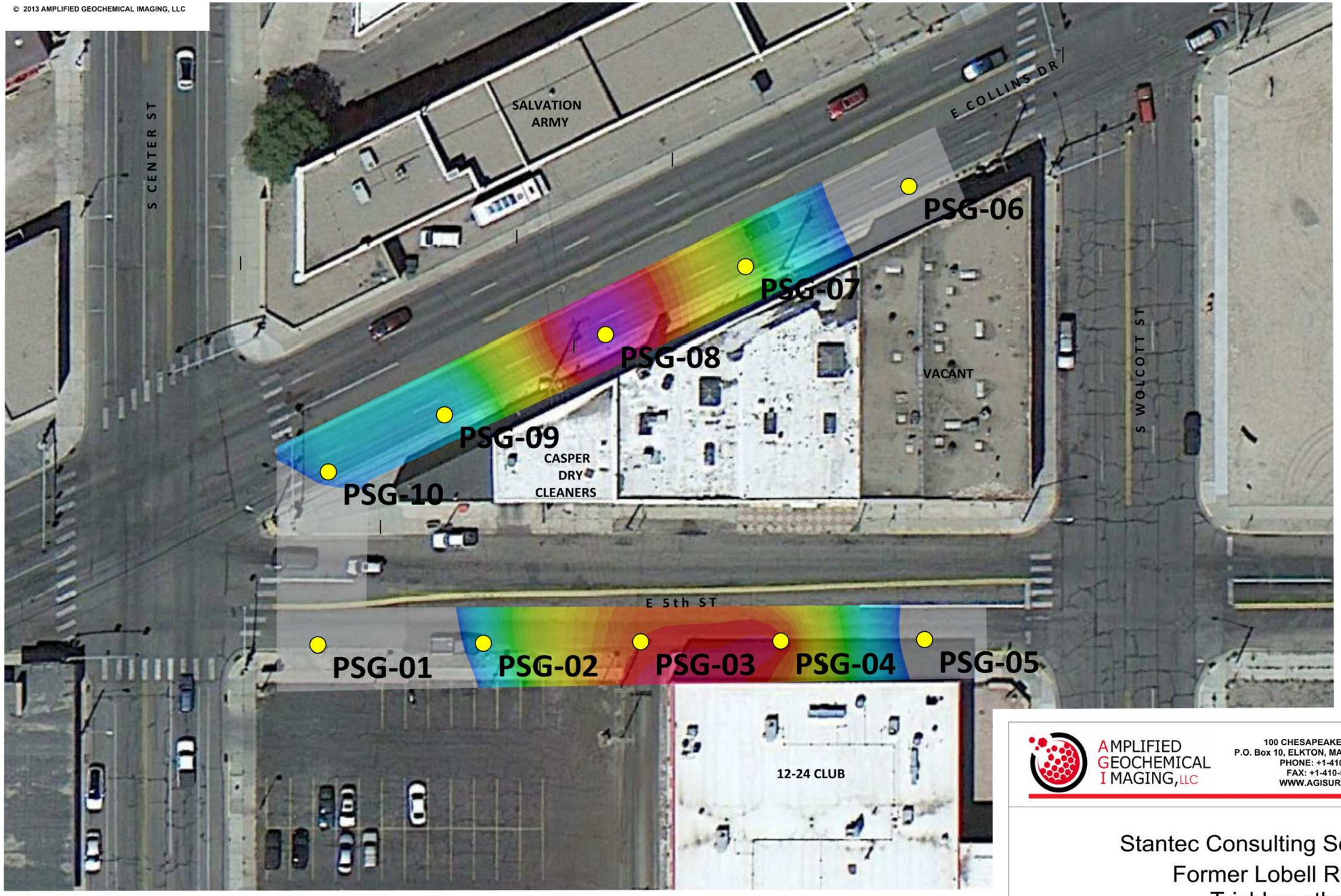

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35.473
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19.767
16.267
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Stantec Consulting Services, Inc.
Former Lobell Refinery
Trichloroethene
Estimated Soil Gas Concentrations

DATE DRAWN: 31 Oct 2013	DRAWN BY: JW	ORIG. CAD: Casper...DWG	SITE CODE:
REV. DATE:	REV. #:	PROJECT NUMBER: 30000121	

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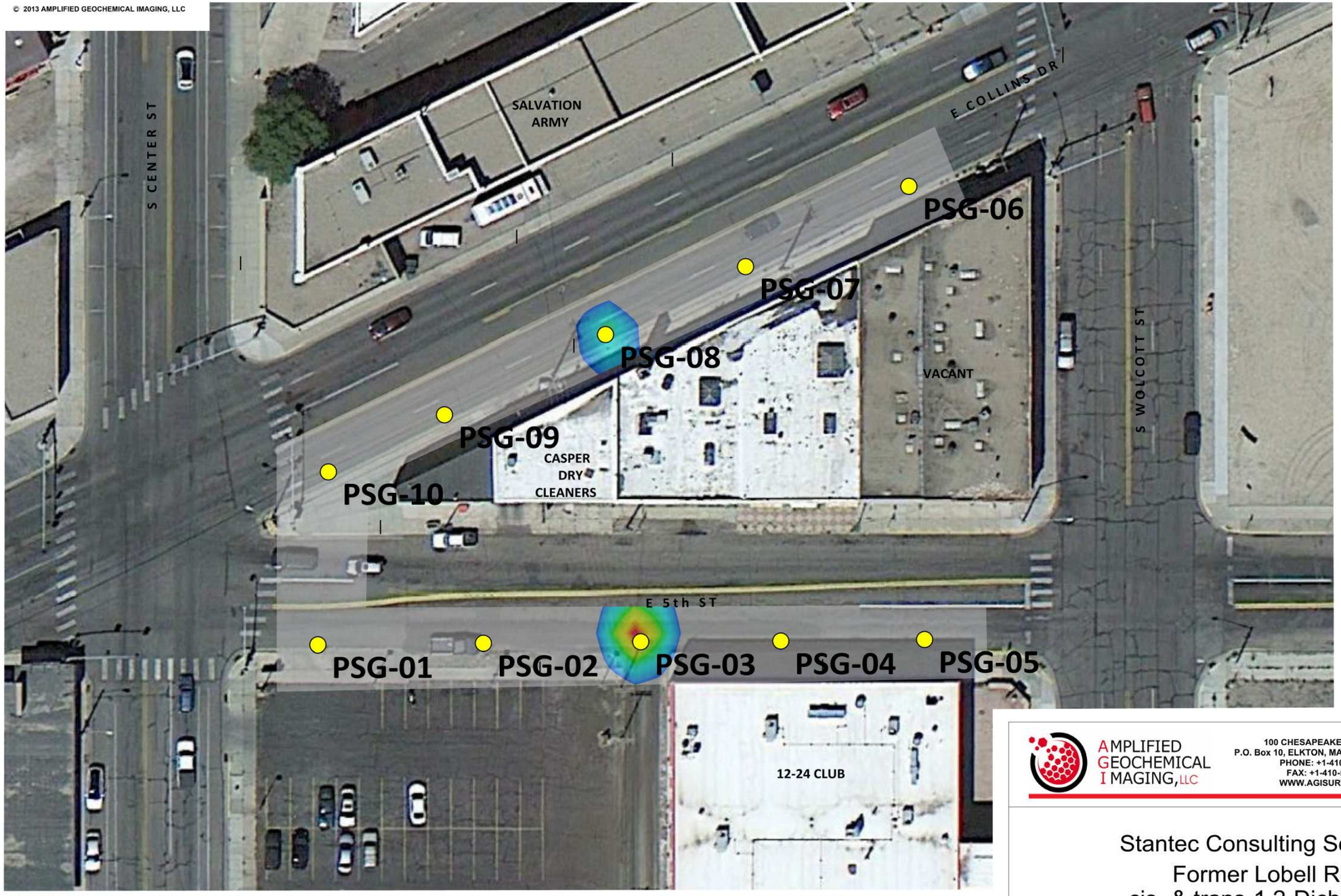

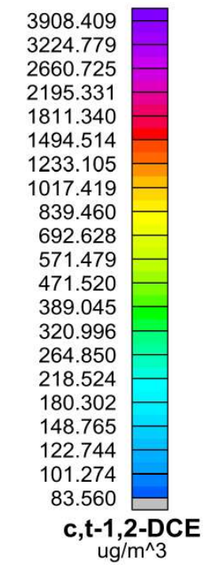

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(feet)

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Stantec Consulting Services, Inc.

Former Lobell Refinery
cis- & trans-1,2-Dichloroethene
Estimated Soil Gas Concentrations

DATE DRAWN: 31 Oct 2013	DRAWN BY: JW	ORIG. CAD: Casper...DWG	SITE CODE:
REV. DATE:	REV. #:	PROJECT NUMBER: 30000121	

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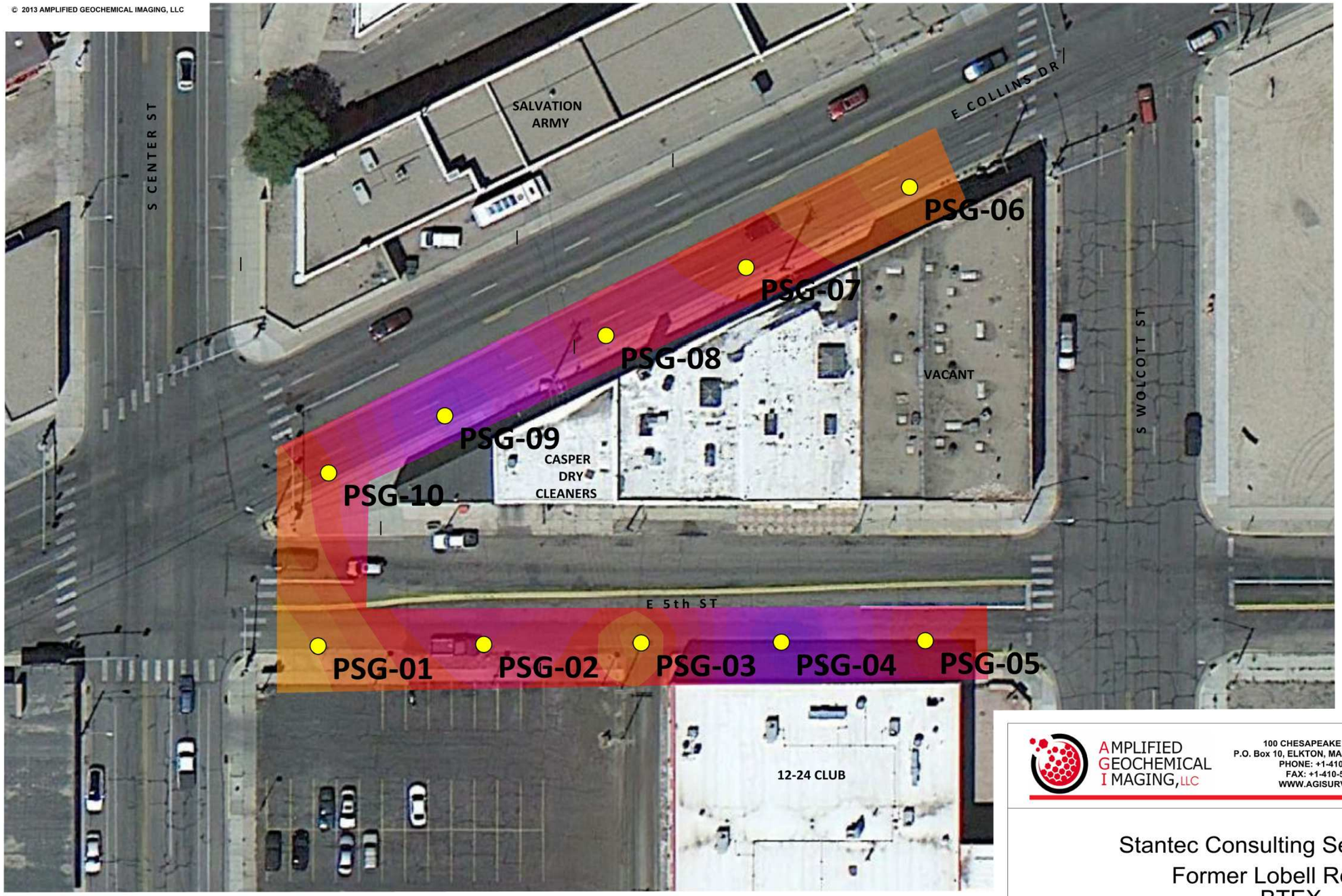

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1.445

BTEX
ug/m^3

Scale 1:480

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(feet)

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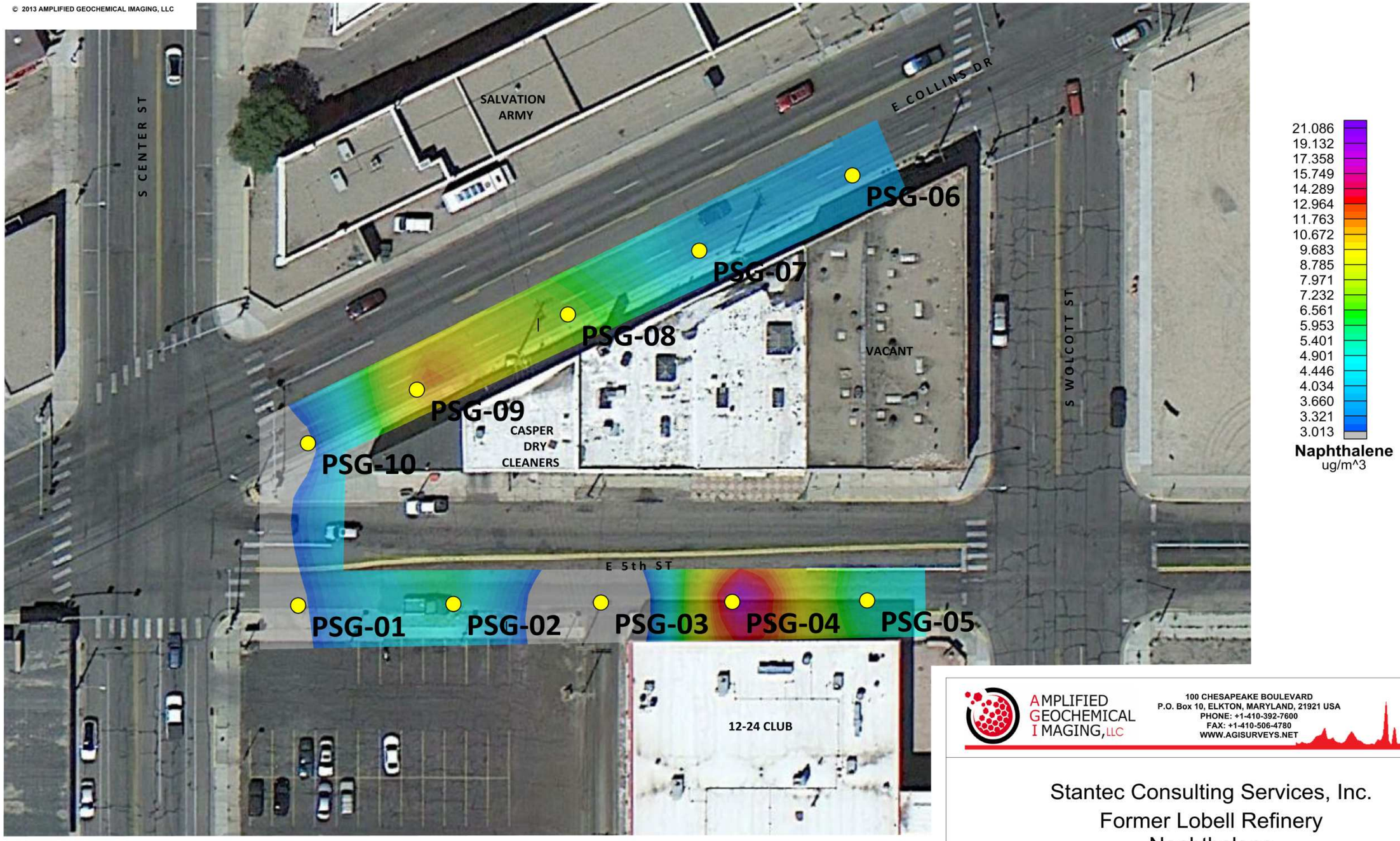
Stantec Consulting Services, Inc.

Former Lobell Refinery
BTEX
Estimated Soil Gas Concentrations

DATE DRAWN: 31 Oct 2013	DRAWN BY: JW	ORIG. CAD: Casper...DWG	SITE CODE:
REV. DATE:	REV. #:	PROJECT NUMBER: 30000121	



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(feet)

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Stantec Consulting Services, Inc.

Former Lobell Refinery
Naphthalene
Estimated Soil Gas Concentrations

DATE DRAWN: 31 Oct 2013	DRAWN BY: JW	ORIG. CAD: Casper...DWG	SITE CODE:
REV. DATE:	REV. #:	PROJECT NUMBER: 30000121	

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APPENDIX G

DATA VERIFICATION FORM

Site/Event: Lobell	Client: Stantec Consulting
SDG #: 1310417, 1310418A, 1310487A	Sample Collection Date(s): 10/15-18/2013
Matrix: Air	Sample Analysis Date(s): 10/29-31/2013; 11/01/2013; 11/04-06/2013
Method: TO-15 (1310418A, 1310487A) and Modified TO-15 SIM (1310417)	Date Reviewed: 2/4/2014
Laboratory: Air Toxics	QA Reviewed By: Diane Short & Associates, Inc.

Item No.	Parameter/Question	Control Limits for Organics	Control Limits for Inorganics	Control Limits met (yes/no)?(1)
1	Samples properly preserved?	---	---	Y
2	Holding Time(2)	30 days	---	Y
3	Calibration met method requirements?	70-130%	---	OK for CCV see note
4	Method Blank free of detections?	---	---	Y
5	Trip Blank free of detections?	---	---	Not Applicable
6	Laboratory Control Spike (LCS)	70-130%	---	N
7	MS/MSD Recoveries(3)	---	---	Not Applicable
8	MS/MSD Precision(3)	---	---	Not Applicable
9	Lab Duplicate Precision(4)	< 20% RPD	---	Y
10	Surrogate Recovery	70-130%	---	Y
11	Field Duplicate Precision	---	---	Not Applicable
12	Rinse Blanks free of detections?	---	---	Not Applicable
13	All req'd samples collected?	---	---	Y
14	All req'd analyses performed?	---	---	Y
15	All req'd analytes reported?	---	---	Y
16	All req'd reporting limits met?	---	---	Y
17	Are data usable for the intended purpose?	---	---	Y

(1) If the control limits were not met for any parameters, list the item number(s) below and provide additional explanation.
(2) List the applicable holding time under the control limits column.
(3) Applicable only if performed on a TCAAP environmental sample.
(4) If the sample and/or duplicate result is < 5 × CRDL, the control limit is ± CRDL.
Required Attachments: LCS, MS/MSD, and Surrogate Recovery results for any outliers; field duplicate results table (RPDs); and data tables with sample results for any data qualifiers applied. These are addressed in comment table and Qualifier Summary table below.

Item	Comment
3	Only CCV summaries were provided by the laboratory. The CCV summaries provided by the laboratory reflected a percent recovery within 70-130%, with the following exception. The percent recoveries for 1,2,4-trichlorobenzene (134%) and hexachlorobutadiene (132%) exceeded criteria in the CCV analyzed on 11/4/2013 at 10:07 AM in SDG 1314087A. These compounds were not detected in the associated samples and the CCV was immediately reanalyzed on 11/4/2013 at 10:59 AM and all recoveries were within criteria. No qualification was necessary.
6	The LCSD recoveries for 1,2,4-trichlorobenzene of 132% and 135% analyzed on 11/4/2013 1120 and 11/5/2013 1014, respectively; and hexachlorobutadiene of 132% analyzed on 11/5/2013 1014 exceeded criteria in SDG 1314087A. No qualification was necessary because detected results for these compounds were not reported in the associated samples.
9	A laboratory duplicate was not included; however, LCS/LCSD analyses were provided. Although RPDs were not summarized by the laboratory, a comparison of the percent recoveries indicate that the RPDs were <20%.
13-15	Per the client project manager
16	Dilutions were performed on samples VP-01, VP-11R, VP-12, and VP-14 due to the presence of high level target species in SDG 1310487A; and in samples SSG-3 and SSG-4 in SDG 1310418A. Additionally, the reporting limit for ethanol was raised from 2.0 ppbv to 5.0 ppbv due to the linear calibration range of the instrument in sample VP-12 in SDG 1310487A and in samples SSG-1, SSG-2, SSG-3, and SSG-4 in SDG 1310418A.

DATA VERIFICATION FORM

Site/Event: Lobell	Client: Stantec Consulting
SDG #: 1310418B	Sample Collection Date(s): 10/16/2013
Matrix: Air	Sample Analysis Date(s): 10/29/2013
Method: ASTM Method D-1946 (modified) for methane and fixed gases	Date Reviewed: 1/26/2014
Laboratory: Air Toxics	QA Reviewed By: Diane Short & Associates, Inc.

Item No.	Parameter/Question	Control Limits for Organics	Control Limits met (yes/no)?(1)
1	Samples properly preserved?	---	Y
2	Holding Time(2)	30 days	Y
3	Calibration met method requirements?	ICAL % RSD 30% or correlation coefficient >0.990; CCAL: %D < 20%	
4	Method Blank free of detections?	---	Y
5	Trip Blank free of detections?	---	Not Applicable
6	Laboratory Control Spike (LCS)	85 to 115%	Y
7	MS/MSD Recoveries(3)	---	Not Applicable
8	MS/MSD Precision(3)	---	Not Applicable
9	Lab Duplicate Precision(4)	< 20% RPD	Y
10	Surrogate Recovery	---	Not reported
11	Field Duplicate Precision	---	Not Applicable
12	Rinse Blanks free of detections?	---	Not Applicable
13	All req'd samples collected?	---	Y
14	All req'd analyses performed?	---	Y
15	All req'd analytes reported?	---	Y
16	All req'd reporting limits met?	---	Y
17	Are data usable for the intended purpose?	---	Y

(1) If the control limits were not met for any parameters, list the item number(s) below and provide additional explanation.
(2) List the applicable holding time under the control limits column.
(3) Applicable only if performed on a TCAAP environmental sample.
(4) If the sample and/or duplicate result is < 5 × CRDL, the control limit is ± CRDL.
Required Attachments: LCS, MS/MSD, and Surrogate Recovery results for any outliers; field duplicate results table (RPDs); and data tables with sample results for any data qualifiers applied. These are addressed in comment table and Qualifier Summary table below.

Item	Comment
9	A laboratory duplicate was not included; however, LCS/LCSD analyses were included. Although RPDs were not summarized by the laboratory, a comparison of the percent recoveries indicate that the RPDs were <20%.

DATA VERIFICATION FORM

Site/Event: Lobell	Client: Stantec Consulting
SDG #: STN101/ L663156	Sample Collection Date(s): 10/09-11/2013
Matrix: Solid, Liquid Waste	Samples: 4 groundwater
Method: SW-846 Method 6010B, 7470A/7471	Date Reviewed: 1/26/2013
Laboratory: ChemSolutions subbed to ESC	QA Reviewed By: Diane Short & Associates, Inc.

Item No.	Parameter/Question	Control Limits for Inorganics	Control Limits met (yes/no)?(1)
1	Samples properly preserved?	---	Y
2	Holding Time(2)	180 days metals 28 days mercury	Y
3	Calibration met method requirements?	ICV and CCV 90 – 110% (Hg 80 – 120%)	Y
4	Method Blank free of detections?	Non-detect	Y
5	Trip Blank free of detections?	---	NA
6	Laboratory Control Spike (LCS) (3)	85-115%	Y
7	MS/MSD Recoveries(4)	75-125% metals 80-120% mercury	Y
8	MS/MSD Precision(4)	<20%	N
9	Lab Duplicate Precision(5)	<20%	Y
10	Serial Dilution	---	Not reported
11	Internal Standards (Method 6020)	---	NA
12	Field Duplicate Precision	<20%	Y
13	Rinse Blanks free of detections?	FB-1-101113 EB-1-101113	Y
14	All req'd samples collected?	---	Y
15	All req'd analyses performed?	---	Y
16	All req'd analytes reported?	---	Y
17	All req'd reporting limits met?	---	Y
18	Are data usable for the intended purpose?	---	Y

(1) If the control limits were not met for any parameters, list the item number(s) below and provide additional explanation.
(2) List the applicable holding time under the control limits column.
(3) LCS limits specific to laboratory determined QC limits
(4) MS/MSD and RPD limits specific to laboratory determined QC limits
(5) If the sample and/or duplicate result is < 5 × CRDL, the control limit is ± CRDL.

Required Attachments: LCS, MS/MSD, and Surrogate Recovery results for any outliers; field

duplicate results table (RPDs); and data tables with sample results for any data qualifiers applied. These are addressed in comment table and Qualifier Summary table below.

Item	Comment
7	Based on the summary form provided by the laboratory, the matrix spike and matrix spike duplicate analyses for metals and mercury could not be associated with a parent sample in SDG STN101. There is no correlation of the ESC sample numbers to the Chem Solutions laboratory IDs nor the client IDs. There is a sample L663156-16 which is reported from the associated analytical package, but as there are only 4 client samples, it cannot be determined if the sample used is a Lobell sample. If it is a Lobell sample, then the silver is out of limits at 32 and 25.8 %. At this time, no data are qualified.
9	The RPDs reported in the duplicate analyses for metals reported various results outside the 20% criteria in SDG STN101. For the laboratory duplicate, the same ESC sample as noted above was used. All the reported data are less than the RL or non-detect and the reported outlier RPDs do not apply. Mercury results were also out, but all parent samples were < 5 x RL or non-detect so if a Lobell sample was used, the precision would be acceptable.
13	The field blank sample (FB-1-101113) and equipment blank sample (EB-1-101113) in SDG STN101 were non-detect for all analyses.
14-17	Per the client project manager
	General note – There is no sample summary table to correlate the lab IDs to the client IDs for the Chem Solutions data, nor the ESC data. There is no chain of custody transfer of the inorganic samples from Chem Solutions to ESC.

DATA VERIFICATION FORM

Site/Event: Lobell	Client: Stantec Consulting
SDG #: STN097, STN098, STN099, STN101	Sample Collection Date(s): 10/07-09/2013
Matrix: Solid, Liquid Waste	Samples: 35 (23 groundwater, 5 excavation, 4 hazardous waste, 6 soils and drums)
Method: SW-846 Method 8015C, 8260C, 8270D, 8270SIM	Date Reviewed: 2/4/2014
Laboratory: ChemSolutions	QA Reviewed By: Diane Short & Associates, Inc.

Item No.	Parameter/Question	Control Limits for Organics	Control Limits met (yes/no)
1	Samples properly preserved?	---	Y
2	Holding Time(2)	14 days collect to analysis for VOA, 7 days to extraction for SVOA	Y
3	Initial Calibration met method requirements?	GCMS: % RSD 30% or correlation coefficient >0.990; RF > 0.05 (poor responders 0.01) GC: correlation coefficient >0.995	Y
4	Continuing Calibration	GCMS: %D < 25% (poor responders 40%) GC: %D < 20%	
5	Method Blank free of detections?	Non-detect	Y
6	Trip Blank free of detections?	VOC only	Y
7	Laboratory Control Spike (LCS) (3)	70-130% VOC soil 65-135% VOC water 20-130% SVOC water 71-127% DRO soil 67-129% DRO water	N
8	MS/MSD Recoveries(4)	70-130% VOC soil 65-135% VOC water 20-130% SVOC water 60-138% DRO soil 63-131% DRO water	Y
9	MS/MSD Precision(4)	<25% VOC soil and water <50% SVOC water <20% DRO soil and water	Y
10	Lab Duplicate Precision(5)	---	Not Evaluated
11	Surrogate Recovery	50-150% VOC soil 65-135% VOC water 20-130% SVOC water 52-130% DRO soil 50-148% DRO water	N
12	Field Duplicate Precision	<20% water, 35% soil; results < 5 x CRDL: ± 2 x RL water, ± 4 x RL soil	Y
13	Rinse Blanks free of detections?	FB-1-101113 EB-1-101113	Y
14	All req'd samples collected?	---	Y
15	All req'd analyses performed?	---	Y

16	All req'd analytes reported?	---	Y
17	All req'd reporting limits met?	---	Y
18	Are data usable for the intended purpose?	---	Y

(1) If the control limits were not met for any parameters, list the item number(s) below and provide additional explanation.
(2) List the applicable holding time under the control limits column.
(3) LCS limits specific to laboratory determined QC limits
(4) MS/MSD and RPD limits specific to laboratory determined QC limits
(5) If the sample and/or duplicate result is < 5 × CRDL, the control limit is ± CRDL for water and 2 x CRDL soil.

Required Attachments: LCS, MS/MSD, and Surrogate Recovery results for any outliers; field duplicate results table (RPDs); and data tables with sample results for any data qualifiers applied. These are addressed in comment table and Qualifier Summary table below.

Item	Comment
3,4	VOA: dichlorodifluoromethane is an EPA and Method 8260 'poor responder'. It is recovered above the 25% limit in most of the CCVs. As the response factor is acceptable and the associated sample results are non-detect, the high response does not result in a qualification. For the 10/12/13 CCV, tetrachloroethane was slightly high, for the 10/18/13 CCV chloromethane and vinyl chloride was slightly low. Both are poor responders; for the 10/19/13 CCV trichlorofluoromethane, THF, carbon tetrachloride and bromodichloromethane was out of limits and high except for THF which was low. The 10/20/13 CCV had multiple outliers, all high and mostly poor responders. In all cases, the response factor was acceptable to verify non-detects. No data have been qualified. SVOA Method 8270: RSDs were acceptable or a correlation coefficient >0.990 was met. For the 10/16 and 10/17/13 CCVs, there were a number of high %D's. In all cases, the response factor was acceptable to verify non-detects. No data have been qualified. SVOA Method 8270 SIM: For the 10/25/13 CCV only benzo(a)anthracene was high. The response factor was acceptable to verify non-detects. No data have been qualified. The laboratory initially supplied the ICAL data using ug/L data and it appeared that the response factors were not met. Upon request, the data were re-submitted with the appropriate ng/L units and all response factors were within limits. There were high % RSDs for these low level analyses. The laboratory provided the linear curves for all these high RSD compounds.
6	VOA:The percent recovery for 1,1-dichloroethene (135%) in the LCS analyzed on 10/20/2013 in SDG STN101 exceeded the 70-130% criteria. Detected results for this compound were not reported and therefore, no qualification was necessary.
11	Method 8015: The surrogate recovery for 1-chlorooctadecane at 46.2% was below laboratory QC limits of 50-148% in the LCS analyzed on 10/21/2013 in SDG STN101. All field sample surrogates were within criteria and no qualification is taken on QC samples.
13	The field blank sample (FB-1-101113) and equipment blank sample (EB-1-101113) in SDG STN101 were non-detect for all analyses.
14 – 17	Per the client project manager