

**RECEIVED**

FEB 12 2008

DEQ  
Environmental Response & Remediation

*D Hansen*

**SUBSURFACE INVESTIGATION REPORT  
C-4 TOP STOP  
15 SOUTH MAIN STREET  
GUNNISON, UTAH  
UST FACILITY NO. 2000220, RELEASE SITE EMHB  
WEI PROJECT NO. 1241-026A**

February 8, 2007

Prepared for:

**Mr. Craig Larsen  
Wind River Petroleum  
2040 East Murray Holladay Road  
Salt Lake City, Utah**

and

**Mr. Doug Hansen  
Utah Department of Environmental Quality  
Division of Environmental Response and Remediation  
168 North 1950 West  
P.O. Box 144840  
Salt Lake City, Utah 84114-4840**

Prepared by:

**Wasatch Environmental, Inc.  
2410 West California Avenue  
Salt Lake City, Utah 84104**



DERR-2008-000326

Received Date: 2/12/2008

## TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
EXECUTIVE SUMMARY .....	iii
1. INTRODUCTION .....	1
1.1 Summary of Previously Reported Activities.....	1
1.2 Brief Description of Work Completed for This Report.....	2
2. SITE DESCRIPTION AND MAPS .....	3
3. TIER 1 AND INITIAL SCREENING LEVEL CRITERIA .....	3
4. NATURE OF THE RELEASE AND ABATEMENT MEASURES .....	4
4.1 Request for Investigation at 66 and 70 West 100 South Street.....	4
4.2 Request for Investigation at 50 West 100 South Street.....	4
4.3 Request for Investigation at 78 West 200 South Street.....	4
4.4 Report of Gasoline Odor at 89 West Center Street .....	4
4.5 Reports of Gasoline Odor at 29 West 100 South Street.....	5
4.6 Reports of Gasoline Odor at 26 and 36 West 100 South Street.....	5
4.7 Report of Gasoline Odor at 12 East Center Street.....	5
4.8 Reports of Gasoline Odor at 70 West 300 South Street.....	6
4.9 Reports of Gasoline Odors at 96 West 200 South Street.....	6
4.10 Additional Site Investigation - Distal Boundary of the Western Branch Vapor Plume .....	6
4.11 Additional Site Investigation - Near Main Street and 100 South Street Intersection.....	7
5. METHODOLOGY .....	7
5.1 Methods Used During the Site Investigation .....	7
5.1.1 Drilling Method.....	7
5.1.2 Soil Sampling.....	7
5.1.3 Groundwater Sampling.....	8
5.1.4 Monitoring Well Installation.....	8
5.1.5 SVE Trench Construction .....	8
6. RESULTS .....	9
6.1 Vapor Plume Boundaries as Currently Defined.....	9
6.2 Distal Boundary of the Eastern Branch Groundwater Plume as Currently Defined .....	9
6.3 Southwest SVE System—Installation of Sparge Curtain.....	10
6.4 Groundwater Extraction From Distal Zone .....	10
6.5 Additional SVE Trenching.....	11
6.5.1 South Horizontal SVE System.....	11
6.5.2 Central Horizontal SVE System.....	11
6.6 Monitoring Wells .....	12
6.7 Soil and Groundwater Laboratory Results.....	12
6.8 Residential Air Mitigation .....	12
6.9 Geologic Cross Sections .....	12
7. CONCLUSIONS AND RECOMMENDATIONS .....	12
7.1 Projected Site Investigation (Additional Borings, Monitoring Wells) .....	13
8. FREE PRODUCT REMOVAL REPORT.....	13

**TABLE OF CONTENTS  
(continued)**

**FIGURES**

- Figure 1 – Overall Project Site Map & Contaminated Migration Pathways
- Figure 2 – Site Plan – Area 1
- Figure 3 – Site Plan – Area 2
- Figure 4 – Site Plan – Area 3
- Figure 5 – Cross Section View – 100 South Street
- Figure 6 – Cross Section View – South Boundary USPS
- Figure 7 – Cross Section View – 140' South of 200 South
- Figure 8 – SVE Trenches – Area 1
- Figure 9 – SVE Trenches – Area 2
- Figure 10 – SVE Trenches – Area 3

**TABLES**

- Table 1 – Historical Groundwater Data
- Table 2 – Groundwater Discharge Data
- Table 3 – Historical Soil Data

**APPENDICES**

- Appendix A – Boring Logs
- Appendix B – Laboratory Groundwater Sample Results
- Appendix C – Laboratory Soil Sample Results
- Appendix D – Monitoring Well Boring Logs

## **EXECUTIVE SUMMARY**

On August 9, 2007, a petroleum release from an underground storage tank was discovered at the C-4 Top Stop Convenience Store in Gunnison, Utah. This report outlines the actions taken by Wasatch Environmental, Inc. (Wasatch) from August 9, 2007 through January 25, 2008 to address the release. Due to the large distance of plume migration in the down-gradient direction, remediation efforts have been broad in scope. It has been necessary to concurrently conduct the following phases of remediation.

- Emergency Abatement has been ongoing, as reports have been received of gasoline vapors at various locations both inside and outside the plume's defined boundaries.
- Additional Site Investigation is being conducted to more precisely determine plume boundaries at multiple locations, including areas where reports have been received of gasoline odors in businesses and residences.
- Corrective Action has been initiated at several locations. Some procedures, which immediately reduced vapors in certain buildings and are anticipated through continued application to provide permanent solutions, can be categorized as both Emergency Abatement and Corrective Action.

Mr. Craig Larsen  
Wind River Petroleum  
2040 East Murray Holladay Road  
Salt Lake City, Utah 84117

February 8, 2008  
Project No.: 1241-026A

SUBJECT: Site Investigation Report  
December 8, 2007 through February 5, 2008  
C-4 Top Stop  
15 South Main Street  
Gunnison, Utah  
UST Facility No. 2000220  
Release Site EMHB

## 1. INTRODUCTION

The former C-4 Top Stop operated as a convenience store and gas station located at 15 South Main Street in Gunnison, Utah (Figure 1). The facility identification number is 2000220 and the Release Site Number is EMHB.

The site has been used for retail distribution of petroleum products since before 1969. An aerial photograph taken in 1969 shows the site in essentially the same configuration as it is today. Local residents have said that the site was previously used as a one or two bay mechanic's garage and gas station. A 1,000-gallon underground storage tank, located just north of the present building, was closed in place in January 1984; the date of installation of this tank is unknown. One 12,000-gallon and two 6,000-gallon tanks were installed at the site in April 1981. The 6,000-gallon tanks and 12,000-gallon tank were removed on August 21 and 22, 2007, respectively. The 1,000-gallon tank was removed on August 27, 2007.

Wasatch Environmental, Inc., is conducting a Subsurface Investigation to define the area impacted following a product release, which was reported on August 10, 2007. Reportedly, the release was approximately 20,000 gallons. Previous reports have included an Emergency Response and Vapor Abatement Report submitted to Utah Division of Environmental Response and Remediation (DERR) December 10, and an Additional Emergency Response and Subsurface Investigation Report submitted on December 24, 2007.

### 1.1 Summary of Previously Reported Activities

On August 8, 2007, gasoline vapors were reported in businesses near the Top Stop convenience store in Gunnison, Utah. An overnight tank test conducted on August 8-9 indicated a large loss of product had occurred.

On August 9, Wind River Petroleum requested that Wasatch conduct an emergency response and preliminary investigation, which was initiated on August 10. Gasoline vapors were measured in buildings where vapors were reported and were removed from affected buildings by utilizing ventilation fans.

Between August 15 and 17, 2007, borings were completed on the east and west sides of Main Street. Soil samples were collected, which revealed the presence of hydrocarbons in both areas. The East and West SVE systems were installed on both sides of the street, and began operation on August 29 and September 21, respectively. The SVE systems immediately began to reduce the odor of gasoline in the affected buildings.

Wasatch oversaw the removal of four underground storage tanks from the site between August 21 and 27, 2007. The dispenser island, tanks and piping were removed.

Additional borings were completed behind the Casino Star Theater and Lila Lee's Apparel on the west side of Main Street and west along 100 South Street, which indicated a contamination plume was moving in a southwesterly direction from the point of release. Summa canisters were placed in several businesses and homes where gasoline odors were reported to identify those that may have been impacted by the release.

On November 7, 2007, Wasatch investigated reports of gasoline odors in the residence located at 255 South 100 West Street. Significant photoionization detector (PID) readings inside the residence provided further data to suggest plume migration toward the southwest. Borings completed toward the north, northeast and east of the residence further identified the extent of the vapor plume in that quadrant.

On November 14, 2007, Wasatch responded to reports of gasoline odors in the residence located at 70 West 200 South Street, which lies between the point of release and the aforementioned property located at 255 South 100 West Street. After positive PID and summa canister readings were obtained inside the residence, borings were completed immediately north and northeast of the 70 West and 60 West 200 South Street residences. The borings provided further characterization of the plume's path of migration, including the direction, width, and internal branching/braiding.

On November 16, 2007, borings were completed on the 78 West and 96 West 200 South Street properties, as part of a series of borings completed in an east-west line behind the 60 West and 70 West 200 South Street residences. PID readings from the line of borings provided the first indications that the plume had divided into two branches. Borings placed on east/west axes at two additional intervals toward the north provided data for two branches, which have been identified as the eastern and western branches. The western branch appears to be approximately 1200 feet in length with a maximum width of approximately 100 feet. The eastern branch appears to be approximately 1500 feet in length with a maximum width of approximately 150 feet.

During November 2007, additional horizontal SVE systems were installed. Installation of the South SVE system in an open field immediately north of the 255 South 100 West Street residence was initiated on November 12, and operation began on November 20, 2007. Installation of the Central SVE System behind the residences at 60 and 70 West 200 South Street was initiated on November 19, and operation began on November 27, 2007. A catalytic oxidizer provides emissions treatment for each system.

An SVE system was installed beneath the basement floor slab of the residence at 255 South 100 West to mitigate the gasoline vapors beneath the building. The system was connected to the South SVE System and began operation on November 21. Indoor air quality is being monitored periodically by summa canister testing. A similar system was installed in the Casino Star Theater and connected to the West SVE System.

## **1.2 Brief Description of Work Completed for This Report**

Additional site investigation to identify the boundary of the vapor plume has been conducted at 10 different locations since the last report. Borings were completed at two residences, pursuant to requests by three neighboring residents. Additional investigation has been conducted at six other residences subsequent to reports of gasoline odor. Additional investigation has also been conducted at two locations, including 1) near the intersection of Main Street and 100 South Street and 2) near the distal end of the western branch of the vapor plume.

Additional investigation has been conducted at the leading edge of the eastern branch groundwater plume. It appears that laboratory results from groundwater samples collected in the distal zone may have identified the south boundary of the plume.

A Sparge Curtain was installed at the current leading edge of the groundwater plume. The South and Central Horizontal SVE Systems were both expanded by the installation of additional trenching to address additional zones of contamination and to intercept further migration of the plume in the added locations.

Completion of additional borings is recommended to fully define the western edge of the plume's western branch. Installation of additional wells to the west of monitoring well MW-7 is needed to further verify the western boundary of the plume at that location.

## 2. SITE DESCRIPTION AND MAPS

The Top Stop site is located at the intersection of Main and Center Streets in Gunnison, Utah. The release has impacted both the east and west sides of Main Street, and a good portion of the residential area between Main Street and 100 West Street, and between Center Street and 300 South Streets. Many of the homes and businesses have basements. Underground utilities include culinary water, sewers, and storm drains.

The groundwater gradient is generally toward the southwest across the site. The branching of the plume likely results primarily from depressions, troughs or channels in the impermeable stratum. The leading edge of the plume has crossed to the west of 100 West Street and is trending westward through a corral on the southern half of the block. The San Pitch River is located approximately 300 feet southwest of the leading edge of the plume. Current information obtained indicates that the San Pitch River is a losing stream, and the groundwater level is approximately 5 feet below the bottom of the river.

Between August 2007 and February 2008, Wasatch Environmental, Inc., has conducted a Subsurface Investigation at the target property. A total of 275 direct push borings and 14 groundwater monitoring wells were installed around the property at approximate locations depicted on Figures 2, 3, and 4. The borings have been completed to depths varying between 5 and 22 feet bgs as determined by the depth in which refusal was encountered. Soil samples obtained for PID field screening were collected from each boring location. In addition, groundwater from 14 on-site monitoring wells was sampled. Groundwater has been encountered in the borings and monitoring wells at depths ranging from 10 feet to 14 feet below ground surface (bgs).

## 3. TIER 1 AND INITIAL SCREENING LEVEL CRITERIA

Contaminant concentrations are compared to Tier 1 Criteria on the Top Stop site, whereas it is applicable to use Initial Screening Level Criteria (ISLs) for offsite contaminant concentrations.

The contamination plume extends beneath multiple residences over a distance of greater than 1500 feet. The area encompassed by the plume varies from commercial to residential and farm property. The plume has migrated beneath buried utility lines, water and sewer lines, residential basements, and commercial buildings. There are two water wells located approximately 3,200 feet southeast from the site, one owned by Pacificorp, dba Utah Power and Light Company, and one owned by Gunnison Irrigation Company.

Soils at and around the site generally consist of sandy silt (ML), sand-silt mixtures (SM), gravel-sand-silt mixtures (GM), and clay (CL). Groundwater was encountered at approximately 12 to 13 feet bgs during closure of the underground gasoline storage tanks in August of 2007. The depth to water across the contaminated zone generally varies from 12 to 15 feet bgs. In various locations, perched water has been observed at 8 to 12 feet bgs. Refusal to penetrate with the direct push method was generally met between 8 and 15 feet. Higher PID readings were recorded in areas where refusal was met at deeper depths.

Groundwater flow direction is generally to the southwest. The gradient was determined through data obtained from 14 wells installed at selected locations across the area encompassed by the plume. A civil engineering firm surveyed the wells for elevation and lateral coordinates. Depth-to-water measurements were taken, and the water elevation in each well was calculated. The results are displayed in Figure 1.

#### 4. NATURE OF THE RELEASE AND ABATEMENT MEASURES

The UST system at the Top Stop site consisted of one 12,000 gallon and two 6,000 tanks installed in April 1981. On August 10, 2007, a release of 20,000 gallons of gasoline from the 12,000-gallon tank was reported to the Utah Division of Environmental Response and Remediation.

Upon detection of the release, the remaining fuel in all of the tanks was removed. On August 22, 2007, the 12,000-gallon tank was removed. Inspection of the bottom of the tank revealed corrosion along a welded seam near the bottom of the tank. A portion of the contaminated soil surrounding the 12,000 gallon tank was removed and transported to the White Hills Landfill. Much of the soil surrounding the tank was left in place due to its close proximity to the Gunnison Telephone Building and the potential for undermining it. During excavation of an SVE pipeline near the dispenser island, an older release of petroleum product was discovered. Approximately 100 cubic yards of contaminated soil was removed and disposed of at the White Hills Landfill. Confirmation samples were collected from the sides and bottom of the excavation.

The samples were analyzed to verify the material was suitable for disposal at the White Hills Landfill. Analyses included F & D List volatiles, toxic metals and chlorinated solvents as well as Total Petroleum Hydrocarbons Gasoline-Range Organics (TPH-GRO) and methyl-tert-butyl ether, benzene, toluene, ethylbenzene, total xylenes and naphthalene (MBTEXN).

Due to the distance of migration and relatively shallow depth of the water table, gasoline vapors have entered a number of businesses and residences across the site. There have been many reports of gasoline odor in and around various businesses and residences. This section details Abatement, Site Investigation, and Corrective Action activities to date since the last report. A summary of activities prior to December 8 is outlined in the above Introduction. More detailed description of the site activities between August 9 and December 8, 2007 is given in previous reports.

##### 4.1 Request for Investigation at 66 and 70 West 100 South Street

On January 09, 2008, the resident at 70 West 100 South Street requested an investigation in the vicinity of their residence. On January 10, the resident at 66 West 100 South Street requested an investigation on his property, which is adjacent to the 70 West property on the east. On January 10, borings B251 and B252 were completed on the east side of the 66 West property. No PID readings were encountered.

##### 4.2 Request for Investigation at 50 West 100 South Street

On January 17, the resident at 50 West 100 South Street requested an investigation at their residence. The property is adjacent to the 66 West 100 South property on the east. On January 22, borings B264, B265, and B266 were completed along the eastern edge of the property. No PID readings were encountered.

##### 4.3 Request for Investigation at 78 West 200 South Street

On January 22, 2008, during the investigation of the distal boundary of the western branch vapor plume, the resident at 78 West 200 South Street requested borings to be completed next to the residence. Borings B268, B269, and B270 were completed at that time. No PID readings were detected in borings B269 and B270, which were completed in the driveway on the east side of the residence. Boring B268 was completed 20 feet north of the residence and had a PID reading of 8.8 ppm.

##### 4.4 Report of Gasoline Odor at 89 West Center Street

On December 5, the resident at 89 West Center Street requested that borings be completed by their residence due to apparent gasoline odors. On the same day, borings B232, B233, B234, and B235 were completed to 15 feet bgs along the eastern edge of the lawn. No PID readings were encountered. Subsequently, it was determined the gasoline odors had originated in the home's garage.

#### 4.5 Reports of Gasoline Odor at 29 West 100 South Street

As outlined in the December 10, 2007, "Emergency Response and Vapor Abatement Report", gasoline odors were reported in October 2007 by a plumber working in the basement of the residence located at 29 West 100 South Street. The residence was field screened with a PID, but no elevated PID readings were encountered. A summa canister was placed in the basement on October 24, and laboratory analysis reported benzene at a concentration of 20  $\mu\text{g}/\text{m}^3$ . At a later date, the residents reported the odor of gasoline in the basement as getting stronger.

On November 19, 2007, borings B128, B129, and B140 were completed in the back yard of the residence, along or relatively near the south fence. Maximum PID readings from each boring were 813 parts per million (ppm), 894 ppm, and 609 ppm, respectively.

On November 30, 2007, borings B205 through B209 were completed on an east to west line approximately 20 feet south of the residence, in which PID readings ranged from 348 ppm to 2000 ppm.

On January 9, 2008, a test pit was excavated just north of Trench Well TW-6 at the southwest corner of the 29 West 200 South Street property. The strong odor of gasoline and free product were observed in the excavation. An east-west SVE trench was then placed across the 29 West property on a line 60 feet north of the test pit, which was connected to the Central SVE System.

#### 4.6 Reports of Gasoline Odor at 26 and 36 West 100 South Street

In November 2007, gasoline odors were reported in the residence at 26 West 100 South Street. Later in the same month, vapors were reported in the neighboring residence at 36 West 100 South Street.

On October 31, 2007, borings B40, B41, and B42 were completed at 26 West 100 South, which had maximum PID readings of 2800 ppm, 2300 ppm, and 1570 ppm, respectively.

Other borings completed from east to west along the front of the 26 and 36 West properties on October 23 and October 31, 2007, had PID readings ranging from 29 ppm to 300 ppm.

On November 30, 2007, borings B210 and B211 were completed in front of the 36 West residence, with maximum PID readings of 1509 ppm and 1442 ppm, respectively.

On December 4-5, 2007, borings B212 through B230 were completed in the back yard of the residence at 36 West 100 South Street, in the alley between the 26 and 36 West 100 South Street residences, and in the driveway on the east side of the 26 West 100 South Street residence. The apparent PID detections indicated that the plume was likely passing underneath the 26 West residence and underneath the southeast half of the 36 West residence.

#### 4.7 Report of Gasoline Odor at 12 East Center Street

On January 10, 2008, the residents at 12 East Center Street reported the odor of gasoline around their residence. On January 11, boring B253 was completed near the southwest corner of the property. No PID readings were encountered. Borings B254 and B255 were completed along the eastern edge of the property, and no PID readings were encountered. Laboratory soil samples were collected at 15 feet bgs in each boring, placed in an iced cooler and transported under chain of custody to Salt Lake City on January 11, 2008. The samples were stored at 4 degrees Centigrade and delivered to a state certified laboratory on January 14, 2008 for analyses of MBTEXN and TPH-GRO using U.S. EPA Method 8260B. Analytical results reported no detection of any of the aforementioned petroleum hydrocarbon constituents above laboratory detection limits in any of the soil samples obtained.

#### 4.8 Reports of Gasoline Odor at 70 West 300 South Street

On November 10, the odor of gasoline was reported at the 70 West 300 South Street residence. On November 11, 2007, borings B73-B76 were completed along the north side of the house. Subsequently, borings B87 and B88 were completed on the south side of the house and borings B89 and B90 were completed to the north of borings B73, B74, and B75. No PID readings were encountered in the borings.

On December 18, 2007, additional investigation was conducted on the 70 West 300 South Street property. A test pit was excavated to approximately 18 feet bgs just north of B89 and B90. No odors were noted in the test pit. Soil samples from the pit at 10 feet bgs and 15 feet bgs were placed in sealed zip-loc bags and were screened in the field using a PID. No PID readings were encountered.

On December 18, 2007, three monitoring wells (MW-11, MW-12 and MW-13) were installed on an east to west line approximately 20 feet north of the test pit. A fourth monitoring well (MW-14) was installed approximately 45 feet northwest of MW-11. Soil samples were collected from the sidewall of each pit above the water table, placed in sealed zip-loc bags and field screened with a PID. No PID readings were encountered. Groundwater in each excavation pit was observed at approximately 11 feet bgs. No gasoline odor or sheen was noted. On December 20, a trench was excavated on the western side of the property. No PID readings were encountered.

On January 11, 2008, groundwater samples were collected from monitoring wells MW-11, MW-12, MW-13. The samples were placed in laboratory provided sample jars, transported in an iced cooler under chain-of-custody to Salt Lake City, stored at 4 degrees Centigrade, and delivered on January 14, 2008 to American West Analytical Laboratories for analyses of MBTEXN and TPH-GRO using U.S. EPA Method 8260B. Analytical results reported no detection of any of the aforementioned petroleum hydrocarbon constituents above laboratory detection limits in any of the groundwater samples obtained.

#### 4.9 Reports of Gasoline Odors at 96 West 200 South Street

On November 16, borings B131 through B139 were completed in response to reports of gasoline odors in the basement of the residence at 96 West 200 South Street. Boring B131 was completed 20 feet east of the northeast corner of the residence. The sample obtained from 14 feet bgs had a maximum PID reading of 60 ppm, whereas in boring B132, completed 20 feet south of B131, no PID readings were encountered. Borings B133 through B139 were completed on a west to east line located 60 feet north of the home. Borings B133 and B134 were completed near the north edge of the lawn, with the remainder being completed on the 78 West 200 South Street property. Soil samples collected from the borings reported PID readings ranging from 20 ppm to 250 ppm.

On January 10, 2008, additional borings were completed to the west of boring B133. Boring B256 was completed on the north edge of the 96 West lawn and had a PID reading of 31 ppm. Boring B257 west of B256 had a PID reading of 48.6 ppm. A third boring (B258), completed 10 feet north of the residence, had a maximum PID reading of 0.5 ppm.

#### 4.10 Additional Site Investigation - Distal Boundary of the Western Branch Vapor Plume

As described in the previous section, borings B133-B139 and B256-B257 were completed on a west to east line across the northern edge of the lawn at the 96 West 200 South Street property and extending onto the adjacent 78 West 200 South Street property. Gasoline vapor concentrations in the borings ranged from 20 ppm to 250 ppm, whereas boring B148, which was located approximately 120 feet north of the line of borings had a maximum PID reading of 1300 ppm. Borings B178, B179, and B180, completed along an east-west line approximately 60 feet north of B148, had PID readings of 1257 ppm, 1530 ppm, and 1120 ppm, respectively.

On January 22, 2008, borings were completed on the northwest corner of the property at 70 West 200 South Street. Additional borings were completed toward the west along the northern edge of the 78 West and 96 West 200 South Street properties. PID readings fluctuated from east to west across the properties, ranging from non-detect to a maximum of 823 ppm. The highest reading of 823 ppm was obtained in boring B273, which was completed on the garden lot within 30 feet of the sidewalk on the west

side of the property. Boring B275 was completed 30 feet due south of B273 and had a maximum PID reading of 68 ppm. Additional borings on the U. S. Post Office parking lot and west of that property along 100 West Street will provide important data for the down-gradient boundary of the western branch.

#### **4.11 Additional Site Investigation – Near Main Street and 100 South Street Intersection**

On December 5, 2007, borings B228, B229, and B230 were completed from south to north behind the Casino Star Theater (78 South Main Street), which had PID readings of 1500 ppm, 1800 ppm, and 4700 ppm, respectively. Boring B231 was completed in front of the theater on the west edge of Main Street. A PID reading of 830 ppm was obtained at 14 feet bgs. No additional borings were completed at that time to identify the zero line of the vapor plume toward the south along Main Street.

On January 4, 2008, seven additional borings were completed from west to east along the south edge of 100 South Street, beginning with boring B236, which was located 143 feet west of the west curb of Main Street. A maximum PID reading of 386 ppm was detected in B236. Borings B237 through B242 were then completed and had PID readings of 2600 ppm, 5600 ppm, 550 ppm, 0.0 ppm, 0.0 ppm, and 0.0 ppm, respectively.

Due to reports of gasoline vapors at various locations toward the south along Main Street, three borings were completed at 20-foot intervals along the western edge of Main Street, beginning at a point 180 feet south of Boring B231 (approximately 20 feet south of the Main Street and 100 South Street intersection). The borings were completed to determine if the gasoline had moved south along the utility corridor from B231. No PID readings were encountered.

## **5. METHODOLOGY**

### **5.1 Methods Used During the Site Investigation**

#### **5.1.1 Drilling Method**

Exploratory probes were advanced at each sample location using the direct-push method with a GeoProbe 6600 DT. Soil core samples were collected from 5-foot long by 1.5-inch diameter discrete interval push samplers equipped with disposable polybutyrate liners. The probe was decontaminated between sample locations with a pressure washer, a laboratory grade detergent wash, and a tap water rinse.

#### **5.1.2 Soil Sampling**

Soil core samples were collected continuously in each boring and field logged by an experienced geologist. The field logging included a description of color, moisture content, consistency, odor, staining, and soil type based on the Unified Soil Classification System. Logs for each boring completed subsequent to the previous report (B236 through B275) are presented in Appendix A. Soil core samples from each probe location were collected continuously until probe refusal was encountered.

Soil core samples were screened with a photo-ionization detector (PID), equipped with a 10.6 eV lamp, immediately after opening each liner. The PID was calibrated with 100 ppm Isobutylene gas. Soil samples obtained from each boring were placed in sealed zip-loc bags, and allowed to equilibrate at atmospheric pressure for approximately five minutes. Organic vapor readings were then taken with a PID by inserting the PID inlet probe into the bag and recording the maximum vapor reading in parts per million (ppm). PID sample locations in each boring are noted on the boring logs in Appendix A.

Select soil samples collected for laboratory analysis were placed in laboratory-provided sample jars, labeled with the sample location, date, and time of collection, and transported in an iced cooler under chain-of-custody to American West Laboratories for analyses. Analyses included:

- Volatile Organic Compounds (VOCs), EPA Method 8260B
- Benzene, Toluene, Ethylbenzene, Total Xylenes, Naphthalene (BTEXN), Methyl t-butyl ether (MTBE), EPA Method 8260B
- Total Petroleum Hydrocarbons – Gas Range Organics (TPH-GRO), EPA Method 8260B

### 5.1.3 Groundwater Sampling

Groundwater sampling was conducted in fourteen monitoring wells and seven SVE treatment wells completed at selected locations across the site. Groundwater was encountered at the site between 12 and 17 feet bgs. Groundwater samples were collected from each well using a 1½-inch diameter disposable polyethylene bailer. Groundwater was purged until most solid particles were cleared from the groundwater, then groundwater samples were collected into hydrochloric acid (HCl)-preserved 40-milliliter glass vials containing Teflon septa lids. The 40-milliliter vials were filled slowly and completely to reduce the loss of volatiles. Groundwater samples were labeled with the location and the date and time of sample collection. The samples were transported in an iced cooler under chain-of-custody protocol to American West Laboratories for analyses. Analyses included:

- Volatile Organic Compounds (VOCs), EPA Method 8260B
- Benzene, Toluene, Ethylbenzene, Total Xylenes, Naphthalene (BTEXN), Methyl t-butyl ether (MTBE), EPA Method 8260B
- Total Petroleum Hydrocarbons – Gas Range Organics (TPH-GRO), EPA Method 8260B

### 5.1.4 Monitoring Well Installation

**Drilling Installation:** Five monitoring wells (MW-1 through MW-5) were installed with a drill rig utilizing 4.25-inch I.D. hollow-stem augers. The wells were drilled to between 17 and 18 feet bgs and screened in the lower 10 feet. The well pack placed around the casing consisted of 10/20 Colorado silica sand from bottom of hole to one foot above the screen, then bentonite to within one foot of the surface. Well boxes with flush-mount lids were installed and cemented at the surface.

**Pit Installation:** Nine wells (MW-6 through MW-14) were installed by excavating to approximately 17-18 feet bgs with a track-hoe, placing a 2-inch slotted casing in the pit, then adding gravel to a point above the screen, and reintroducing native soil to within one foot of ground surface. Well boxes with flush-mount lids were installed and cemented at the surface.

**Trench Installation:** Six wells (TW-1 through TW-6) were installed in Soil Vapor Extraction (SVE) trenches during the installation of the South and Central SVE systems. The wells were installed to a depth of approximately 15 feet bgs with 10 feet of screen in the open trench at the time of trench installation. The casing rested on 1 foot of gravel. Additional gravel was added to the top of the screen and flowfill was added to within one foot of the surface. Well boxes with flush-mount lids were installed and cemented at the surface.

### 5.1.5 SVE Trench Construction

SVE trenches were excavated approximately 12 to 15 feet bgs. The extraction trenches were constructed by placing approximately 3 feet of crushed gravel in the bottom of the trench; a horizontal 4-inch, perforated PVC well screen was installed on the gravel; one foot of gravel was placed over the well screen. The remainder of the trench was backfilled with flow-fill to within one foot of the surface, and with native soil to the surface.

Wasatch obtained a Utah Pollutant Discharge Elimination System (UPDES) permit with the Utah Division of Water Quality in order to discharge water stored in the frac tank into the San Pete River. As part of requirements under the permit, a water sample was collected from the frac tank and analyzed for BTEXN, Oil and Grease, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), total lead, total toxic organics (TTOs) and pH. However, prior to discharge, the water in the tanks froze and could not be discharged. Discharge is currently pending until the ice in the tanks melts.

## **6.5 Additional SVE Trenching**

### **6.5.1 South Horizontal SVE System**

As included in the December Emergency Abatement and Subsurface Investigation Report, the South Horizontal SVE System was installed during November and December 2007. Approximately 400 feet of trenching was completed at that time, primarily in the field adjacent to the north of the residence at 255 South 100 West Street. A branch of the trenching extended east onto the eastern portion of the property located at 59 West 200 South Street. The trench entered the 59 West property from the west at a point 175 feet south of 200 South Street and extended 75 feet in an east-northeast direction.

On January 8, 2008, excavation of an additional branch of the trench was initiated along the west edge of the 59 West property. The latest branch was extended northward from the original trench for 90 feet to a point approximately 85 feet south of 200 South Street. Excavation then continued toward the northeast from that point for approximately 95 feet. Thus, an additional 185-foot section of horizontal SVE piping was installed in an L-shaped configuration at that location. With the new section of trenching, the total length of the South SVE trenching was approximately 585 feet. Figure 9 illustrates the location of the South SVE trench, including the latest addition. Method of trench construction is included in Section 5.1.4.

### **6.5.2 Central Horizontal SVE System**

As included in the previous Emergency Abatement and Subsurface Investigation Report, excavation for the horizontal SVE system behind the 60 West and 70 West 200 South properties was initiated during the week of November 19, 2007. Approximately 300 feet of trenching was completed at the time.

On January 9, 2008, a test pit was excavated just north of trench well TW-6 near the south corner of the 29 West 100 South property. Free product and the strong odor of gasoline were observed in the test pit. A new trench was excavated from east to west across the 29 West property approximately 60 feet north of its south boundary. The trench was approximately 150 feet in length and extended to a point approximately 60 feet onto the adjoining property on the west. The trench was later extended south from that point for approximately 100 feet where it was attached to the Central SVE System. Figure 10 illustrates the location of the trench.

On January 24, 2008, trenching was initiated from east to west along the north edge of the garden plot located north of the 96 West 200 South Street property. The trenching was continued eastward along the northern edge of the 78 West 200 South Street property to the northeast corner, and then northeast for 30 feet to the southwest corner of the 49 West 100 South Street property. Trenching was initially excavated in the direction of the 49 West residence; however no contamination was discovered in expected areas near the house and the trench was terminated and backfilled.

Trenching was then extended north from the southwest corner of the 49 West property along the western boundary 125 feet to a point approximately 120 feet south of 100 South Street, in which contamination was again encountered. Another section was excavated east from trenching at the southeast corner of the 49 West property for a distance of 120 feet, then south for 35 feet to tie in to the Central SVE System. Figure 10 illustrates the location and configuration of the latest trenching.

At this point, the total length of trenching for the Central SVE System is approximately 1040 feet with six independent extraction zones or lines. It will be utilized to treat portions of both the east and the west branches of the plume. The extensive amount of trenching and the large area of coverage will allow

flexibility in the operation of the system. Zones can be closed or reduced in areas where the contamination levels drop sufficiently to allow more focused attention in areas that remain high.

## 6.6 Monitoring Wells

A total of 20 wells have been completed at selected locations across the site which are being utilized for monitoring groundwater contamination. The monitoring wells consist of fourteen monitoring wells and six trench wells. Monitoring wells MW-1 through MW-5 were completed using a drill rig. Monitoring wells MW-6 through MW-14 were completed using an excavator. Trench wells TW-1 through TW-6 were installed in open SVE trenches. TW-1 through TW-3 were placed in a trench of the South Horizontal SVE System. TW-4 through TW-6 were placed in a trench of the Central Horizontal SVE System. The methods of installation are included in Section 5.1.4

## 6.7 Soil and Groundwater Laboratory Results

- 6.7.1 Table 1 – Historical Groundwater Data
- 6.7.2 Table 2 – Groundwater Discharge Data
- 6.7.3 Table 3 – Historical Soil Data

## 6.8 Residential Air Mitigation

A number of residences have been field screened for petroleum hydrocarbons with a photo-ionization detector. Vapors have been detected in several residences. Home ventilation systems have been installed in residences at 29 West 100 South, 26 West 100 South Street, 36 West 100 South Street, 29 West 100 South Street, 60 West 200 South, 70 West 200 South, 96 West 200 South Street, and 255 South 100 West Street.

## 6.9 Geologic Cross Sections

The pathways of plume migration have been determined by variable geologic conditions, including groundwater gradient, channels in the lower impermeable stratum, and impermeable zones of clayey and hardpan material. Three geologic cross sections have been completed at selected locations across the site to illustrate some of the geologic features that have influenced contaminant migration.

Figure 5 is a cross section of borings completed along 100 South Street from boring B203 on the west to B242 near Main Street. It is in this approximate location where the contamination plume exhibits a separation into two branches. A combination of hardpan and clayey materials appears to have created channeling in impermeable strata, which may have significantly contributed to the branching. The relatively shallow depth borings near the center of the cross section resulted from drill stem refusal caused by apparent impermeable hardpan. This elevated hardpan has apparently caused the product to branch in that location. On the west end of the cross section, clay deposits above the groundwater table have apparently served to channel the flow toward the south at that location. High PID vapor readings correspond with the two apparent channels.

Figure 6 is a cross section of borings completed from east to west at a location just south of the U.S. Post Office property, extending from boring B74 to B104. Channeling of the western plume at this point correlates with pockets of elevated clayey material.

Figure 7 is a cross section of borings completed from east to west at a location 140 feet south of 200 South Street. It extends from Boring B62 eastward to B78. An elevated and laterally extensive zone of clayey material has apparently largely channeled the plume toward the southwest at that location. Relatively low contaminant concentrations were detected in borings within the clay zone. The locations of the cross sections are displayed in Figure 1.

## 7. CONCLUSIONS AND RECOMMENDATIONS

As outlined in Section 6.2 above, the south and southwest boundary of the eastern branch groundwater plume has been identified. Additional monitoring wells are required to the west of monitoring well MW-7:

1) to fully identify the plume's western distal boundary, 2) to determine if the groundwater gradient turns toward the west in that location, and 3) to further define the hydraulic relationship between the river and the groundwater table. The plume boundary at that location will then be determined on the basis of analytical results from groundwater samples obtained from the new monitoring wells.

It is believed that the San Pitch River is a perched stream, and is separated from the underlying groundwater by a zone of unsaturated material. Due to the relative elevation of the river and the water table, any exchange of water between the river and the groundwater aquifer will be from the river to the aquifer, and not in the opposing direction.

The western branch vapor has been further investigated at the distal end. A more westward migration route has been identified, which extends underneath the southeast portion of the U.S. Post Office parking lot, which is located on the southeast corner of the intersection of 100 South and 100 West Streets.

#### **7.1 Projected Site Investigation (Additional Borings, Monitoring Wells)**

A deeper monitoring well is recommended near MW-10, which is essentially dry at the present time and cannot provide essential data pertaining to the hydraulic relationship between the river and the groundwater aquifer. Additional monitoring wells will be installed to the west of monitoring well MW-7 to: 1) fully identify the plume's western distal boundary, 2) determine if the groundwater gradient turns toward the west in that location, and 3) further define the hydraulic relationship between the river and the groundwater table.

Additional borings are recommended at the distal end of the western branch of the contamination plume along the east edge of 100 West Street next to the U.S. Post Office. Subject to property access considerations, borings are recommended at selected locations on the Post Office parking lot on the east and south sides of the building. Additional borings are recommended on the property located at 49 West 100 South Street, which is adjacent to the Post Office on the east.

The above two areas constitute the only areas known at present to require further plume boundary definition. Further investigation will be recommended as deemed necessary, dependant upon the findings from the projected investigations. Other locations will be further investigated as deemed necessary, and in response to any additional reports of gasoline vapor odors.

### **8. FREE PRODUCT REMOVAL REPORT**

#### **Data from SVE Systems Operation—Estimates of Contaminant Mass Removal**

The utilization of catalytic oxidizers to treat SVE vapor emissions has facilitated the calculation of the quantity of gasoline removed by the SVE treatment systems in operation at the site. Calculation factors include: the amount of heat generated in the combustion of the gasoline vapors drawn through the Cadox units, the amount of air-flow, and the duration of system operation.

The rise in temperature of the air stream entering the Cadox is utilized to calculate the percentage of vapors (and thereby the quantity of product) per volume of air in standard cubic feet (scf). The amount of product per volume of air is then multiplied by the air stream flow rate (scfm) and hours of operation for each SVE system to calculate the amount of fuel extracted and burned by each system during the total period of operation. The quantities removed by all SVE systems are then combined to calculate the total amount of product removed during the course of the project. The following table displays the quantity of product that has been removed from the subsurface through January 25, 2008. Catalytic Combustion Corporation, the manufacturer of the catalytic oxidizer units, calculated the per-day quantities of fuel combusted. The calculations were based on data from temperature charts recorded by each Cadox unit during operation.

Table 1.0 Estimated Mass Removal

System	Start to Jan 6, 08	1/6 -1/25	Total
West A SVE CAT-OX	1,405	532	1,937
West B SVE CAT-OX	0	198	198
East SVE CAT-OX	1,937	486	2,423
Central SVE CAT-OX	616	206	822
South SVE CAT-OX	100	123	223
<b>Quantity calculated in gallons</b>	<b>4,058</b>	<b>1,545</b>	<b>5,603</b>

Our services consist of professional opinions and recommendations made in accordance with generally accepted environmental engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. Should you have any questions, please do not hesitate to contact us.

Sincerely,

WASATCH ENVIRONMENTAL, INC.

  
Troy Smith  
Project Geologist

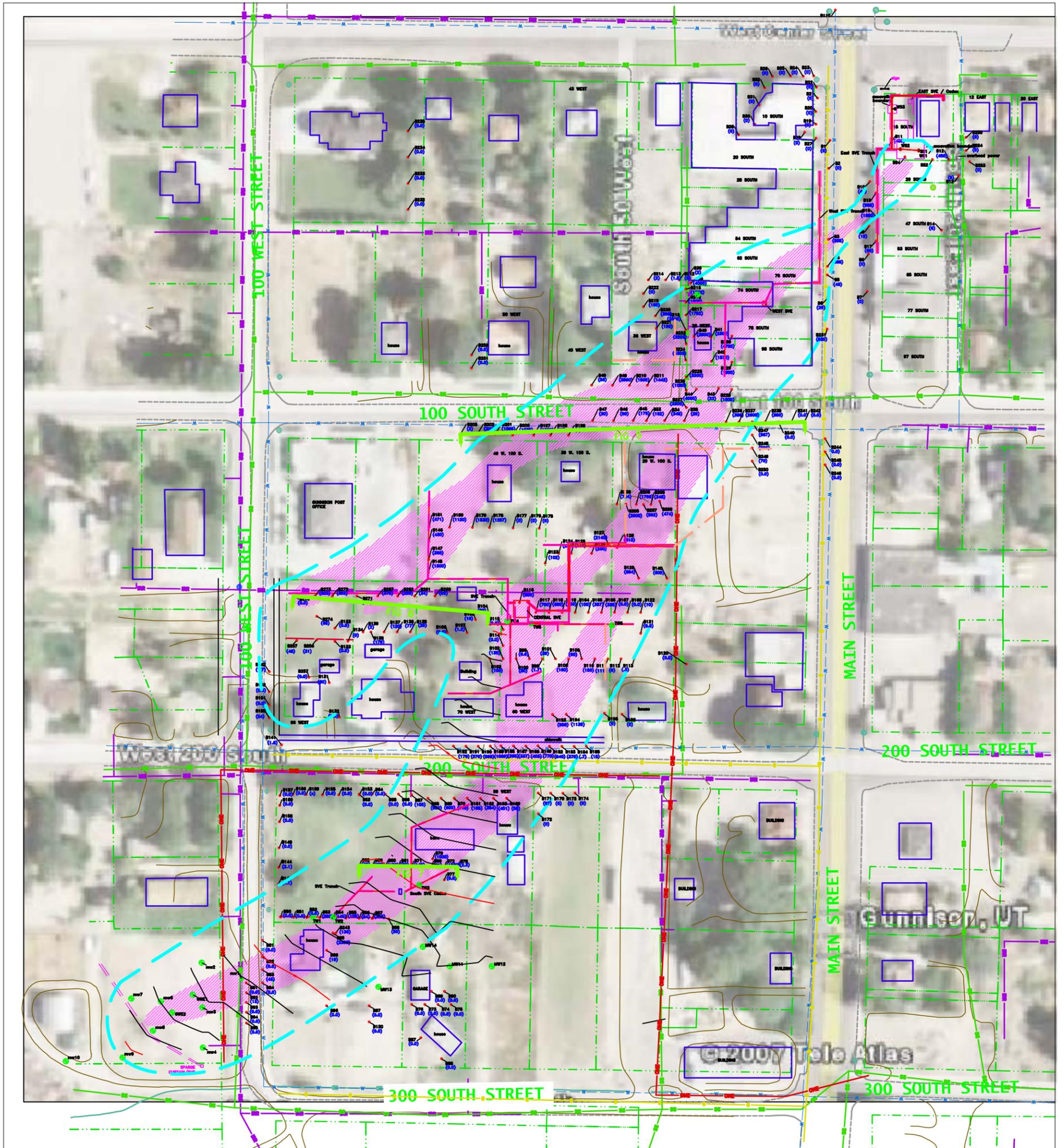
  
Rebecca Studenka  
Utah Certified UST Consultant

  
Les Pennington, PE  
Principal Engineer

- Copies: (2) Addressee
- (1) Mr. Doug Hansen, Utah DERR
- (1) Gunnison City

## FIGURES

- Figure 1 – Overall Project Site Map & Contaminated Migration Pathways
- Figure 2 – Site Plan – Area 1
- Figure 3 – Site Plan – Area 2
- Figure 4 – Site Plan – Area 3
- Figure 5 – Cross Section View – 100 South Street
- Figure 6 – Cross Section View – South Boundary USPS
- Figure 7 – Cross Section View – 140' South of 200 South
- Figure 8 – SVE Trenches – Area 1
- Figure 9 – SVE Trenches – Area 2
- Figure 10 – SVE Trenches – Area 3



NOTE: DATA THROUGH FEB 5TH, 2008

NOTE: WORK IN PROGRESS; THIS MAP MAY BE MODIFIED BASED ON ADDITIONAL INFORMATION

**LEGEND**

- CROSS SECTIONS
- APPROXIMATE EXTENT OF MAIN MIGRATION PATHWAYS BASED ON PID READINGS AND LITHOLOGY
- APPROXIMATE EXTENT OF VAPOR PLUME
- SVE TRENCH LINE
- BORING LOCATION

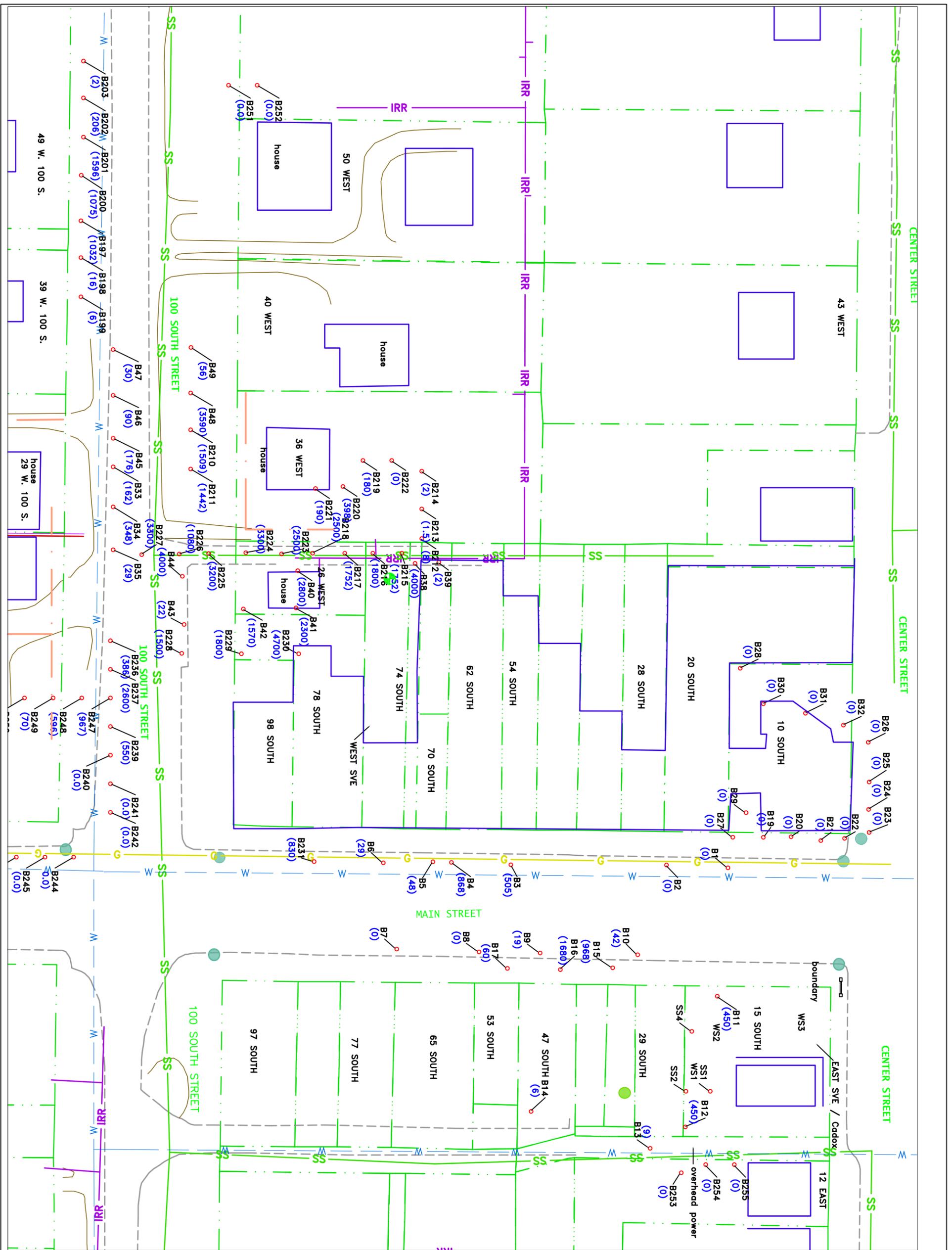


2410 West California Avenue  
Salt Lake City, UT 84104  
801-972-8400  
www.wasatch-environmental.com

CONTAMINANT MIGRATION PATHWAYS

Gunnison, Utah

PROJECT NO.	DRAWING DATE	FIG. 1
1241-026A	FEB 5, 2008	



NOTE: DATA THROUGH FEB 5TH, 2008

Legend

- Geoprobe location with PID reading
- MONITORING WELL / TRENCH WELL



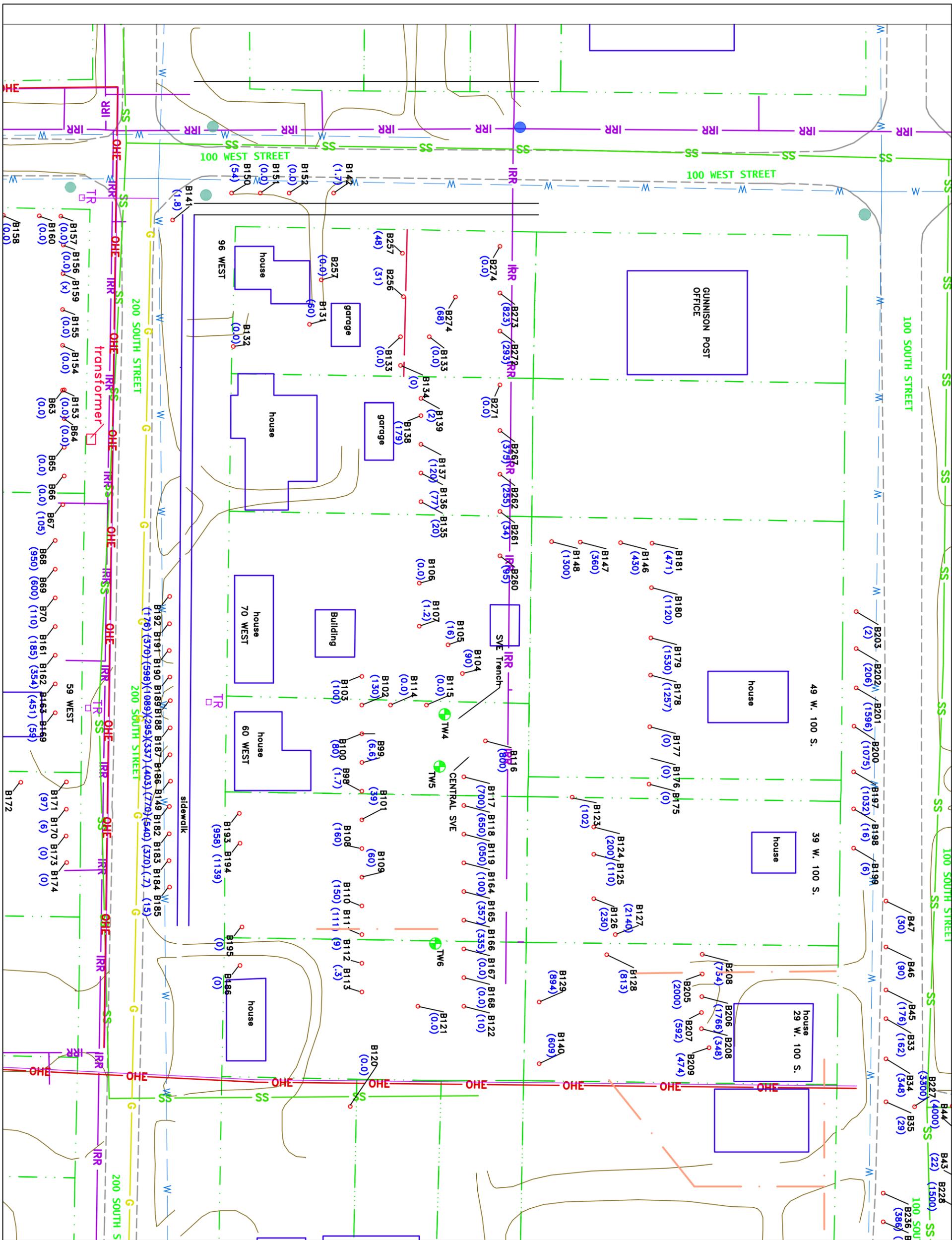
2410 West California Avenue  
 Salt Lake City, UT 84104  
 801-972-8400  
 www.wasatch-environmental.com

SITE PLAN  
 AREA 1

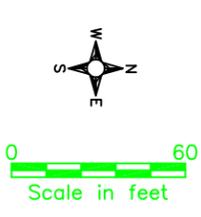
Gunnison, Utah

PROJECT NO.	DRAWING DATE
1241-026A	FEB 5, 2008

FIG. 2



NOTE: DATA THROUGH FEB 5TH, 2008

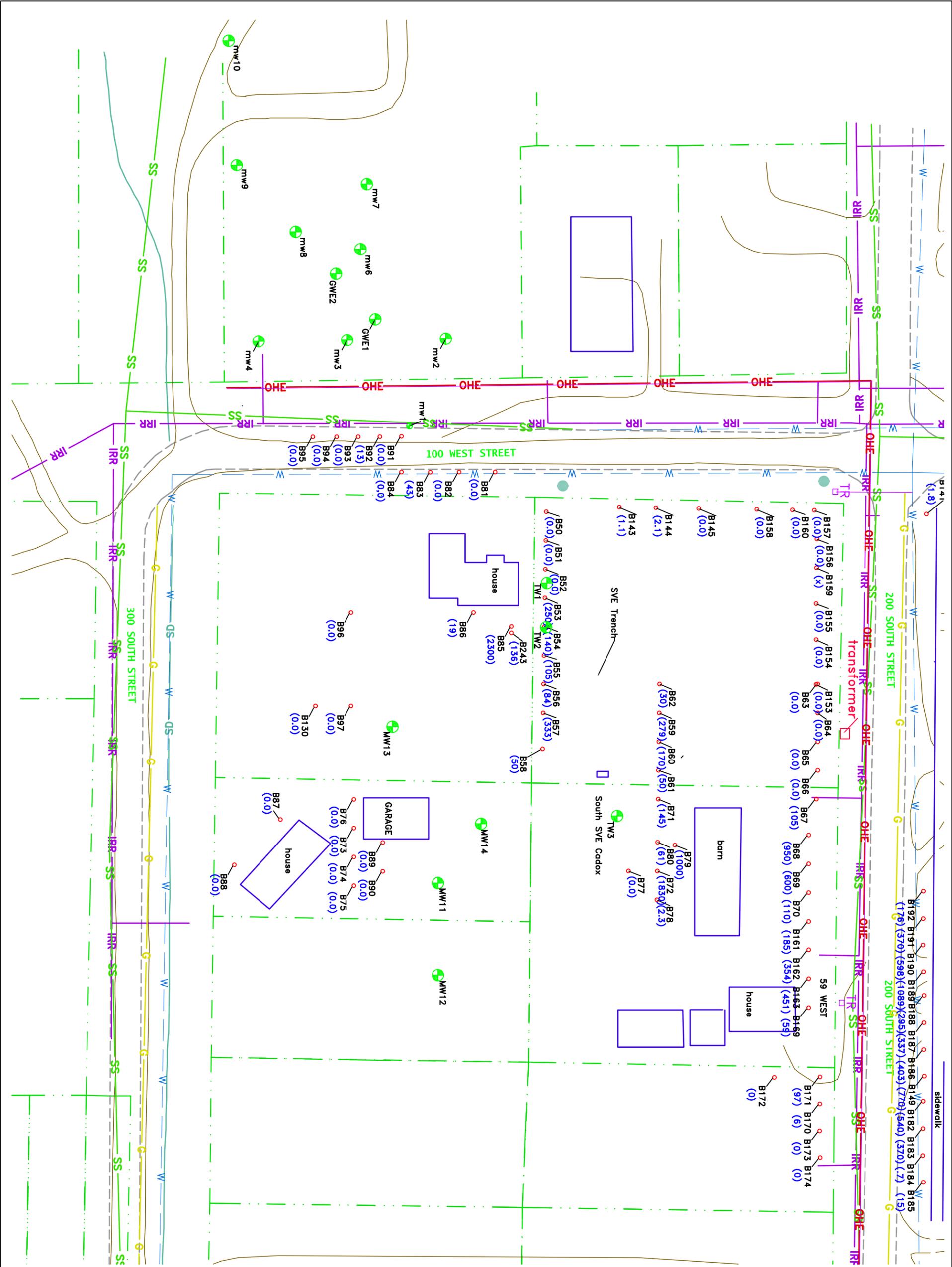


- Legend
- Geoprobe location with PID reading
  - MONITORING WELL / TRENCH WELL

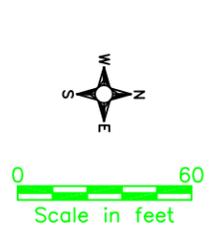
**WASATCH**  
ENVIRONMENTAL

2410 West California Avenue  
Salt Lake City, UT 84104  
801-972-8400  
www.wasatch-environmental.com

SITE PLAN AREA 2		Gunnison, Utah	
PROJECT NO.	DRAWING DATE	FIG. 3	
1241-026A	FEB 5, 2008		



NOTE: DATA THROUGH FEB 5TH, 2008



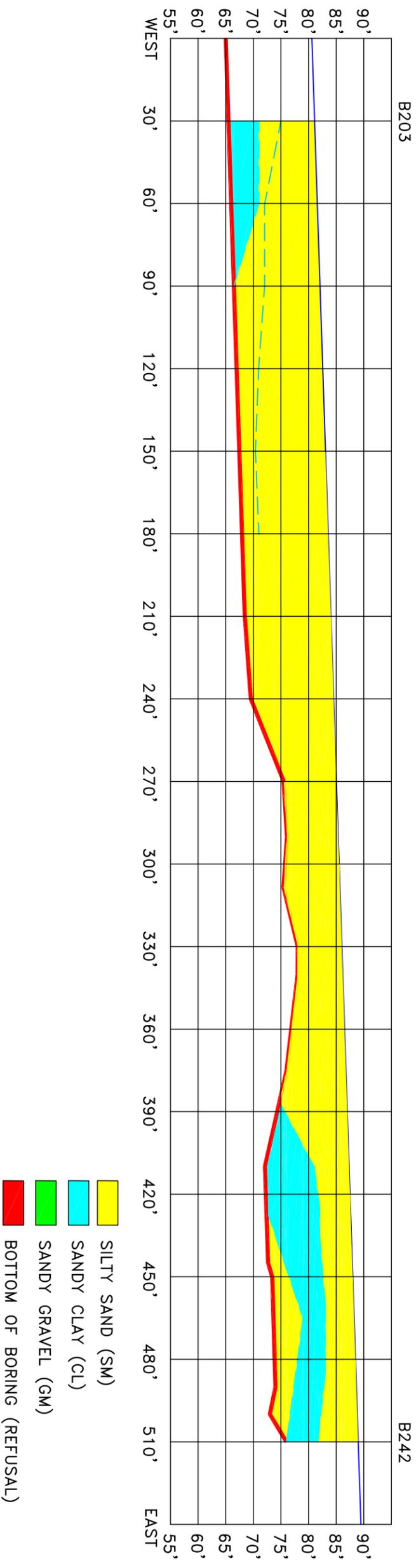
- Legend
- Geoprobe location with PID reading
  - MONITORING WELL / TRENCH WELL

**WASATCH ENVIRONMENTAL**

2410 West California Avenue  
 Salt Lake City, UT 84104  
 801-972-8400  
 www.wasatch-environmental.com

SITE PLAN AREA 3		Gunnison, Utah
PROJECT NO.	DRAWING DATE	
1241-026A	FEB 5, 2007	FIG. 4

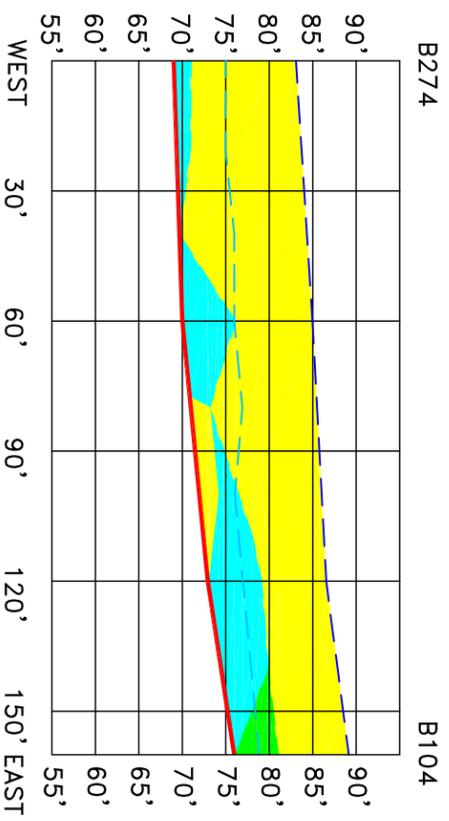
# 100 SOUTH STREET EAST FROM BORING 203 TO BORING 242



<b>WASATCH</b> ENVIRONMENTAL		CROSS SECTION VIEW 100 SOUTH STREET	
2410 West California Avenue Salt Lake City, UT 84104 801-972-8400 www.wasatch-environmental.com		Gunnison, Utah	
PROJECT NO.	DRAWING DATE	FIG. 5	
1241-026A	FEB 5, 2008		

# SOUTH BOUNDARY OF US POST OFFICE

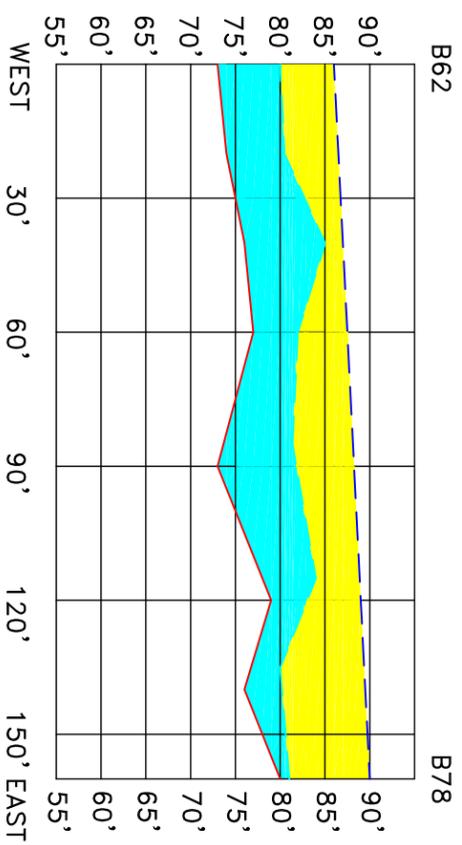
## EAST FROM BORING 274 TO BORING 104



- SILTY SAND (SM)
- SANDY CLAY (CL)
- SANDY GRAVEL (GM)
- BOTTOM OF BORING (REFUSAL)

 2410 West California Avenue Salt Lake City, UT 84104 801-972-8400 <a href="http://www.wasatch-environmental.com">www.wasatch-environmental.com</a>	CROSS SECTION VIEW SOUTH BOUNDARY USPS		Gunnison, Utah
	PROJECT NO.	DRAWING DATE	
	1241-026A	FEB 5, 2008	

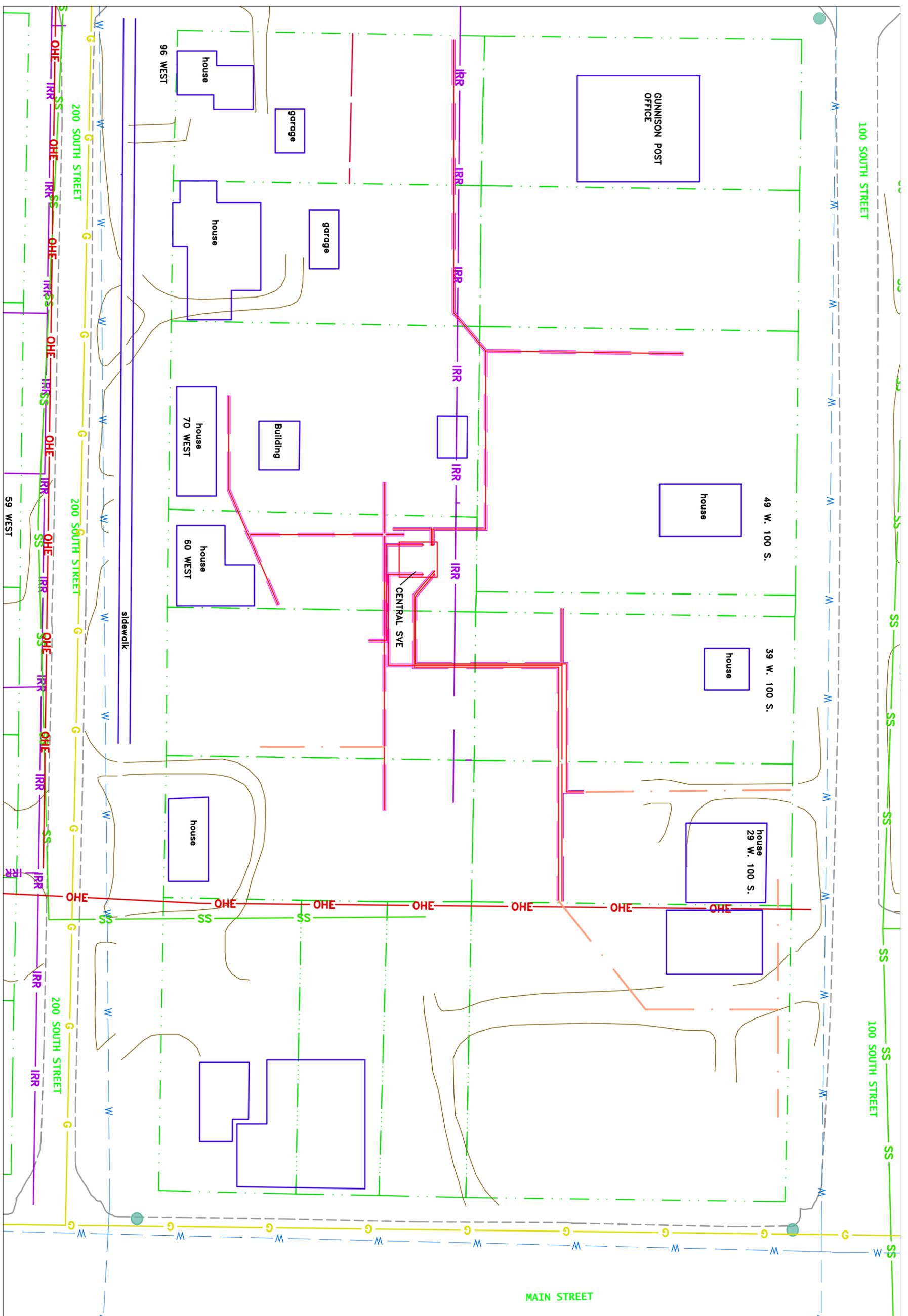
# 140' SOUTH OF 200 S. STREET EAST FROM BORING 62 TO BORING 78



- SILTY SAND (SM)
- SANDY CLAY (CL)
- SANDY GRAVEL (GM)
- BOTTOM OF BORING (REFUSAL)

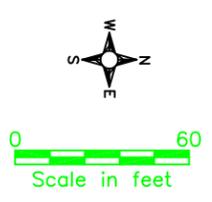
 <p>2410 West California Avenue Salt Lake City, UT 84104 801-972-8400 www.wasatch-environmental.com</p>	CROSS SECTION VIEW 140' S. OF 200 SOUTH		Gunnison, Utah
	PROJECT NO. 1241-026A	DRAWING DATE FEB 5, 2008	





Legend

- - - PROPOSED TRENCH LINE
- SVE TRENCH LINE
- - - SVE TRENCH BOUNDARY

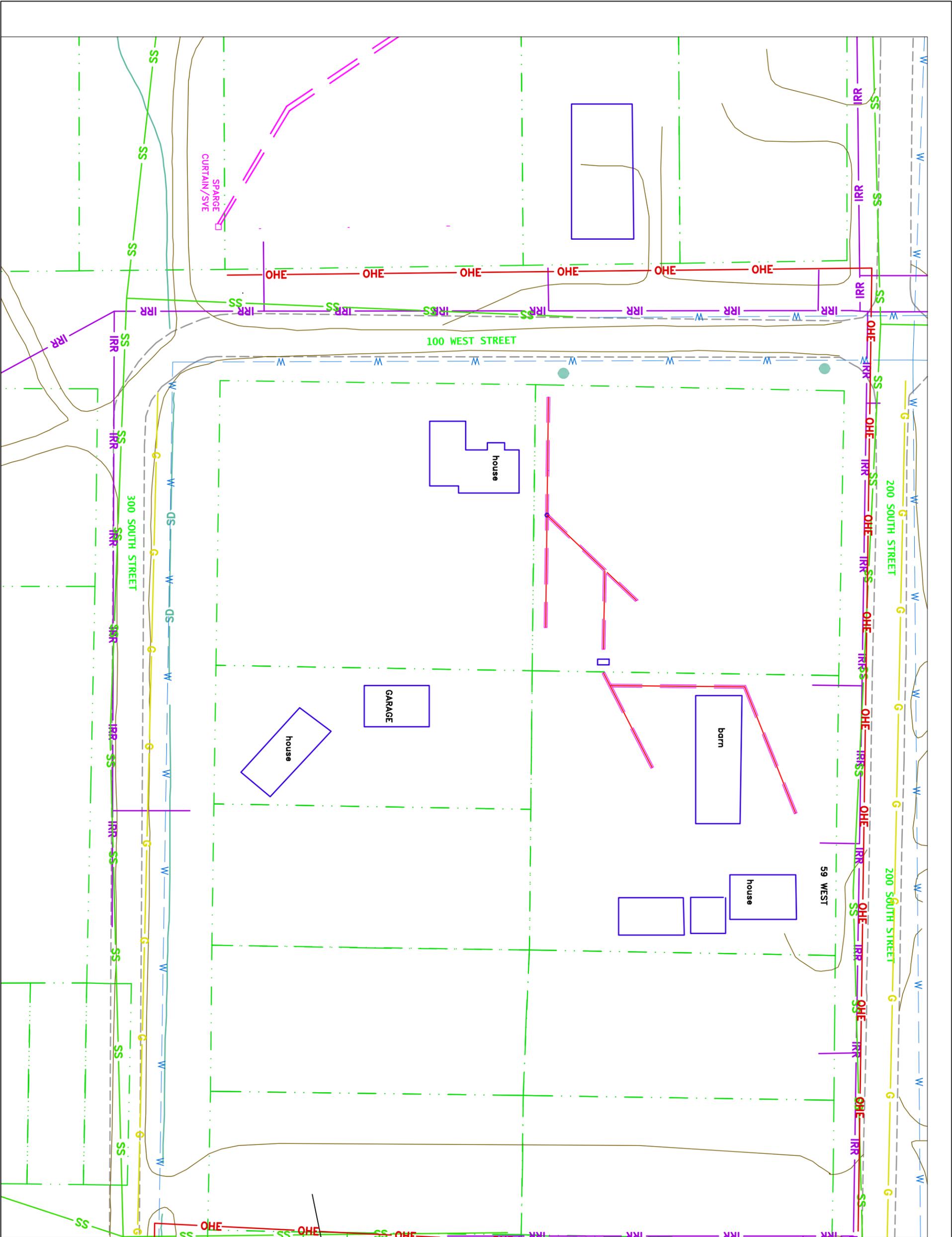


NOTE: DATA THROUGH FEB 5TH, 2008



2410 West California Avenue  
 Salt Lake City, UT 84104  
 801-972-8400  
 www.wasatch-environmental.com

SVE TRENCHES		
Gunnison, Utah		
PROJECT NO.	DRAWING DATE	FIG. 9
1241-026A	FEB 5, 2008	



Legend

- · — PROPOSED TRENCH LINE
- SVE TRENCH LINE
- - - SVE TRENCH BOUNDARY

NOTE: DATA THROUGH FEB 5TH, 2008



2410 West California Avenue  
 Salt Lake City, UT 84104  
 801-972-8400  
 www.wasatch-environmental.com

SVE TRENCHES

Gunnison, Utah

PROJECT NO.	DRAWING DATE	FIG. 10
1241-026A	FEB 5, 2008	

## TABLES

Table 1 – Historical Groundwater Data

Table 2 – Groundwater Discharge Data

Table 3 – Historical Soil Data

Table 1  
 Historical Groundwater Data  
 mg/L  
 Gunnison Remediation  
 15 South Main Street  
 Gunnison, Utah  
 Facility ID 2000220, Release ID EMHB

Sample Identity	Date	TPH GRO C6-C10	TPH DRO C10-C28	Benzene	Toluene	Ethyl-Benzene	Xylenes	Naphthalene	MtBE
TW-4	1/11/08	27	0.11	5	3.8	0.6	6.4	0.26	<0.0020
TW-5		NS	NS	NS	NS	NS	NS	NS	
TW-6		NS	NS	NS	NS	NS	NS	NS	
WS-1	8/14/07	0.12	NS	0.018	0.0071	<0.0020	0.0022	<0.0020	<0.0020
	12/13/07	19	0.2	2.4	2.2	0.6	3.7	170	<2.0
	1/11/08	37	<0.20	5.7	3.2	1.1	5.3	0.23	<0.020
WS-2	8/14/07	<0.020	NS	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	12/13/07	7	0.025	2.1	1.9	0.14	0.96	0.02	<2.0
	1/11/08	0.088	<0.020	0.058	0.011	0.012	0.043	0.0021	<0.020
WS-3	12/13/07	6.9	0.5	0.12	<20	0.28	<20	0.1	<20
	1/11/08	9.2	<0.20	0.22	<0.020	0.38	0.049	0.084	<0.020
<b>INITIAL SCREENING LEVEL</b>									
		1	1	0.005	1	0.7	10	0.7	0.2
<b>TIER 1 SCREENING LEVEL</b>									
		10	10	0.3	3	4	10	0.7	0.2

TPH (GRO) = Total Petroleum Hydrocarbons (Gasoline Range C6 to C10)  
 TPH (DRO) = Total Petroleum Hydrocarbons (Diesel Range C10 to C28)  
 < = Concentrations less than the given instrument detection level  
 MtBE = Methyl-tertiary Butyl Ether  
 BOLD = Measured concentration exceeds Utah Tier I Screening Level  
 SHADED = Measured concentration exceeds Utah Initial Screening Level  
 NS = Not Sampled

Table 2  
Groundwater Discharge Data  
mg/L

Gunnison Remediation  
15 South Main Street  
Gunnison, Utah

Facility ID 2000220, Release ID EMHB

Sample Identity	Date	TPH GRO C6-C10	TPH DRO C10-C28	1,2,3-Trimethyl benzene	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Cyclo hexane	Ethyl benzene
Baseline	12/6/07	12000	NS	230	690	170	2400	120	200
	12/28/07	22	NS	NS	NS	NS	NS	NS	NS
Sample Identity	Date	Methyl cyclo hexane	Naph thalene	Toluene	m & p Xylene	o- Xylene	Xylenes, Total	Penta chloro phenol	2,4,6- Tribromo phenol
Baseline	12/6/07	120	100	3500	3400	1900	5300	NS	NS
	12/28/07	NS	14	NS	NS	NS	NS	NS	90
Sample Identity	Date	2- Fluoro biphenyl	2- Fluoro phenol	4- Terphenyl- d14	Nitro benzene-d5	Phenol-d6	1,2- Dichloro ethane-d4	4- Bromo fluoro benzene	Dibromo fluoro methane
Frac Tank	12/6/07	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/07	80.2	44.4	191	85.6	31.2	100	100	100
Sample Identity	Date	Toluene-e8							
Baseline	12/6/07	NS							
	12/28/07	102							

TPH (GRO) = Total Petroleum Hydrocarbons (Gasoline Range C6 to C10)

TPH (DRO) = Total Petroleum Hydrocarbons (Diesel Range C10 to C28)

NS = Not Sampled

Table 3  
 Historical Soil Data  
 mg/L  
 Gunnison Remediation  
 15 South Main Street  
 Gunnison, Utah  
 Facility ID 2000220, Release ID EMHB

Sample Identity	Depth (ft)	Date	TPH GRO C6-C10	TPH DRO C10-C28	Benzene	Toluene	Ethyl-Benzene	Xylenes	Naphthalene	MtBE
SS1	13	8/14/07	4.9	<24	0.022	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
SS2	13	8/14/07	<0.059	<24	<0.0029	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059
SS3	4	8/15/08	<0.058	<0.058	<0.0029	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058
	13	8/15/07	970	5100	6.3	62	16	87	7.1	<0.12
SS4	3	8/15/07	<0.057	<0.057	<0.0028	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
	13	8/15/07	0.13	<24	0.0052	0.013	<0.0059	<0.0059	<0.0059	0.13
SS5	2.5	8/15/07	<0.057	<0.057	<0.0028	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
SS6	3.5	8/15/07	<0.055	<0.055	<0.0027	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055
	4	8/14/07	<0.062	<24	<0.0031	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062
SS7	4	8/14/07	<0.059	<24	<0.0029	<0.0059	<0.0059	0.031	<0.0059	<0.0059
SS8	4	8/14/07	1200	5100	1.2	11	25	200	15	<0.12
SS9A	8	8/15/07	<0.060	<0.060	<0.0030	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
SS11	5	8/27/07	420	390	0.17	2.9	3.6	30	24	<0.12
SS12	5	8/27/07	510	730	0.18	3.3	3.9	32	31	<0.12
SS12A	7	8/17/07	<0.056	NS	<0.0028	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
SS15A	11	8/17/07	3100	NS	81	410	120	610	24	<1.3
SS16A	13	8/17/07	0.91	NS	0.29	0.32	<0.0061	0.093	<0.0061	<0.0061
SS17A	8	8/17/07	<0.056	NS	0.0030	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
B-253	15	1/10/08	<0.055	NS	<0.0027	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055
B-254	15	1/10/08	<0.055	NS	<0.0027	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055
B255	15	1/10/08	<0.056	NS	<0.0028	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056

TPH (GRO) = Total Petroleum Hydrocarbons (Gasoline Range C6 to C10)  
 TPH (DRO) = Total Petroleum Hydrocarbons (Diesel Range C10 to C28)  
 < = Concentrations less than the given instrument detection level  
 MtBE = Methyl-tertiary Butyl Ether  
 BOLD = Measured concentration exceeds Utah Tier I Screening Level  
 NS = Not Sampled

## TABLES

Table 1 – Historical Groundwater Data

Table 2 – Groundwater Discharge Data

Table 3 – Historical Soil Data

Table 1  
Historical Groundwater Data  
mg/L

Gunnison Remediation  
15 South Main Street  
Gunnison, Utah

Facility ID 2000220, Release ID EMHB

Sample Identity	Date	TPH GRO C6-C10	TPH DRO C10-C28	Benzene	Toluene	Ethyl-Benzene	Xylenes	Naphthalene	MtBE
MW1	11/27/07		0.032		0.85	0.02	3.8	0.048	<2.0
MW2	1/11/08		<0.20		0.4	<0.020	1.6	0.051	<0.020
MW3	1/27/07		0.022		0.96	0.027	2.3	0.037	<2.0
MW4	1/27/07		NS	NS	NS	NS	NS	NS	<2.0
MW5	1/27/07		0.041	NS	NS	0.2	3.9	0.071	<2.0
MW6	1/27/07		NS	NS	NS	NS	NS	NS	<2.0
MW7	1/27/07		<20	NS	<2.0	<2.0	<2.0	<2.0	<2.0
MW8	1/27/07		NS	NS	NS	NS	NS	NS	<2.0
MW9	1/11/08		0.036		0.62	0.57	1.0	0.089	<2.0
MW10	1/11/08		0.021		0.88	0.11	0.49	0.15	<0.0020
MW11	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW12	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW13	1/11/08		<0.20	NS	0.32	<0.20	1.5	<0.020	<0.0020
MW14	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW15	1/11/08		0.2	NS	0.21	<0.0020	1.8		<0.0020
MW16	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW17	1/11/08		<0.020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW18	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW19	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW20	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW21	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW22	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW23	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW24	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW25	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW26	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW27	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW28	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW29	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW30	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW31	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW32	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW33	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW34	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW35	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW36	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW37	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW38	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW39	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW40	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW41	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW42	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW43	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW44	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW45	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW46	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW47	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW48	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW49	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW50	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW51	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW52	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW53	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW54	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW55	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW56	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW57	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW58	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW59	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW60	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW61	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW62	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW63	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW64	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW65	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW66	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW67	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW68	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW69	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW70	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW71	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW72	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW73	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW74	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW75	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW76	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW77	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW78	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW79	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW80	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW81	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW82	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW83	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW84	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW85	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW86	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW87	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW88	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW89	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW90	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW91	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW92	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW93	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW94	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW95	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW96	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW97	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW98	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW99	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW100	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW101	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW102	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW103	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW104	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW105	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW106	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW107	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW108	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW109	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW110	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW111	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW112	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW113	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW114	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW115	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW116	1/11/08		<0.020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
MW117	1/11/08		NS	NS	NS	NS	NS	NS	<0.0020
MW118	1/11/08								

Table 1  
Historical Groundwater Data  
mg/L

Gunnison Remediation  
15 South Main Street  
Gunnison, Utah

Facility ID 2000220, Release ID EMHB

Sample Identity	Date	TPH GRO C6-C10	TPH DRO C10-C28	Benzene	Toluene	Ethyl-Benzene	Xylenes	Naphthalene	MtBE
TW-4	1/11/08	NS	0.11	NS	NS	0.6	6.4	0.26	<0.0020
TW-5		NS	NS	NS	NS	NS	NS	NS	
TW-6		NS	NS	NS	NS	NS	NS	NS	
WS-1	8/14/07	0.12	NS	NS	NS	NS	NS	NS	
	12/13/07	NS	0.2	NS	0.0071	<0.0020	0.0022	<0.0020	<0.0020
	1/11/08	NS	<0.20	NS	NS	0.6	3.7	0.23	<2.0
WS-2	8/14/07	<0.020	NS	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	12/13/07	0.088	0.025	NS	0.011	0.14	0.96	0.02	<2.0
WS-3	1/11/08	NS	<0.020	NS	<20	0.012	0.043	0.0021	<0.020
	12/13/07	NS	0.5	NS	<0.020	0.28	<20	0.1	<20
	1/11/08	NS	<0.20	NS	<0.020	0.38	0.049	0.084	<0.020
INITIAL SCREENING LEVEL		1	1	0.005	1	0.7	10	0.7	0.2
TIER 1 SCREENING LEVEL		10	10	0.3	3	4	10	10	0.2

TPH (GRO) = Total Petroleum Hydrocarbons (Gasoline Range C6 to C10)

TPH (DRO) = Total Petroleum Hydrocarbons (Diesel Range C10 to C28)

< = Concentrations less than the given instrument detection level

MtBE = Methyl-tertiary Butyl Ether

**BOLD** = Measured concentration exceeds Utah Tier I Screening Level

**NS** = Measured concentration exceeds Utah Initial Screening Level

NS = Not Sampled

Table 2  
Groundwater Discharge Data  
mg/L

Gunnison Remediation  
15 South Main Street  
Gunnison, Utah  
Facility ID 2000220, Release ID EMHB

Sample Identity	Date	TPH GRO C6-C10	TPH DRO C10-C28	1,2,3-Trimethyl benzene	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene	Benzene	Cyclo hexane	Ethyl benzene
Baseline	12/6/07	12000	NS	230	690	170	2400	120	200
	12/28/07	22	NS	NS	NS	NS	NS	NS	NS
Sample Identity	Date	Methyl cyclo hexane	Naph thalene	Toluene	m & p Xylene	o- Xylene	Xylenes, Total	Penta chloro phenol	2,4,6-Tribromo phenol
Baseline	12/6/07	120	100	3500	3400	1900	5300	NS	NS
	12/28/07	NS	14	NS	NS	NS	NS	NS	90
Sample Identity	Date	2-Fluoro biphenyl	2-Fluoro phenol	4-Terphenyl-d14	Nitro benzene-d5	Phenol-d6	1,2-Dichloro ethane-d4	4-Bromo fluoro benzene	Dibromo fluoro methane
Frac Tank	12/6/07	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/07	80.2	44.4	191	85.6	31.2	100	100	100
Sample Identity	Date	Toluene-e8							
Baseline	12/6/07	NS							
	12/28/07	102							

TPH (GRO) = Total Petroleum Hydrocarbons (Gasoline Range C6 to C10)  
TPH (DRO) = Total Petroleum Hydrocarbons (Diesel Range C10 to C28)  
NS = Not Sampled

Table 3  
Historical Soil Data  
mg/L

Gunnison Remediation  
15 South Main Street  
Gunnison, Utah

Facility ID 2000220, Release ID EMHB

Sample Identity	Depth (ft)	Date	TPH GRO C6-C10	TPH DRO C10-C28	Benzene	Toluene	Ethyl-Benzene	Xylenes	Naphthalene	MIBE
SS1	13	8/14/07	4.9	<24	0.022	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
SS2	13	8/14/07	<0.059	<24	<0.0029	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059
SS3	4	8/15/08	<0.058	<0.058	<0.0029	<0.0058	<0.0058	<0.0058	<0.0058	<0.0058
	13	8/15/07	970	5100	6.3	62	16	87	7.1	<0.12
SS4	3	8/15/07	<0.057	<0.057	<0.0028	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
	13	8/15/07	0.13	<24	0.052	0.13	<0.0059	<0.0059	<0.0059	0.13
SS5	2.5	8/15/07	<0.057	<0.057	<0.0028	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
SS6	3.5	8/15/07	<0.055	<0.055	<0.0027	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055
	4	8/14/07	<0.062	<24	<0.0031	<0.0062	<0.0062	<0.0062	<0.0062	<0.0062
SS7	4	8/14/07	<0.059	<24	<0.0029	<0.0059	<0.0059	0.031	<0.0059	<0.0059
SS8	4	8/14/07	1200	5100	1.2	11	25	200	15	<0.12
SS9A	8	8/15/07	<0.060	<0.060	<0.0030	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
SS11	5	8/27/07	420	390	0.17	2.9	3.6	30	24	<0.12
SS12	5	8/27/07	510	730	0.18	3.3	3.9	32	31	<0.12
SS12A	7	8/17/07	<0.056	NS	<0.0028	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
SS15A	11	8/17/07	3100	NS	81	410	120	610	24	<1.3
SS16A	13	8/17/07	0.91	NS	0.29	0.32	<0.0061	0.093	<0.0061	<0.0061
SS17A	8	8/17/07	<0.056	NS	0.0030	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
B-253	15	1/10/08	<0.055	NS	<0.0027	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055
B-254	15	1/10/08	<0.055	NS	<0.0027	<0.0055	<0.0055	<0.0055	<0.0055	<0.0055
B255	15	1/10/08	<0.056	NS	<0.0028	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056

TPH (GRO) = Total Petroleum Hydrocarbons (Gasoline Range C6 to C10)

TPH (DRO) = Total Petroleum Hydrocarbons (Diesel Range C10 to C28)

< = Concentrations less than the given instrument detection level

MIBE = Methyl-tertiary Butyl Ether

BOLD = Measured concentration exceeds Utah Tier I Screening Level

NS = Not Sampled

Appendix A

Boring Logs

DATE DRILLED:	January 4, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy and Gravelly SILT - slightly moist	Reddish Brown	Medium Dense	SM	1 2 3 4 5	X	0.0				
Silty SAND and GRAVEL - slightly moist	Red	Medium Dense	GM	6 7 8 9 10 11 12 13	X	0.0				
Clayey SILT - moist	Medium Brown	Dense	ML	14	X	105				
Refusal at 14.5'				15 16 17 18 19 20						
PID: 386 ppm (in hole)										



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-236

DATE DRILLED:	January 4, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	--
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1						
Some gravel at 4.5'				2						
				3						
				4						
				5	X	3.4				
Silty SAND and small gravel - moist	Red	Medium Dense	GM	6						
				7						
Trapped water at 7.5 - 8.5'				8						
				9						
				10	X	112				
				11						
				12						
				13						
Clayey SILT - moist	Red	Dense	ML	14						
Refusal at 14.5'				15	X					
				16						
				17						
PID: 2600 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-237

DATE DRILLED:	January 8-2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Light Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
Silty SAND and GRAVEL - moist	Red	Medium Dense	GM	5	X	0.0				
				6						
				7						
				8						
				9						
				10	X	4.0				
				11						
				12						
				13						
				14						
Refusal at 14.5'				15	X	5600				
				16						
				17						
PID: 2288 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-238

DATE DRILLED:	January 4, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Brown	Medium Dense	ML	1						
				2						
				3						
				4						
Silty Silty SAND and GRAVEL - moist	Red	Medium Dense	GM	5	X	0.0				
				6						
				7						
				8						
				9						
				10	X	0.0				
				11						
				12						
Moist				13						
Refusal at 14'				14	X	0.0				
				15						
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-240

DATE DRILLED: January 4, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: —										
DRILL RIG: Geoprobe; 6600										
TOTAL DEPTH: 15'										
DEPTH TO GROUNDWATER: 13.5'										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Silty SAND - some gravel, moist	Light Reddish Brown	Medium Dense	SM	1						
				2						
				3						
				4						
				5	X	0.0				
Sandy SILT - moist	Red	Med Dense	ML	6						
Silty SAND and GRAVEL - moist	Red and Brown	Medium Dense	GM	7						
				8						
				9						
				10	X	0.0				
				11						
				12						
Moist				13						
Silty SAND - wet	Red	Medium Dense	SM	14						
				15	X	0.0				
Refusal at 15'				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						
 <b>WASATCH ENVIRONMENTAL</b> <i>Environmental Science and Engineering</i>				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-241		

DATE DRILLED: January 4, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: ---										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 13.5'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
GRAVEL (fill) - wet trapped water	Brown	Medium Dense	GW	1						
Sandy SILT - moist	Red	Medium Dense	M	2						
				3						
				4						
				5	X	0.0				
				6						
				7						
Clayey SILT - moist	Red	Dense	ML	8						
				9						
Silty SAND and GRAVEL - moist	Reddish Brown	Dense	GM	10	X	0.0				
				11						
				12						
Moist				13						
Refusal at 13.5'				14	X	0.0				
				15						
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						
 <b>WASATCH</b> ENVIRONMENTAL <i>Environmental Science and Engineering</i>				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-242		

DATE DRILLED: January 4, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: —										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 14'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X					
Clayey SILT - very moist	Reddish Brown	Medium Dense	ML	6						
				7						
Wet				8						
				9						
				10	X					
				11						
Silty SAND and GRAVEL	Light Reddish Brown	Dense	GM	12						
				13						
Refusal at 14'				14	X	136				
				15						
				16						
PID: 13.5 ppm (in hole)				17						
				18						
				19						
				20						
 <b>WASATCH</b> ENVIRONMENTAL Environmental Science and Engineering				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-243		

DATE DRILLED: January 10, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: ---										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 14.5'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
ASPHALT ROADBASE (fill)				1						
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	2						
				3						
				4						
				5	X	0.0				
Silty SAND and GRAVEL - fine-grained gravel, moist	Reddish Brown	Medium Dense	GM	6						
				7						
				8						
				9						
				10	X	0.0				
				11						
				12						
				13						
Moist				14						
Refusal at 14.5'				15	X	0.0				
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-244

DATE DRILLED:	January 10, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
ASPHALT ROADBASE - moist	Reddish Brown	Medium Dense		1						
Sandy SILT - moist, no odor	Reddish Brown	Medium Dense	ML	3						
Clayey SILT - very moist, no odor	Reddish Brown	Medium Dense	ML	7						
Silty SAND and GRAVEL - moist, no odor	Red to Reddish Brown	Medium Dense	GM	9						
Refusal at 14.5'				14	X	0.0				
PID: 0.0 ppm (in hole)				15						
				16						
				17						
				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-245

DATE DRILLED:	January 10, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
ASPHALT ROADBASE				1						
				2						
Sandy SILT - fine-grained, moist, no odor	Reddish Brown	Medium Dense	ML	3						
				4						
Silty SAND and GRAVEL - moist	Reddish Brown	Medium Dense	GM	5	X					
				6						
Silty SAND - moist	Red	Med Dense	SM	7						
Silty SAND and GRAVEL - moist	Reddish Brown	Medium Dense	GM	8						
				9						
				10	X					
				11						
				12						
				13						
Moist				14						
Refusal at 14.5'				15	X					
				16						
				17						
PID: 1 ppm (in hole)				18						
				19						
				20						

 <p><b>WASATCH</b> ENVIRONMENTAL</p> <p>Environmental Science and Engineering</p>	<b>BOREHOLE LOG</b>	
	C-4 Top Stop Gunnison, Utah	
	PROJECT NO.: 1241-026A	BOREHOLE NO.: B-246

DATE DRILLED: B-247				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: —										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 14.5'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
ROADBASE				1						
				2						
COAL				3						
Silty AND and GRAVEL - moist	Reddish Brown	Medium Dense	GM	4						
				5	X	1.5				
				6						
				7						
				8						
				9						
				10	X	1.7				
				11						
				12						
				13						
Moist				14						
Refusal at 14.5'				15	X	860				
				16						
				17						
PID: 967 ppm (in hole)				18						
				19						
				20						
 <b>WASATCH</b> ENVIRONMENTAL <i>Environmental Science and Engineering</i>				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-247		

DATE DRILLED:	January 10, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
Silty SAND and GRAVEL - moist	Reddish Brown	Medium Dense	GM	6						
				7						
				8						
SANDSTONE	Yellow	Dense	SM	9						
Sandy SILT - moist	Red	Medium Dense	ML	10	X	0.2				
				11						
				12						
				13						
				14						
Refusal at 14.5'				15	X	25				
				16						
				17						
PID: 596 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-248

DATE DRILLED:	January 20, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	--
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	14.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
Silty SAND and GRAVEL - fine-grained gravel	Red	Medium Dense	GM	5	X	0.0				
				6						
				7						
				8						
				9						
				10	X	0.0				
				11						
				12						
				13						
Sandy SILT - fine-grained	Red	Dense	ML	14	X	56				
Refusal at 14.5'				15						
				16						
				17						
PID: 70.9 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-249

DATE DRILLED: January 10, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: --										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 14.5'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
FILL				1						
Silty SAND - some fine-grained gravel, moiste	Reddish Brown	Medium Dense	SM	2						
				3						
				4						
Silty SAND and GRAVEL	Red	Medium Dense	GM	5	X	0.0				
				6						
				7						
				8						
				9						
				10	X	0.0				
				11						
				12						
Sandy SILT - with some fine-grained gravel, moist	Red	Dense	ML	13						
				14						
Refusal at 14.5'				15	X	0.0				
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-250

DATE DRILLED: January 10, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: ---										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 20'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist, no odor	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
				7						
Silty SAND and GRAVEL - small gravel, moist	Reddish Brown	Medium Dense	GM	8						
				9						
Silty SAND - wet	Reddish Brown	Medium Dense	SM	10	X	0.7				
				11						
				12						
				13						
Silty SAND - wet	Light Yellow Green	Medium Dense	SM	14						
				15	X	0.0				
				16						
				17						
				18						
				19						
Refusal at 20'				20	X	0.7				
				21						
				22						
PID: 0.7 ppm (in hole)				23						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-251

DATE DRILLED: January 10, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: --										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 15'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - some fine-grained gravel, slightly moist	Reddish Brown to Red	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
				7						
Silty SAND and GRAVEL - wet	Reddish Brown	Medium Dense	SM	8						
				9						
				10	X	0.0				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	0.1				
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						
 <b>WASATCH ENVIRONMENTAL</b> <i>Environmental Science and Engineering</i>				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-252		

DATE DRILLED: January 10, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: —										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 15'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
Silty SAND and GRAVEL	Reddish Brown	Medium Dense	GM	5		0.0				
				6						
				7						
				8						
				9						
				10	X	18				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	30				
				16						
				17						
PID:				18						
				19						
				20						
 <b>WASATCH</b> ENVIRONMENTAL Environmental Science and Engineering				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-253		

DATE DRILLED:	January 10, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1 2 3 4 5	X	0.0				
Silty SAND and GRAVEL - moist	Reddish Brown	Medium Dense	GM	6 7 8 9 10 11 12 13 14	X	0.0				
Moist				15	X	0.0				
Refusal at 15'				16 17 18 19 20						
PID: 0.0 ppm (in hole)										



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-254

DATE DRILLED:	January 10, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	--
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - some gravel	Reddish Brown	Medium Dense	SM	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
				7						
SANDSTONE	Blonde		SM	8						
				9						
				10	X	0.0				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	0.0				
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-255

DATE DRILLED:	January 10, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	--
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
				7						
				8						
Wet				9						
				10	X	1.0				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	31				
				16						
				17						
PID: 0.3 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-256





DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
				7						
Very moist				8						
				9						
Saturated				10	X	0.0				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	70				
				16						
				17						
PID: 2.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-259

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	28				
				6						
				7						
Moist				8						
Sandy SILT - some coarse-grained gravel, moist				9						
				10	X	21				
Saturated				11						
				12						
				13						
				14						
Refusal at 15'				15	X	95				
				16						
				17						
PID: 35.6 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-260

DATE DRILLED: January 22, 2008				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: —										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 15'										
DEPTH TO GROUNDWATER: Not Encountered										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	28				
				6						
				7						
Silty CLAY - very moist	Reddish Brown	Medium Dense	CL	8						
				9						
Saturated				10	X	27				
				11						
				12						
Saturated				13						
Silty CLAY - moist	Reddish Brown	Dense	CL	14						
				15	X	34				
Refusal at 15'				16						
				17						
PID: 4.1 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-261

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	8'

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
Very moist				7						
Sandy SILT - fine-grained, with clay pockets, moist	Red Brn	Med Dense	ML	8						
Sandy SILT - fine-grained, some clay, saturated	Reddish Brown	Medium Dense	ML/CL	9						
				10	X	0.0				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	255				
				16						
PID: 12.5 ppm (in hole)				17						
				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-262

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	8'

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	1.5				
				6						
Silty CLAY	Reddish Brown	Medium Dense	CL	7						
Sandy SILT - fine-grained, saturated	Reddish Brown	Medium Dense	ML	8						
				9						
				10	X	0.6				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	375				
				16						
PID: 25.9 ppm (in hole)				17						
				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-263

DATE DRILLED:	January 18, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	13'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
Silty SAND - fine to coarse-grained, moist	Reddish Brown	Medium Dense	SM	5	X	0.5				
				6						
				7						
				8						
				9						
				10	X	0.2				
Clayey SILT - moist	Red	Dense	ML	11						
				12						
Refusal at 13'				13	X	0.4				
				14						
				15						
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-264

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	9.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1 2 3 4 5 6 7	X	0.0				
Silty SAND - fine to medium-grained, moist	Yellow	Dense	SM	8 9	X	0.0				
Refusal at 9.5'				10 11 12 13 14 15 16 17 18 19 20						
PID: 0.0 ppm (in hole)										



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-265

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	9.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1 2 3 4						
Silty SAND and GRAVEL	Reddish Brown	Medium Dense	GM	5 6 7 8	X	0.0				
Silty SAND - fine to coarse-grained	Yellow	Dense	SM	9 10 11 12 13 14 15 16 17 18 19 20	X	0.0				
Refusal at 9.5'										
PID: 0.0 ppm (in hole)										



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-266

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	7.5'

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other		
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE									
Sandy SILT - fine-grained	Reddish Brown	Medium Dense	ML	1								
				2								
				3								
				4								
				5				X	0.0			
				6								
				7								
Saturated				8								
				9								
				10				X	0.0			
				11								
				12								
Saturated				13								
Silty CLAY - moist				Reddish Brown	Dense	CL	14					
Refusal at 15'	15	X	47									
PID: 42.5 ppm (in hole)				16								
				17								
				18								
				19								
				20								



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-267

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	12.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
Silty SAND and GRAVEL - fine-grained gravel, moist	Reddish Brown	Medium Dense	GM	6						
				7						
				8						
				9						
				10	X	0.0				
Moist				11						
				12	X	8.7				
Refusal at 12.5'				13						
				14						
				15						
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-268

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	12.5'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
Silty SAND and GRAVEL - moist	Reddish Brown	Medium Dense	SM	4						
				5	X	0.0				
				6						
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	7						
				8						
Silty SAND and GRAVEL - moist	Reddish Brown	Medium Dense	GM	9						
				10	X	0.0				
				11						
Silty SAND - fine to medium-grained, moist	Yellow	Dense		12	X	0.0				
Refusal at 12.5'				13						
				14						
				15						
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-269

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	13'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
Silty SAND and GRAVEL	Reddish Brown	Medium dense	GM	6						
				7						
				8						
				9						
				10	X	0.0				
				11						
				12						
Refusal at 13'				13	X	0.0				
				14						
				15						
				16						
				17						
PID: 0.0 ppm (in hole)				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-270

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	Not Encountered

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
Saturated				7						
Silty CLAY	Reddish Brown	Medium Dense	CL	8						
				9						
				10	X	0.0				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	1.6				
				16						
PID: 0.0 ppm (in hole)				17						
				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-271

DATE DRILLED: January 22, 2008				Depth (Feet)	Sample	OMV (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
LOGGED BY: Troy Smith										
REFERENCE ELEVATION: —										
DRILL RIG: Geoprobe 6600										
TOTAL DEPTH: 15'										
DEPTH TO GROUNDWATER: 8'										
DESCRIPTION AND CLASSIFICATION										
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	5				
				6						
				7						
Saturated				8						
				9						
				10	X	15				
				11						
				12						
				13						
				14						
Refusal at 15'				15	X	9				
				16						
PID: 293 ppm (in hole)				17						
				18						
				19						
				20						
 <b>WASATCH ENVIRONMENTAL</b> <i>Environmental Science and Engineering</i>				<b>BOREHOLE LOG</b>						
				C-4 Top Stop Gunnison, Utah						
				PROJECT NO.: 1241-026A				BOREHOLE NO.: B-272		

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	---
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	8.5'

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other		
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE									
Sandy SILT - moist	Reddish Brown	Medium Dense	ML	1								
				2								
				3								
				4								
				5			X	27				
				6								
				7								
				8								
Saturated				9								
				10			X	23				
				11								
Saturated				12								
Silty CLAY - moist				Reddish Brown	Dense	CL	13					
	14											
	15						X	3.0				
Refusal at 15'				16								
				17								
PID: 823 ppm (in hole)				18								
				19								
				20								



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-273

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	--
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	8'

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other		
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE									
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1								
				2								
				3								
				4								
				5			X	14				
				6								
				7								
Saturated				8								
				9								
				10			X	3.5				
				11								
				12								
Saturated				13								
Silty CLAY - with gravel inclusions, moist	Reddish Brown	Medium Dense	CL	14								
				15	X	15						
Refusal at 15'				16								
PID: 0.0 ppm (in hole)				17								
				18								
				19								
				20								



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-274

DATE DRILLED:	January 22, 2008
LOGGED BY:	Troy Smith
REFERENCE ELEVATION:	—
DRILL RIG:	Geoprobe 6600
TOTAL DEPTH:	15'
DEPTH TO GROUNDWATER:	8'

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sample	OVM (ppm)	Water Content (%)	Dry Density (pcf)	Passing 200 Sieve (%)	Other
DESCRIPTION AND REMARKS	COLOR	CONSIST.	TYPE							
Sandy SILT - fine-grained, moist	Reddish Brown	Medium Dense	ML	1						
				2						
				3						
				4						
				5	X	0.0				
				6						
				7						
Saturated				8						
				9						
				10	X	3				
				11						
				12						
Saturated				13						
Silty CLAY - high plasticity, moist				14						
Refusal at 15'				15	X	15				
				16						
PID: 68 ppm (in hole)				17						
				18						
				19						
				20						



Environmental Science and Engineering

**BOREHOLE LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

BOREHOLE NO.: B-275

## Appendix B

### Laboratory Groundwater Sample Results



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-10B  
Field Sample ID: WS#1 @ 13'  
Collected: 8/14/2007 2:10:00 PM  
Received: 8/16/2007

Extracted: 8/23/2007  
Analyzed: 8/25/2007 9:42:08 PM

Analysis Requested: TPH by SW8015B Mod.

Analytical Results

TPH-DRO-8015B Mod. (1L sample)

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/L

Dilution Factor = 1

Compound	Reporting Limit	Analytical Result
Total Petroleum Hydrocarbon (DRO - C10-28)	0.50	< 0.50
Surr: 4-Bromofluorobenzene	10-230	62.0

*Sample pH was unadjustable to a pH<2 due to it's matrix.*

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-10A  
Field Sample ID: WS#1 @ 13'  
Collected: 8/14/2007 2:10:00 PM  
Received: 8/16/2007

Analyzed: 8/17/2007 11:53:00 A

Analysis Requested: SW8260B/5030B

Analytical Results

8260-W-MBTEXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/L

Dilution Factor = 1

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	0.018
Toluene	0.0020	0.0071
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	0.0022
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	0.12
Surr: 1,2-Dichloroethane-d4	81-143	113
Surr: 4-Bromofluorobenzene	85-115	106
Surr: Dibromofluoromethane	80-124	103
Surr: Toluene-d8	88-120	106

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



## ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-11B  
Field Sample ID: WS#2 @ 11'  
Collected: 8/14/2007 3:30:00 PM  
Received: 8/16/2007

Extracted: 8/23/2007  
Analyzed: 8/25/2007 10:02:36 PM

Analysis Requested: TPH by SW8015B Mod.

### Analytical Results

### TPH-DRO-8015B Mod. (1L sample)

Units = mg/L

Dilution Factor = 1

Compound	Reporting Limit	Analytical Result
Total Petroleum Hydrocarbon (DRO - C10-28)	0.50	< 0.50
Surr: 4-Bromofluorobenzene	10-230	57.0

*Sample pH was unadjustable to a pH<2 due to it's matrix.*

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686

Oil Free (888) 263-8686

Fax (801) 263-8687

Mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-11A  
Field Sample ID: WS#2 @ 11'  
Collected: 8/14/2007 3:30:00 PM  
Received: 8/16/2007

Analyzed: 8/17/2007 12:13:00 PM

Analysis Requested: SW8260B/5030B

Analytical Results

8260-W-MBTXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/L  
Dilution Factor = 1

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	< 0.0010
Toluene	0.0020	< 0.0020
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	< 0.0020
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	114
Surr: 4-Bromofluorobenzene	85-115	105
Surr: Dibromofluoromethane	80-124	105
Surr: Toluene-d8	88-120	106

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awai-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81227-01A  
Field Sample ID: MW-1  
Collected: 11/27/2007 9:00:00 AM  
Received: 11/28/2007

Analyzed: 11/29/2007 6:07:00 AM

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

DilutionFactor= 1

Compound

ReportingLimit

Analytical

Result

1,1,1,2-Tetrachloroethane

2.0

< 2.0

1,1,1-Trichloroethane

2.0

< 2.0

1,1,2,2-Tetrachloroethane

2.0

< 2.0

1,1,2-Trichloro-1,2,2-trifluoroethane

2.0

< 2.0

1,1,2-Trichloroethane

2.0

< 2.0

1,1-Dichloro-1-propene

2.0

< 2.0

1,1-Dichloroethane

2.0

< 2.0

1,1-Dichloroethene

2.0

< 2.0

1,2,3-Trichlorobenzene

2.0

< 2.0

1,2,3-Trichloropropane

2.0

< 2.0

1,2,3-Trimethylbenzene

2.0

130

1,2,4-Trichlorobenzene

2.0

< 2.0

1,2,4-Trimethylbenzene

100

430 \*

1,2-Dibromo-3-chloropropane

5.0

< 5.0

1,2-Dibromoethane

2.0

< 2.0

1,2-Dichlorobenzene

2.0

< 2.0

1,2-Dichloroethane

2.0

< 2.0

1,2-Dichloropropane

2.0

< 2.0

1,3,5-Trimethylbenzene

2.0

84

1,3-Dichlorobenzene

2.0

< 2.0

1,3-Dichloropropane

2.0

< 2.0

1,4-Dichlorobenzene

2.0

< 2.0

1,4-Dioxane

50

< 50

2,2-Dichloropropane

2.0

< 2.0

2-Butanone

10

< 10

2-Chloroethylvinylether

5.0

< 5.0

2-Hexanone

5.0

< 5.0

2-Nitropropane

5.0

< 5.0

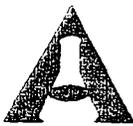
4-Methyl-2-pentanone

5.0

6.6

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81227-01A  
Field Sample ID: MW-1  
Collected: 11/27/2007 9:00:00 AM  
Received: 11/28/2007

Analyzed: 11/29/2007 6:07:00 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound Reporting Limit Analytical Result

463 West 3600 South  
Salt Lake City, Utah  
84115

Acetone	10	< 10
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	100	<b>2800</b> *
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis1,2-Dichloroethene	2.0	< 2.0
cis1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	<b>53</b>
Cyclohexanone	50	< 50
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	2.0	<b>20</b>
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100
Isopropylacetate	2.0	< 2.0

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Report Date: 11/29/2007 Page 3 of 29



Lab Sample ID: L81227-01A  
 Field Sample ID: MW-1  
 Collected: 11/27/2007 9:00:00 AM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:07:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	5.5
Isopropyltoluene	2.0	3.9
Methacrylonitrile	5.0	< 5.0
MethylAcetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	25
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	< 2.0
n-Propylbenzene	2.0	5.8
Naphthalene	2.0	48
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	< 2.0
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	15
Toluene	100	850 *
trans1,2-Dichloroethene	2.0	< 2.0
trans1,3-Dichloropropene	2.0	< 2.0
trans1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0
m & p Xylene	100	2300 *

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on request. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



Lab Sample ID: L81227-01A  
 Field Sample ID: MW-1  
 Collected: 11/27/2007 9:00:00 AM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:07:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
o-Xylene	100	1500 *
Xylenes, Total	100	3800 *
n-Hexane	2.0	21
n-Octane	2.0	< 2.0
tert-Butylalcohol	20	< 20
Hexachlorobutadiene	2.0	< 2.0
Bis(2-chloroisopropyl)ether	5.0	< 5.0
TPH C6 to C10 (GRO)	20	7800
TPH C11 to C15 (DRO)	20	32
Surr:1,2-Dichloroethane-d4	81-143	104
Surr:4-Bromofluorobenzene	85-115	86.6
Surr:Dibromofluoromethane	80-124	92.3
Surr:Toluene-d8	88-120	106

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

\* These analytes were obtained from a 1:50 dilution.

The pH of the sample was >2. Analysis was performed within 7 day holding time.

The MS & MSD for this batch were performed on this sample. Outliers were observed and attributed to matrix.

The LCS exhibited method control.



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81227-02A  
Field Sample ID: MW-2  
Collected: 11/27/2007 1:45:00 PM  
Received: 11/28/2007

Analyzed: 11/29/2007 6:28:00 AM

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

DilutionFactor= 1

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	82
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	2.0	230
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	53
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	19
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	< 5.0

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Report Date: 11/29/2007 Page 6 of 29



Lab Sample ID: L81227-02A  
 Field Sample ID: MW-2  
 Collected: 11/27/2007 1:45:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:28:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Acetone	10	110
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	100	2400 *
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis1,2-Dichloroethene	2.0	< 2.0
cis1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	56
Cyclohexanone	50	< 50
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	2.0	27
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100
Isopropylacetate	2.0	< 2.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director





Lab Sample ID: L81227-02A  
 Field Sample ID: MW-2  
 Collected: 11/27/2007 1:45:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:28:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
o-Xylene	100	900 *
Xylenes, Total	100	2300 *
n-Hexane	2.0	20
n-Octane	2.0	< 2.0
tert-Butylalcohol	20	< 20
Hexachlorobutadiene	2.0	< 2.0
Bis(2-chloroisopropyl)ether	5.0	< 5.0
TPH C6 to C10 (GRO)	20	5900
TPH C11 to C15 (DRO)	20	22
Surr:1,2-Dichloroethane-d4	81-143	104
Surr:4-Bromofluorobenzene	85-115	94.5
Surr:Dibromofluoromethane	80-124	97.0
Surr:Toluene-d8	88-120	107

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

\* These analytes were obtained from a 1:50 dilution.



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81227-03A  
Field Sample ID: MW-3  
Collected: 11/27/2007 1:55:00 PM  
Received: 11/28/2007

Analyzed: 11/29/2007 6:49:00 AM

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

DilutionFactor= 1

Compound

ReportingLimit

Analytical

Result

1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	<b>140</b>
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	100	<b>430</b> *
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	<b>120</b>
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	< 10
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	<b>6.6</b>

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Report Date: 11/29/2007 Page 10 of 29



Lab Sample ID: L81227-03A  
 Field Sample ID: MW-3  
 Collected: 11/27/2007 1:55:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:49:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound Reporting Limit Analytical Result

Compound	Reporting Limit	Analytical Result
Acetone	10	55
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	100	2600 *
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis 1,2-Dichloroethene	2.0	< 2.0
cis 1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	78
Cyclohexanone	50	< 50
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	2.0	200
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100
Isopropylacetate	2.0	< 2.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only if the addressee grants its responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



Lab Sample ID: L81227-03A  
 Field Sample ID: MW-3  
 Collected: 11/27/2007 1:55:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:49:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	11
Isopropyltoluene	2.0	4.8
Methacrylonitrile	5.0	< 5.0
Methylacetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	35
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	< 2.0
n-Propylbenzene	2.0	21
Naphthalene	2.0	71
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	< 2.0
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	12
Toluene	100	2500 *
trans 1,2-Dichloroethene	2.0	< 2.0
trans 1,3-Dichloropropene	2.0	< 2.0
trans 1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0
m & p Xylene	100	2500 *

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only with the consent of the company. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



Lab Sample ID: L81227-03A  
 Field Sample ID: MW-3  
 Collected: 11/27/2007 1:55:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 6:49:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units=  $\mu\text{g/L}$

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
o-Xylene	100	1400 *
Xylenes, Total	100	3900 *
n-Hexane	2.0	45
n-Octane	2.0	< 2.0
tert-Butylalcohol	20	< 20
Hexachlorobutadiene	2.0	< 2.0
Bis(2-chloroisopropyl)ether	5.0	< 5.0
TPH C6 to C10 (GRO)	20	9700
TPH C11 to C15 (DRO)	20	41
Surr:1,2-Dichloroethane-d4	81-143	106
Surr:4-Bromofluorobenzene	85-115	88.4
Surr:Dibromofluoromethane	80-124	93.9
Surr:Toluene-d8	88-120	96.2

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

\* These analytes were obtained from a 1:50 dilution.



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81227-04A  
Field Sample ID: MW-4  
Collected: 11/27/2007 2:15:00 PM  
Received: 11/28/2007

Analyzed: 11/29/2007 11:15:00 A

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

DilutionFactor= 1

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	< 2.0
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	2.0	< 2.0
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	< 2.0
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	< 10
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	< 5.0

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81227-04A  
 Field Sample ID: MW-4  
 Collected: 11/27/2007 2:15:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 11:15:00 A

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Acetone	10	< 10
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	2.0	2.0
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis 1,2-Dichloroethene	2.0	< 2.0
cis 1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	3.8
Cyclohexanone	50	< 50
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	2.0	< 2.0
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100
Isopropylacetate	2.0	< 2.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only if the user agrees to assume all responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



Lab Sample ID: L81227-04A  
 Field Sample ID: MW-4  
 Collected: 11/27/2007 2:15:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 11:15:00 A

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	< 2.0
Isopropyltoluene	2.0	< 2.0
Methacrylonitrile	5.0	< 5.0
MethylAcetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	<b>4.8</b>
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	< 2.0
n-Propylbenzene	2.0	< 2.0
Naphthalene	2.0	< 2.0
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	< 2.0
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	< 2.0
Toluene	2.0	< 2.0
trans 1,2-Dichloroethene	2.0	< 2.0
trans 1,3-Dichloropropene	2.0	< 2.0
trans 1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0
m & p Xylene	2.0	< 2.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only if the addressee grants its permission. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



Lab Sample ID: L81227-04A  
 Field Sample ID: MW-4  
 Collected: 11/27/2007 2:15:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 11:15:00 A

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	< 2.0
Isopropyltoluene	2.0	< 2.0
Methacrylonitrile	5.0	< 5.0
Methylacetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	4.8
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	< 2.0
n-Propylbenzene	2.0	< 2.0
Naphthalene	2.0	< 2.0
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	< 2.0
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	< 2.0
Toluene	2.0	< 2.0
trans1,2-Dichloroethene	2.0	< 2.0
trans1,3-Dichloropropene	2.0	< 2.0
trans1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0
m & p Xylene	2.0	< 2.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only if the addressee grants its consent. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.



Lab Sample ID: L81227-04A  
 Field Sample ID: MW-4  
 Collected: 11/27/2007 2:15:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 11:15:00 A

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
o-Xylene	2.0	< 2.0
Xylenes, Total	2.0	< 2.0
n-Hexane	2.0	< 2.0
n-Octane	2.0	< 2.0
tert-Butylalcohol	20	< 20
Hexachlorobutadiene	2.0	< 2.0
Bis(2-chloroisopropyl)ether	5.0	< 5.0
TPH C6 to C10 (GRO)	20	< 20
TPH C11 to C15 (DRO)	20	< 20
Surr:1,2-Dichloroethane-d4	81-143	103
Surr:4-Bromofluorobenzene	85-115	104
Surr:Dibromofluoromethane	80-124	99.2
Surr:Toluene-d8	88-120	106

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

*The pH of the sample was >2. Analysis was performed within 7 day holding time.*



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81227-05A  
Field Sample ID: MW-5  
Collected: 11/27/2007 3:20:00 PM  
Received: 11/28/2007

Analyzed: 11/29/2007 7:30:00 AM

Analysis Requested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

Dilution Factor= 1

Compound

Reporting Limit

Analytical

Result

1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	21
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	100	260 *
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	97
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	13
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	< 5.0

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Report Date: 11/29/2007 Page 18 of 29





Lab Sample ID: L81227-05A  
 Field Sample ID: MW-5  
 Collected: 11/27/2007 3:20:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 7:30:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound

Reporting Limit

Analytical  
 Result

Compound	Reporting Limit	Analytical Result	
o-Xylene	100	200	*
Xylenes, Total	100	1000	*
n-Hexane	2.0	44	
n-Octane	2.0	< 2.0	
tert-Butylalcohol	20	< 20	
Hexachlorobutadiene	2.0	< 2.0	
Bis(2-chloroisopropyl)ether	5.0	< 5.0	
TPH C6 to C10 (GRO)	20	6300	
TPH C11 to C15 (DRO)	20	36	
Surr:1,2-Dichloroethane-d4	81-143	105	
Surr:4-Bromofluorobenzene	85-115	101	
Surr:Dibromofluoromethane	80-124	95.1	
Surr:Toluene-d8	88-120	105	

\* These analytes were obtained from a 1:50 dilution.

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81227-06A  
Field Sample ID: Trench Well 1  
Collected: 11/27/2007 3:55:00 PM  
Received: 11/28/2007

Analyzed: 11/29/2007 7:52:00 AM

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

DilutionFactor= 1

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	<b>190</b>
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	100	<b>380</b> *
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	<b>110</b>
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	<b>45</b>
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	< 5.0

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director





Lab Sample ID: L81227-06A  
 Field Sample ID: Trench Well 1  
 Collected: 11/27/2007 3:55:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 7:52:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound Reporting Limit Analytical Result

Compound	Reporting Limit	Analytical Result
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	6.5
Isopropyltoluene	2.0	6.1
Methacrylonitrile	5.0	< 5.0
MethylAcetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	66
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	< 2.0
n-Propylbenzene	2.0	3.8
Naphthalene	2.0	97
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	< 2.0
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	18
Toluene	100	960
trans 1,2-Dichloroethene	2.0	< 2.0
trans 1,3-Dichloropropene	2.0	< 2.0
trans 1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0
m & p Xylene	100	2300 *

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



Lab Sample ID: L81227-06A  
 Field Sample ID: Trench Well 1  
 Collected: 11/27/2007 3:55:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 7:52:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

463 West 3600 South  
 Salt Lake City, Utah  
 84115

Compound	Reporting Limit	Analytical Result	
o-Xylene	100	1500	*
Xylenes, Total	100	3900	*
n-Hexane	2.0	65	
n-Octane	2.0	< 2.0	
tert-Butylalcohol	20	< 20	
Hexachlorobutadiene	2.0	< 2.0	
Bis(2-chloroisopropyl)ether	5.0	< 5.0	
TPH C6 to C10 (GRO)	20	8600	
TPH C11 to C15 (DRO)	20	41	
Surr:1,2-Dichloroethane-d4	81-143	103	
Surr:4-Bromofluorobenzene	85-115	85.5	
Surr:Dibromofluoromethane	80-124	97.3	
Surr:Toluene-d8	88-120	108	

\* These analytes were obtained from a 1:50 dilution.

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab SampleID: L81227-07A  
Field SampleID: Trench Well 3  
Collected: 11/27/2007 4:30:00 PM  
Received: 11/28/2007

Analyzed: 11/29/2007 8:12:00 AM

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

463 West 3600 South  
Salt Lake City, Utah  
84115

Units= µg/L

DilutionFactor= 1

Compound

ReportingLimit

Analytical

Result

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	50
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	2.0	70
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	17
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	100	350 *
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	< 5.0

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Report Date: 11/29/2007 Page 26 of 29



Lab Sample ID: L81227-07A  
 Field Sample ID: Trench Well 3  
 Collected: 11/27/2007 4:30:00 PM  
 Received: 11/28/2007

Analyzed: 11/29/2007 8:12:00 AM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Acetone	10	100
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	20	420 *
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis 1,2-Dichloroethene	2.0	< 2.0
cis 1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	65
Cyclohexanone	50	170
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	2.0	< 2.0
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100
Isopropylacetate	2.0	< 2.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only if the addressee consents in writing. American West Analytical Laboratories assumes no responsibility, except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.





# ORGANIC ANALYSIS REPORT



Client: WasatchEnvironmental  
 ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

LabSampleID: L81554-01A  
 FieldSampleID: WS-1  
 Collected: 12/13/2007 2:40:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 3:44:00 PM

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

Units= µg/L

DilutionFactor= 1

463 West 3600 South  
 Salt Lake City, Utah  
 84115

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	100	<b>230</b> *
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	100	<b>920</b> *
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	100	<b>280</b> *
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	< 10
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	<b>8.8</b>

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



Lab Sample ID: L81554-01A  
Field Sample ID: WS-1  
Collected: 12/13/2007 2:40:00 PM  
Received: 12/13/2007

Analyzed: 12/14/2007 3:44:00 PM

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Units=  $\mu\text{g/L}$

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Acetone	10	240
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	100	2400 *
Benzylchloride	5.0	< 5.0
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis 1,2-Dichloroethene	2.0	< 2.0
cis 1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	220
Cyclohexanone	50	< 50
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	100	600 *
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81554-01A  
 Field Sample ID: WS-1  
 Collected: 12/13/2007 2:40:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 3:44:00 PM

Analysis Requested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Isopropylacetate	2.0	< 2.0
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	<b>55</b>
Isopropyltoluene	2.0	<b>32</b>
Methacrylonitrile	5.0	< 5.0
Methylacetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	<b>220</b>
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	<b>19</b>
n-Propylbenzene	2.0	<b>180</b>
Naphthalene	2.0	<b>170</b>
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	<b>12</b>
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	< 2.0
Toluene	100	<b>2200</b> *
trans1,2-Dichloroethene	2.0	< 2.0
trans1,3-Dichloropropene	2.0	< 2.0
trans1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



LabSampleID: L81554-01A  
 FieldSampleID: WS-1  
 Collected: 12/13/2007 2:40:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 3:44:00 PM

AnalysisRequested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

DilutionFactor= 1

463 West 3600 South  
 Salt Lake City, Utah  
 84115

Compound	ReportingLimit	Analytical Result	
m & p Xylene	50	2700	*
o-Xylene	100	1000	*
Xylenes, Total	100	3700	*
n-Hexane	100	210	*
n-Octane	2.0	87	
tert-Butylalcohol	20	29	
Hexachlorobutadiene	2.0	< 2.0	
Bis(2-chloroisopropyl)ether	5.0	< 5.0	
TPH C6 to C10 (GRO)	20	19000	
TPH C11 to C15 (DRO)	20	200	
Surr:1,2-Dichloroethane-d4	81-143	103	
Surr:4-Bromofluorobenzene	85-115	103	
Surr:Dibromofluoromethane	80-124	88.4	
Surr:Toluene-d8	88-120	110	

\* These analytes were obtained from a 1:50 dilution.

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

# ORGANIC ANALYSIS REPORT



Client: WasatchEnvironmental  
 ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

LabSampleID: L81554-02A  
 FieldSampleID: WS-2  
 Collected: 12/13/2007 2:30:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 4:09:00 PM

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

Units= µg/L

DilutionFactor= 1

463 West 3600 South  
 Salt Lake City, Utah  
 84115

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	2.0	< 2.0
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloro-1-propene	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2,3-Trichlorobenzene	2.0	< 2.0
1,2,3-Trichloropropane	2.0	< 2.0
1,2,3-Trimethylbenzene	2.0	<b>60</b>
1,2,4-Trichlorobenzene	2.0	< 2.0
1,2,4-Trimethylbenzene	2.0	<b>160</b>
1,2-Dibromo-3-chloropropane	5.0	< 5.0
1,2-Dibromoethane	2.0	< 2.0
1,2-Dichlorobenzene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
1,3,5-Trimethylbenzene	2.0	<b>78</b>
1,3-Dichlorobenzene	2.0	< 2.0
1,3-Dichloropropane	2.0	< 2.0
1,4-Dichlorobenzene	2.0	< 2.0
1,4-Dioxane	50	< 50
2,2-Dichloropropane	2.0	< 2.0
2-Butanone	10	< 10
2-Chloroethylvinylether	5.0	< 5.0
2-Hexanone	5.0	< 5.0
2-Nitropropane	5.0	< 5.0
4-Methyl-2-pentanone	5.0	< 5.0

(801) 263-8686

oll Free (888) 263-8686

Fax (801) 263-8687

-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



Lab Sample ID: L81554-02A  
 Field Sample ID: WS-2  
 Collected: 12/13/2007 2:30:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 4:09:00 PM

Analysis Requested: 8260B/5030B

**Analytical Results**

**VOLATILES by GC/MS 8260B**

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

Units=  $\mu\text{g/L}$

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Acetone	10	<b>25</b>
Acetonitrile	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Allylchloride	5.0	< 5.0
Benzene	40	<b>2100</b> *
Benzylchloride	5.0	< 5.0
Bromobenzene	2.0	< 2.0
Bromochloromethane	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Butylacetate	5.0	< 5.0
Carbondisulfide	2.0	< 2.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	3.0	< 3.0
Chloroprene	2.0	< 2.0
cis1,2-Dichloroethene	2.0	< 2.0
cis1,3-Dichloropropene	2.0	< 2.0
Cyclohexane	2.0	<b>88</b>
Cyclohexanone	50	< 50
Dibromochloromethane	2.0	< 2.0
Dibromomethane	2.0	< 2.0
Dichlorodifluoromethane	2.0	< 2.0
Ethylacetate	10	< 10
Ethylether	10	< 10
Ethylmethacrylate	2.0	< 2.0
Ethylbenzene	2.0	<b>140</b>
Iodomethane	5.0	< 5.0
Isobutylalcohol	100	< 100

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



LabSampleID: L81554-02A  
 FieldSampleID: WS-2  
 Collected: 12/13/2007 2:30:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 4:09:00 PM

AnalysisRequested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

DilutionFactor= 1

Compound	ReportingLimit	Analytical Result
Isopropylacetate	2.0	< 2.0
Isopropylalcohol	25	< 25
Isopropylbenzene	2.0	<b>4.2</b>
Isopropyltoluene	2.0	<b>5.6</b>
Methacrylonitrile	5.0	< 5.0
MethylAcetate	5.0	< 5.0
Methylmethacrylate	5.0	< 5.0
Methyltert-butylether	2.0	< 2.0
Methylcyclohexane	2.0	<b>65</b>
Methylenechloride	2.0	< 2.0
n-Amylacetate	2.0	< 2.0
n-Butylalcohol	50	< 50
n-Butylbenzene	2.0	< 2.0
n-Propylbenzene	2.0	<b>11</b>
Naphthalene	2.0	<b>20</b>
o-Chlorotoluene	2.0	< 2.0
p-Chlorotoluene	2.0	< 2.0
Pentachloroethane	5.0	< 5.0
Propionitrile	25	< 25
Propylacetate	2.0	< 2.0
sec-Butylbenzene	2.0	< 2.0
Styrene	2.0	< 2.0
tert-Butylbenzene	2.0	< 2.0
Tetrachloroethene	2.0	< 2.0
Tetrahydrofuran	2.0	< 2.0
Toluene	40	<b>1900</b> *
trans1,2-Dichloroethene	2.0	< 2.0
trans1,3-Dichloropropene	2.0	< 2.0
trans1,4-Dichloro-2-butene	2.0	< 2.0
Trichlorofluoromethane	2.0	< 2.0
Trichloroethene	2.0	< 2.0
Vinylacetate	10	< 10
Vinylchloride	1.0	< 1.0

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



Lab Sample ID: L81554-02A  
 Field Sample ID: WS-2  
 Collected: 12/13/2007 2:30:00 PM  
 Received: 12/13/2007

Analyzed: 12/14/2007 4:09:00 PM

Analysis Requested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units=  $\mu\text{g/L}$

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result	
m & p Xylene	40	700	*
o-Xylene	40	260	*
Xylenes, Total	40	960	*
n-Hexane	2.0	85	
n-Octane	2.0	15	
tert-Butylalcohol	20	26	
Hexachlorobutadiene	2.0	< 2.0	
Bis(2-chloroisopropyl)ether	5.0	< 5.0	
TPH C6 to C10 (GRO)	20	7000	
TPH C11 to C15 (DRO)	20	25	
Surr: 1,2-Dichloroethane-d4	81-143	95.5	
Surr: 4-Bromofluorobenzene	85-115	99.3	
Surr: Dibromofluoromethane	80-124	90.3	
Surr: Toluene-d8	88-120	99.9	

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

\* These analytes were obtained from a 1:20 dilution.

# ORGANIC ANALYSIS REPORT



Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

LabSampleID: L81554-03A  
FieldSampleID: WS-3  
Collected: 12/13/2007 2:50:00 PM  
Received: 12/13/2007

Analyzed: 12/17/2007 5:28:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

AnalysisRequested: 8260B/5030B

## Analytical Results

## VOLATILES by GC/MS 8260B

Units= µg/L

DilutionFactor= 10

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	20	< 20
1,1,1-Trichloroethane	20	< 20
1,1,2,2-Tetrachloroethane	20	< 20
1,1,2-Trichloro-1,2,2-trifluoroethane	20	< 20
1,1,2-Trichloroethane	20	< 20
1,1-Dichloro-1-propene	20	< 20
1,1-Dichloroethane	20	< 20
1,1-Dichloroethene	20	< 20
1,2,3-Trichlorobenzene	20	< 20
1,2,3-Trichloropropane	20	< 20
1,2,3-Trimethylbenzene	20	<b>170</b>
1,2,4-Trichlorobenzene	20	< 20
1,2,4-Trimethylbenzene	20	<b>970</b>
1,2-Dibromo-3-chloropropane	50	< 50
1,2-Dibromoethane	20	< 20
1,2-Dichlorobenzene	20	< 20
1,2-Dichloroethane	20	< 20
1,2-Dichloropropane	20	< 20
1,3,5-Trimethylbenzene	20	<b>300</b>
1,3-Dichlorobenzene	20	< 20
1,3-Dichloropropane	20	< 20
1,4-Dichlorobenzene	20	< 20
1,4-Dioxane	500	< 500
2,2-Dichloropropane	20	< 20
2-Butanone	100	< 100
2-Chloroethylvinylether	50	< 50
2-Hexanone	50	< 50
2-Nitropropane	50	< 50
4-Methyl-2-pentanone	50	< 50

(801) 263-8686

Cell Free (888) 263-8686

Fax (801) 263-8687

mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81554-03A  
Field Sample ID: WS-3  
Collected: 12/13/2007 2:50:00 PM  
Received: 12/13/2007

Analyzed: 12/17/2007 5:28:00 PM

Analysis Requested: 8260B/5030B

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

### Analytical Results

### VOLATILES by GC/MS 8260B

Units=  $\mu\text{g/L}$

Dilution Factor= 10

Compound	Reporting Limit	Analytical Result
Acetone	100	< 100
Acetonitrile	50	< 50
Acrolein	50	< 50
Acrylonitrile	100	< 100
Allylchloride	50	< 50
Benzene	20	<b>120</b>
Benzylchloride	50	< 50
Bromobenzene	20	< 20
Bromochloromethane	20	< 20
Bromodichloromethane	20	< 20
Bromoform	20	< 20
Bromomethane	50	< 50
Butylacetate	50	< 50
Carbondisulfide	20	< 20
Carbontetrachloride	20	< 20
Chlorobenzene	20	< 20
Chloroethane	20	< 20
Chloroform	20	< 20
Chloromethane	30	< 30
Chloroprene	20	< 20
cis1,2-Dichloroethene	20	< 20
cis1,3-Dichloropropene	20	< 20
Cyclohexane	20	< 20
Cyclohexanone	500	< 500
Dibromochloromethane	20	< 20
Dibromomethane	20	< 20
Dichlorodifluoromethane	20	< 20
Ethylacetate	100	< 100
Ethylether	100	< 100
Ethylmethacrylate	20	< 20
Ethylbenzene	20	<b>280</b>
Iodomethane	50	< 50
Isobutylalcohol	1000	< 1000



Lab Sample ID: L81554-03A  
 Field Sample ID: WS-3  
 Collected: 12/13/2007 2:50:00 PM  
 Received: 12/13/2007

Analyzed: 12/17/2007 5:28:00 PM

Analysis Requested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L  
 Dilution Factor= 10

Compound	Reporting Limit	Analytical Result
Isopropylacetate	20	< 20
Isopropylalcohol	250	< 250
Isopropylbenzene	20	<b>28</b>
Isopropyltoluene	20	< 20
Methacrylonitrile	50	< 50
MethylAcetate	50	< 50
Methylmethacrylate	50	< 50
Methyltert-butylether	20	< 20
Methylcyclohexane	20	<b>49</b>
Methylenechloride	20	< 20
n-Amylacetate	20	< 20
n-Butylalcohol	500	< 500
n-Butylbenzene	20	< 20
n-Propylbenzene	20	<b>90</b>
Naphthalene	20	<b>100</b>
o-Chlorotoluene	20	< 20
p-Chlorotoluene	20	< 20
Pentachloroethane	50	< 50
Propionitrile	250	< 250
Propylacetate	20	< 20
sec-Butylbenzene	20	< 20
Styrene	20	< 20
tert-Butylbenzene	20	< 20
Tetrachloroethene	20	< 20
Tetrahydrofuran	20	< 20
Toluene	20	< 20
trans1,2-Dichloroethene	20	< 20
trans1,3-Dichloropropene	20	< 20
trans1,4-Dichloro-2-butene	20	< 20
Trichlorofluoromethane	20	< 20
Trichloroethene	20	< 20
Vinylacetate	100	< 100
Vinylchloride	10	< 10

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686  
 Toll Free (888) 263-8686  
 Fax (801) 263-8687  
 Email: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



LabSampleID: L81554-03A  
 FieldSampleID: WS-3  
 Collected: 12/13/2007 2:50:00 PM  
 Received: 12/13/2007

Analyzed: 12/17/2007 5:28:00 PM

AnalysisRequested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L

DilutionFactor= 10

463 West 3600 South  
 Salt Lake City, Utah  
 84115

Compound	ReportingLimit	Analytical Result
m & p Xylene	20	< 20
o-Xylene	20	< 20
Xylenes, Total	20	< 20
n-Hexane	20	< 20
n-Octane	20	< 20
tert-Butylalcohol	200	< 200
Hexachlorobutadiene	20	< 20
Bis(2-chloroisopropyl)ether	50	< 50
TPH C6 to C10 (GRO)	200	<b>6900</b>
TPH C11 to C15 (DRO)	200	<b>500</b>
Surr:1,2-Dichloroethane-d4	81-143	<b>102</b>
Surr:4-Bromofluorobenzene	85-115	<b>95.8</b>
Surr:Dibromofluoromethane	80-124	<b>97.9</b>
Surr:Toluene-d8	88-120	<b>100</b>

(801) 263-8686

Oil Free (888) 263-8686

Fax (801) 263-8687

mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

*The reporting limits were raised 10x due to sample matrix interference.*

*The pH of the sample was >2. Analysis was performed within 7 day holding time.*



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation / 1241-026A

Contact: Les Pennington

**AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES**

Lab Sample ID: L81868-02A  
Field Sample ID: TW-1  
Collected: 1/4/2008 4:20:00 PM  
Received: 1/7/2008

Analyzed: 1/8/2008 1:30:00 PM

Analysis Requested: SW8260B/5030B

## Analytical Results

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.020	1.2 *
Toluene	0.040	0.50 *
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.040	2.4 *
Naphthalene	0.0020	0.11
TPH C6 to C10 (GRO)	0.020	5.8
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	109
Surr: 4-Bromofluorobenzene	85-115	104
Surr: Dibromofluoromethane	80-124	103
Surr: Toluene-d8	88-120	101

\* These analytes were obtained from a 1:20 dilution.

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81868-03A  
Field Sample ID: TW-3  
Collected: 1/4/2008 4:30:00 PM  
Received: 1/7/2008

Analyzed: 1/9/2008 12:19:00 PM

Analysis Requested: SW8260B/5030B

Analytical Results

8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether

0.0020

< 0.0020

Benzene

0.0010

0.059

Toluene

0.0020

0.0093

Ethylbenzene

0.0020

< 0.0020

Xylenes, Total

0.0020

0.25

Naphthalene

0.0020

0.019

TPH C6 to C10 (GRO)

0.020

0.56

TPH C11 to C15 (DRO)

0.020

< 0.020

Surr: 1,2-Dichloroethane-d4

81-143

106

Surr: 4-Bromofluorobenzene

85-115

103

Surr: Dibromofluoromethane

80-124

103

Surr: Toluene-d8

88-120

101

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-13A  
Field Sample ID: MW-1  
Collected: 1/11/2008 3:45:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 5:10:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 10

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.020	< 0.020
Benzene	0.010	1.3
Toluene	0.020	0.40
Ethylbenzene	0.020	< 0.020
Xylenes, Total	0.020	1.6
Naphthalene	0.020	0.051
TPH C6 to C10 (GRO)	0.20	4.6
TPH C11 to C15 (DRO)	0.20	< 0.20
Surr: 1,2-Dichloroethane-d4	81-143	104
Surr: 4-Bromofluorobenzene	85-115	99.1
Surr: Dibromofluoromethane	80-124	99.4
Surr: Toluene-d8	88-120	101

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81968-07A  
Field Sample ID: MW-5  
Collected: 1/11/2008 2:45:00 PM  
Received: 1/14/2008

Analyzed: 1/15/2008 11:39:00 PM

Analysis Requested: SW8260B/5030B

## Analytical Results

8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.020	4.1 *
Toluene	0.040	0.88 *
Ethylbenzene	0.0020	0.11
Xylenes, Total	0.0020	0.49
Naphthalene	0.0020	0.15
TPH C6 to C10 (GRO)	0.020	8.2
TPH C11 to C15 (DRO)	0.020	0.021
Surr: 1,2-Dichloroethane-d4	81-143	101
Surr: 4-Bromofluorobenzene	85-115	101
Surr: Dibromofluoromethane	80-124	88.9
Surr: Toluene-d8	88-120	103

(801) 263-8686

1-800-868-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

\* These analytes were obtained from a 1:20 dilution.



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-14A  
Field Sample ID: MW-7  
Collected: 1/11/2008 5:20:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 5:35:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 10

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether

0.020

< 0.020

Benzene

0.010

1.4

Toluene

0.020

0.32

Ethylbenzene

0.020

< 0.020

Xylenes, Total

0.020

1.5

Naphthalene

0.020

< 0.020

TPH C6 to C10 (GRO)

0.20

3.9

TPH C11 to C15 (DRO)

0.20

< 0.20

Surr: 1,2-Dichloroethane-d4

81-143

106

Surr: 4-Bromofluorobenzene

85-115

98.6

Surr: Dibromofluoromethane

80-124

99.7

Surr: Toluene-d8

88-120

101

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

# ORGANIC ANALYSIS REPORT



Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-15A  
Field Sample ID: MW-8  
Collected: 1/11/2008 5:40:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 6:25:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.020	0.90 *
Toluene	0.0020	0.21
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.040	1.8 *
Naphthalene	0.0020	0.081
TPH C6 to C10 (GRO)	0.020	4.7
TPH C11 to C15 (DRO)	0.020	0.020
Surr: 1,2-Dichloroethane-d4	81-143	105
Surr: 4-Bromofluorobenzene	85-115	99.2
Surr: Dibromofluoromethane	80-124	97.5
Surr: Toluene-d8	88-120	102

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

\* These analytes were obtained from a 1:20 dilution.



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-16A  
Field Sample ID: MW-9  
Collected: 1/11/2008 5:55:00 PM  
Received: 1/14/2008

Analyzed: 1/17/2008 10:37:00 A

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

**Analytical Results**

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	< 0.0010
Toluene	0.0020	< 0.0020
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	< 0.0020
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	< 0.020
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	104
Surr: 4-Bromofluorobenzene	85-115	99.7
Surr: Dibromofluoromethane	80-124	98.9
Surr: Toluene-d8	88-120	102

(801) 263-8686

1-800-863-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-09A  
Field Sample ID: MW-11  
Collected: 1/11/2008 4:00:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 3:30:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

**Analytical Results**

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	< 0.0010
Toluene	0.0020	< 0.0020
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	< 0.0020
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	< 0.020
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	106
Surr: 4-Bromofluorobenzene	85-115	100
Surr: Dibromofluoromethane	80-124	100
Surr: Toluene-d8	88-120	100

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-10A  
Field Sample ID: MW-12  
Collected: 1/11/2008 4:20:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 3:55:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	< 0.0010
Toluene	0.0020	< 0.0020
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	< 0.0020
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	< 0.020
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	<b>105</b>
Surr: 4-Bromofluorobenzene	85-115	<b>99.9</b>
Surr: Dibromofluoromethane	80-124	<b>101</b>
Surr: Toluene-d8	88-120	<b>102</b>

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

*The pH of the sample was >2. Analysis was performed within 7 day holding time.*



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-11A  
Field Sample ID: MW-13  
Collected: 1/11/2008 4:40:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 4:20:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	< 0.0010
Toluene	0.0020	< 0.0020
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	< 0.0020
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	< 0.020
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	<b>105</b>
Surr: 4-Bromofluorobenzene	85-115	<b>100</b>
Surr: Dibromofluoromethane	80-124	<b>98.3</b>
Surr: Toluene-d8	88-120	<b>101</b>

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-12A  
Field Sample ID: MW-14  
Collected: 1/11/2008 4:55:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 4:45:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

**8260-W-MBTEXN/TPH**

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	< 0.0010
Toluene	0.0020	< 0.0020
Ethylbenzene	0.0020	< 0.0020
Xylenes, Total	0.0020	< 0.0020
Naphthalene	0.0020	< 0.0020
TPH C6 to C10 (GRO)	0.020	< 0.020
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	106
Surr: 4-Bromofluorobenzene	85-115	101
Surr: Dibromofluoromethane	80-124	101
Surr: Toluene-d8	88-120	101

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-08A  
Field Sample ID: TW-4  
Collected: 1/11/2008 3:30:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 4:40:00 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

## 8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.050	6.0 *
Toluene	0.10	3.8 *
Ethylbenzene	0.10	0.60 *
Xylenes, Total	0.10	6.4 *
Naphthalene	0.10	0.26 *
TPH C6 to C10 (GRO)	0.020	27
TPH C11 to C15 (DRO)	0.020	0.11
Surr: 1,2-Dichloroethane-d4	81-143	100
Surr: 4-Bromofluorobenzene	85-115	112
Surr: Dibromofluoromethane	80-124	96.4
Surr: Toluene-d8	88-120	107

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

\* These analytes were obtained from a 1:50 dilution.



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-04A  
Field Sample ID: WS-1  
Collected: 1/11/2008 2:15:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 7:15:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 10

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.020	< 0.020
Benzene	0.10	5.7 *
Toluene	0.20	3.2 *
Ethylbenzene	0.020	1.1
Xylenes, Total	0.020	5.6
Naphthalene	0.020	0.23
TPH C6 to C10 (GRO)	0.20	37
TPH C11 to C15 (DRO)	0.20	< 0.20
Surr: 1,2-Dichloroethane-d4	81-143	106
Surr: 4-Bromofluorobenzene	85-115	97.6
Surr: Dibromofluoromethane	80-124	97.4
Surr: Toluene-d8	88-120	103

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

\* These analytes were obtained from a 1:100 dilution.

The pH of the sample was >2. Analysis was performed within 7 day holding time.



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-05A  
Field Sample ID: WS-2  
Collected: 1/11/2008 2:30:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 4:15:00 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

## 8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 1

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0020	< 0.0020
Benzene	0.0010	0.058
Toluene	0.0020	0.011
Ethylbenzene	0.0020	0.012
Xylenes, Total	0.0020	0.043
Naphthalene	0.0020	0.0021
TPH C6 to C10 (GRO)	0.020	0.88
TPH C11 to C15 (DRO)	0.020	< 0.020
Surr: 1,2-Dichloroethane-d4	81-143	103
Surr: 4-Bromofluorobenzene	85-115	102
Surr: Dibromofluoromethane	80-124	102
Surr: Toluene-d8	88-120	102

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-06A  
Field Sample ID: WS-3  
Collected: 1/11/2008 2:00:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 7:40:00 PM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030B

## Analytical Results

8260-W-MBTEXN/TPH

Units = mg/L

Dilution Factor = 10

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.020	< 0.020
Benzene	0.010	<b>0.22</b>
Toluene	0.020	< 0.020
Ethylbenzene	0.020	<b>0.38</b>
Xylenes, Total	0.020	<b>0.049</b>
Naphthalene	0.020	<b>0.084</b>
TPH C6 to C10 (GRO)	0.20	<b>9.2</b>
TPH C11 to C15 (DRO)	0.20	< 0.20
Surr: 1,2-Dichloroethane-d4	81-143	<b>104</b>
Surr: 4-Bromofluorobenzene	85-115	<b>99.4</b>
Surr: Dibromofluoromethane	80-124	<b>97.8</b>
Surr: Toluene-d8	88-120	<b>101</b>

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

*The pH of the sample was >2. Analysis was performed within 7 day holding time.*



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

Lab Sample ID: L81417-01A  
Field Sample ID: **FracTank**  
Collected: 12/6/2007  
Received: 12/6/2007

Analyzed: 12/10/2007 8:02:00 A

AnalysisRequested: 8260B/5030B

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

## Analytical Results

## VOLATILES by GC/MS 8260B

Units=  $\mu\text{g/L}$

DilutionFactor= 20

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	ReportingLimit	Analytical Result
1,1,1,2-Tetrachloroethane	40	< 40
1,1,1-Trichloroethane	40	< 40
1,1,2,2-Tetrachloroethane	40	< 40
1,1,2-Trichloro-1,2,2-trifluoroethane	40	< 40
1,1,2-Trichloroethane	40	< 40
1,1-Dichloro-1-propene	40	< 40
1,1-Dichloroethane	40	< 40
1,1-Dichloroethene	40	< 40
1,2,3-Trichlorobenzene	40	< 40
1,2,3-Trichloropropane	40	< 40
1,2,3-Trimethylbenzene	40	<b>230</b>
1,2,4-Trichlorobenzene	40	< 40
1,2,4-Trimethylbenzene	40	<b>690</b>
1,2-Dibromo-3-chloropropane	100	< 100
1,2-Dibromoethane	40	< 40
1,2-Dichlorobenzene	40	< 40
1,2-Dichloroethane	40	< 40
1,2-Dichloropropane	40	< 40
1,3,5-Trimethylbenzene	40	<b>170</b>
1,3-Dichlorobenzene	40	< 40
1,3-Dichloropropane	40	< 40
1,4-Dichlorobenzene	40	< 40
1,4-Dioxane	1000	< 1000
2,2-Dichloropropane	40	< 40
2-Butanone	200	< 200
2-Chloroethylvinylether	100	< 100
2-Hexanone	100	< 100
2-Nitropropane	100	< 100
4-Methyl-2-pentanone	100	< 100

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81417-01A  
 Field Sample ID: **FracTank**  
 Collected: 12/6/2007  
 Received: 12/6/2007

Analyzed: 12/10/2007 8:02:00 A

Analysis Requested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units=  $\mu\text{g/L}$   
 Dilution Factor= 20

Compound	Reporting Limit	Analytical Result
Acetone	200	< 200
Acetonitrile	100	< 100
Acrolein	100	< 100
Acrylonitrile	200	< 200
Allylchloride	100	< 100
Benzene	40	<b>2400</b>
Benzylchloride	100	< 100
Bromobenzene	40	< 40
Bromochloromethane	40	< 40
Bromodichloromethane	40	< 40
Bromoform	40	< 40
Bromomethane	100	< 100
Butylacetate	100	< 100
Carbendisulfide	40	< 40
Carbontetrachloride	40	< 40
Chlorobenzene	40	< 40
Chloroethane	40	< 40
Chloroform	40	< 40
Chloromethane	60	< 60
Chloroprene	40	< 40
cis1,2-Dichloroethene	40	< 40
cis1,3-Dichloropropene	40	< 40
Cyclohexane	40	<b>120</b>
Cyclohexanone	1000	< 1000
Dibromochloromethane	40	< 40
Dibromomethane	40	< 40
Dichlorodifluoromethane	40	< 40
Ethylacetate	200	< 200
Ethylether	200	< 200
Ethylmethacrylate	40	< 40
Ethylbenzene	40	<b>200</b>
Iodomethane	100	< 100
Isobutylalcohol	2000	< 2000

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



Lab Sample ID: L81417-01A  
 Field Sample ID: **FracTank**  
 Collected: 12/6/2007  
 Received: 12/6/2007

Analyzed: 12/10/2007 8:02:00 A

Analysis Requested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units= µg/L  
 Dilution Factor= 20

Compound	Reporting Limit	Analytical Result
Isopropylacetate	40	< 40
Isopropylalcohol	500	< 500
Isopropylbenzene	40	< 40
Isopropyltoluene	40	< 40
Methacrylonitrile	100	< 100
MethylAcetate	100	< 100
Methylmethacrylate	100	< 100
Methyltert-butylether	40	< 40
Methylcyclohexane	40	<b>120</b>
Methylenechloride	40	< 40
n-Amylacetate	40	< 40
n-Butylalcohol	1000	< 1000
n-Butylbenzene	40	< 40
n-Propylbenzene	40	< 40
Naphthalene	40	<b>100</b>
o-Chlorotoluene	40	< 40
p-Chlorotoluene	40	< 40
Pentachloroethane	100	< 100
Propionitrile	500	< 500
Propylacetate	40	< 40
sec-Butylbenzene	40	< 40
Styrene	40	< 40
tert-Butylbenzene	40	< 40
Tetrachloroethene	40	< 40
Tetrahydrofuran	40	< 40
Toluene	40	<b>3500</b>
trans 1,2-Dichloroethene	40	< 40
trans 1,3-Dichloropropene	40	< 40
trans 1,4-Dichloro-2-butene	40	< 40
Trichlorofluoromethane	40	< 40
Trichloroethene	40	< 40
Vinylacetate	200	< 200
Vinylchloride	20	< 20

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

e-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



Lab Sample ID: L81417-01A  
 Field Sample ID: **Frac Tank**  
 Collected: 12/6/2007  
 Received: 12/6/2007

Analyzed: 12/10/2007 8:02:00 A

Analysis Requested: 8260B/5030B

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 8260B**

Units=  $\mu\text{g/L}$

Dilution Factor= 20

Compound	Reporting Limit	Analytical Result
m & p Xylene	40	<b>3400</b>
o-Xylene	40	<b>1900</b>
Xylenes, Total	40	<b>5300</b>
n-Hexane	40	< 40
n-Octane	40	< 40
tert-Butylalcohol	400	< 400
Hexachlorobutadiene	40	< 40
Bis(2-chloroisopropyl)ether	100	< 100
TPH C6 to C10 (GRO)	400	<b>12000</b>
TPH C11 to C15 (DRO)	400	< 400
Surr:1,2-Dichloroethane-d4	81-143	<b>115</b>
Surr:4-Bromofluorobenzene	85-115	<b>94.8</b>
Surr:Dibromofluoromethane	80-124	<b>102</b>
Surr:Toluene-d8	88-120	<b>99.1</b>

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

1-800-868-6886

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

\* Carbon disulfide was obtained from an analysis acquired on 10 Dec 2007 7:19 am.



INORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81797-01C  
Field Sample ID: **Frac Tank 001**  
Collected: 12/28/2007 9:00:00 AM  
Received: 12/28/2007

463 West 3600 South  
Salt Lake City, Utah  
84115

**TOTAL METALS**

<b>Analytical Results</b>	<b>Units</b>	<b>Date Analyzed</b>	<b>Method Used</b>	<b>Reporting Limit</b>	<b>Analytical Results</b>
Lead	mg/L	1/3/2008 8:21:24 PM	200.8	0.00010	<b>0.00083</b>

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



## INORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81797-01  
Field Sample ID: **Frac Tank 001**  
Collected: 12/28/2007 9:00:00 AM  
Received: 12/28/2007

463 West 3600 South  
Salt Lake City, Utah  
84115

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Analytical Result
Oil & Grease	mg/L	12/28/2007 4:00:00 PM	1664A	3.0	3.2
pH @ 25° C	pH Units	12/28/2007 5:40:00 PM	4500H+B	1.00	8.92
TDS	mg/L	12/28/2007 2:00:00 PM	160.1	20	2000
TSS	mg/L	12/28/2007 3:45:00 PM	2540D	3.0	7.0

(801) 263-8686

800 Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

Lab SampleID: L81797-01F  
Field SampleID: **Frac Tank 001**  
Collected: 12/28/2007 9:00:00 AM  
Received: 12/28/2007

Extracted: 12/31/2007  
Analyzed: 1/2/2008 10:47:33 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

AnalysisRequested: 608

## Analytical Results Priority Poll. Organochlorine Pest/PCBs by 608

Units= µg/L

DilutionFactor= 1

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	ReportingLimit	Analytical Result
Aldrin	0.020	< 0.020
alpha-BHC	0.020	< 0.020
beta-BHC	0.020	< 0.020
delta-BHC	0.020	< 0.020
gamma-BHC(lindane)	0.020	< 0.020
Chlordane	0.20	< 0.20
4,4'-DDD	0.020	< 0.020
4,4'-DDE	0.020	< 0.020
4,4'-DDT	0.020	< 0.020
Dieldrin	0.020	< 0.020
EndosulfanI	0.020	< 0.020
EndosulfanII	0.020	< 0.020
Endosulfansulfate	0.020	< 0.020
Endrin	0.020	< 0.020
Endrin aldehyde	0.020	< 0.020
Heptachlor	0.020	< 0.020
Heptachlorepoxyde	0.020	< 0.020
Toxaphene	0.25	< 0.25
Aroclor 1016	0.50	< 0.50
Aroclor 1221	0.50	< 0.50
Aroclor 1232	0.50	< 0.50
Aroclor 1242	0.50	< 0.50
Aroclor 1248	0.50	< 0.50
Aroclor 1254	0.50	< 0.50
Aroclor 1260	0.50	< 0.50
Surr:Decachlorobiphenyl	10-123	<b>81.5</b>
Surr:Tetrachloro-m-xylene	44-121	<b>134</b> S

S - Surrogate outside recovery limits. Minimum method criterion of one surrogate within established recovery limits was met.

The MS & MSD for this batch were performed on this sample. Outliers were observed and attributed to matrix. The LCS exhibited method control.

Report Date: 1/4/2008 Page 4 of 9



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab SampleID: L81797-01E  
Field SampleID: **Frac Tank 001**  
Collected: 12/28/2007 9:00:00 AM  
Received: 12/28/2007

Extracted: 12/31/2007  
Analyzed: 1/4/2008 12:05:00 PM

AnalysisRequested: Semi Volatiles by 625

## Analytical Results

## Priority Pollutant SVOAs by 625

Units= µg/L

DilutionFactor= 1

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	ReportingLimit	Analytical Result
Acenaphthene	10	< 10
Acenaphthylene	10	< 10
Anthracene	10	< 10
Benzidine	10	< 10
Benz(a)anthracene	10	< 10
Benzo(a)pyrene	10	< 10
Benzo(b)fluoranthene	10	< 10
Benzo(g,h,i)perylene	10	< 10
Benzo(k)fluoranthene	10	< 10
Bis(2-chloroethoxy)methane	10	< 10
Bis(2-chloroethyl)ether	10	< 10
Bis(2-chloroisopropyl)ether	10	< 10
Bis(2-ethylhexyl)phthalate	10	< 10
4-Bromophenylphenylether	10	< 10
Butylbenzylphthalate	10	< 10
2-Chloronaphthalene	10	< 10
4-Chlorophenylphenylether	10	< 10
Chrysene	10	< 10
Dibenz(a,h)anthracene	10	< 10
1,2-Dichlorobenzene	10	< 10
1,3-Dichlorobenzene	10	< 10
1,4-Dichlorobenzene	10	< 10
3,3'-Dichlorobenzidine	10	< 10
Diethylphthalate	10	< 10
Dimethylphthalate	10	< 10
Di-n-butylphthalate	10	< 10
2,4-Dinitrotoluene	10	< 10
2,6-Dinitrotoluene	10	< 10
Di-n-octylphthalate	10	< 10

(801) 263-8686

oll Free (888) 263-8686

Fax (801) 263-8687

-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81797-01E  
 Field Sample ID: **Frac Tank 001**  
 Collected: 12/28/2007 9:00:00 AM  
 Received: 12/28/2007

Extracted: 12/31/2007  
 Analyzed: 1/4/2008 12:05:00 PM

Analysis Requested: Semi Volatiles by 625

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

**Analytical Results**

**Priority Pollutant SVOAs by 625**

Units= µg/L

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Azobenzene	10	< 10
Fluoranthene	10	< 10
Fluorene	10	< 10
Hexachlorobenzene	10	< 10
Hexachlorobutadiene	10	< 10
Hexachlorocyclopentadiene	10	< 10
Hexachloroethane	10	< 10
Indeno(1,2,3-cd)pyrene	10	< 10
Isophorone	10	< 10
Naphthalene	10	14
Nitrobenzene	10	< 10
N-Nitrosodimethylamine	10	< 10
N-Nitrosodi-n-propylamine	10	< 10
N-Nitrosodiphenylamine	10	< 10
Phenanthrene	10	< 10
Pyrene	10	< 10
1,2,4-Trichlorobenzene	10	< 10
2-Chlorophenol	10	< 10
2,4-Dichlorophenol	10	< 10
2,4-Dimethylphenol	10	< 10
4,6-Dinitro-2-methylphenol	10	< 10
2,4-Dinitrophenol	10	< 10
2-Nitrophenol	10	< 10
4-Nitrophenol	10	< 10
4-Chloro-3-methylphenol	10	< 10
Pentachlorophenol	10	13
Phenol	10	< 10
2,4,6-Trichlorophenol	10	< 10
Surr:2,4,6-Tribromophenol	14-159	90.0
Surr:2-Fluorobiphenyl	10-124	80.2
Surr:2-Fluorophenol	10-106	44.4
Surr:4-Terphenyl-d14	10-199	191
Surr:Nitrobenzene-d5	10-180	85.6



Lab Sample ID: L81797-01E  
 Field Sample ID: **Frac Tank 001**  
 Collected: 12/28/2007 9:00:00 AM  
 Received: 12/28/2007

Extracted: 12/31/2007  
 Analyzed: 1/4/2008 12:05:00 PM

Analysis Requested: Semi Volatiles by 625

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**Priority Pollutant SVOAs by 625**

Units=  $\mu\text{g/L}$

Dilution Factor= 1

Compound

Reporting Limit

Analytical

Result

Surr:Phenol-d6

10-122

31.2

*The MS & MSD for this batch were performed on this sample. Outliers were observed and attributed to matrix.  
 The LCS exhibited method control.*

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

1-800-868-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: GunnisonRemediation/1241-026A

Contact: LesPennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab SampleID: L81797-01D  
Field SampleID: **Frac Tank 001**  
Collected: 12/28/2007 9:00:00 AM  
Received: 12/28/2007

Analyzed: 1/3/2008 12:58:00 PM

AnalysisRequested: USEPA 624

## Analytical Results

## VOLATILES by GC/MS 624

Units= µg/L

DilutionFactor= 1

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	ReportingLimit	Analytical Result
1,1,1-Trichloroethane	2.0	< 2.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0
1,1,2-Trichloroethane	2.0	< 2.0
1,1-Dichloroethane	2.0	< 2.0
1,1-Dichloroethene	2.0	< 2.0
1,2-Dichloroethane	2.0	< 2.0
1,2-Dichloropropane	2.0	< 2.0
2-Chloroethylvinylether	5.0	< 5.0
Acrolein	5.0	< 5.0
Acrylonitrile	10	< 10
Benzene	2.0	< 2.0
Bromodichloromethane	2.0	< 2.0
Bromoform	2.0	< 2.0
Bromomethane	5.0	< 5.0
Carbontetrachloride	2.0	< 2.0
Chlorobenzene	2.0	< 2.0
Chloroethane	2.0	< 2.0
Chloroform	2.0	< 2.0
Chloromethane	5.0	< 5.0
cis 1,3-Dichloropropene	2.0	< 2.0
Dibromochloromethane	2.0	< 2.0
Ethylbenzene	2.0	< 2.0
Methylenechloride	2.0	< 2.0
Naphthalene	2.0	<b>20</b>
Tetrachloroethene	2.0	< 2.0
Toluene	2.0	< 2.0
trans 1,2-Dichloroethene	2.0	< 2.0
trans 1,3-Dichloropropene	2.0	< 2.0
Trichloroethene	2.0	< 2.0

(801) 263-8686

800 Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director



Lab Sample ID: L81797-01D  
 Field Sample ID: **Frac Tank 001**  
 Collected: 12/28/2007 9:00:00 AM  
 Received: 12/28/2007

Analyzed: 1/3/2008 12:58:00 PM

Analysis Requested: USEPA 624

AMERICAN  
 WEST  
 ANALYTICAL  
 LABORATORIES

**Analytical Results**

**VOLATILES by GC/MS 624**

Units=  $\mu\text{g/L}$

Dilution Factor= 1

Compound	Reporting Limit	Analytical Result
Vinylchloride	1.0	< 1.0
Xylenes, Total	2.0	< 2.0
Total Purgable Petroleum Hydrocarbons (C6 to C15)	20	22
Surr: 1,2-Dichloroethane-d4	81-143	100
Surr: 4-Bromofluorobenzene	85-115	100
Surr: Dibromofluoromethane	80-124	100
Surr: Toluene-d8	88-120	102

463 West 3600 South  
 Salt Lake City, Utah  
 84115

(801) 263-8686

800 Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-labs.com

Kyle F. Gross  
 Laboratory Director

## Appendix C

### Laboratory Soil Sample Results



## ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-01A  
Field Sample ID: SS#1 @ 13'  
Collected: 8/14/2007 1:55:00 PM  
Received: 8/16/2007

Extracted: 8/21/2007  
Analyzed: 8/24/2007 12:53:13 A

Analysis Requested: TPH by SW8015B

### Analytical Results

TPH-DRO by 8015B/3545

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Total Petroleum Hydrocarbon (DRO - C10-28)	24	< 24
Surr: 4-Bromofluorobenzene	10-169	65.0

Units = mg/kg-dry  
Dilution Factor = 1

% Moisture: 17

(801) 263-8686

Oil Free (888) 263-8686

Fax (801) 263-8687

mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-01A  
Field Sample ID: SS#1 @ 13'  
Collected: 8/14/2007 1:55:00 PM  
Received: 8/16/2007

Analyzed: 8/22/2007 9:17:00 PM

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/GRO

Units = mg/kg-dry

% Moisture: 17

Dilution Factor = 2.5

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether

0.0060

< 0.0060

Benzene

0.0030

0.022

Toluene

0.0060

< 0.0060

Ethylbenzene

0.0060

< 0.0060

Xylenes, Total

0.0060

< 0.0060

Naphthalene

0.0060

< 0.0060

TPH C6 to C10 (GRO)

0.060

4.9

Surr: 1,2-Dichloroethane-d4

72-135

104

Surr: 4-Bromofluorobenzene

71-144

103

Surr: Dibromofluoromethane

73-126

101

Surr: Toluene-d8

72-129

106

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnisen / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-02A  
Field Sample ID: SS#2 @ 13'  
Collected: 8/14/2007 1:35:00 PM  
Received: 8/16/2007

Extracted: 8/21/2007  
Analyzed: 8/24/2007 1:54:29 AM

Analysis Requested: TPH by SW8015B

## Analytical Results

## TPH-DRO by 8015B/3545

Units = mg/kg-dry

% Moisture: 16

Dilution Factor = 1

Compound

Reporting Limit

Analytical  
Result

Total Petroleum Hydrocarbon (DRO - C10-28)

24

< 24

Surr: 4-Bromofluorobenzene

10-169

56.0

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686

800 Free (888) 263-8686

Fax (801) 263-8687

Email: awal@awai-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-02A  
Field Sample ID: SS#2 @ 13'  
Collected: 8/14/2007 1:35:00 PM  
Received: 8/16/2007

Analyzed: 8/23/2007 1:57:00 AM

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 16

Dilution Factor = 2.46

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0059	< 0.0059
Benzene	0.0029	< 0.0029
Toluene	0.0059	< 0.0059
Ethylbenzene	0.0059	< 0.0059
Xylenes, Total	0.0059	< 0.0059
Naphthalene	0.0059	< 0.0059
TPH C6 to C10 (GRO)	0.059	< 0.059
Surr: 1,2-Dichloroethane-d4	72-135	106
Surr: 4-Bromofluorobenzene	71-144	101
Surr: Dibromofluoromethane	73-126	102
Surr: Toluene-d8	72-129	103

(801) 263-8686

Call Free (888) 263-8686

Fax (801) 263-8687

Mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-04A  
Field Sample ID: SS#4 @ 13'  
Collected: 8/15/2007 10:25:00 AM  
Received: 8/16/2007

Analyzed: 8/23/2007 2:17:00 AM

Analysis Requested: SW8260B/5030A

Analytical Results

8260-S-MBTEXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 16

Dilution Factor = 2.49

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0059	< 0.0059
Benzene	0.0030	0.0052
Toluene	0.0059	0.013
Ethylbenzene	0.0059	< 0.0059
Xylenes, Total	0.0059	< 0.0059
Naphthalene	0.0059	< 0.0059
TPH C6 to C10 (GRO)	0.059	0.13
Surr: 1,2-Dichloroethane-d4	72-135	106
Surr: 4-Bromofluorobenzene	71-144	104
Surr: Dibromofluoromethane	73-126	99.4
Surr: Toluene-d8	72-129	104

(801) 263-8686  
Oil Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-04A  
Field Sample ID: SS#4 @ 13'  
Collected: 8/15/2007 10:25:00 AM  
Received: 8/16/2007

Extracted: 8/21/2007  
Analyzed: 8/24/2007 2:55:48 AM

Analysis Requested: TPH by SW8015B

Analytical Results

TPH-DRO by 8015B/3545

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Units = mg/kg-dry		% Moisture: 16
Dilution Factor = 1		
Total Petroleum Hydrocarbon (DRO - C10-28)	24	< 24
Surr: 4-Bromofluorobenzene	10-169	58.5

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



## ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Main Street Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79393-08A  
Field Sample ID: SS#5 @ 2.5'  
Collected: 8/15/2007 1:00:00 PM  
Received: 8/16/2007

Analyzed: 8/18/2007 9:33:00 AM

Analysis Requested: SW8260B/5030A

### Analytical Results

8260-S-MBTEXN/TPH

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 12

Dilution Factor = 2.51

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether	0.0057	< 0.0057
Benzene	0.0028	< 0.0028
Toluene	0.0057	< 0.0057
Ethylbenzene	0.0057	< 0.0057
Xylenes, Total	0.0057	< 0.0057
Naphthalene	0.0057	< 0.0057
TPH C6 to C10 (GRO)	0.057	< 0.057
TPH C11 to C15 (DRO)	0.057	< 0.057
Surr: 1,2-Dichloroethane-d4	72-135	106
Surr: 4-Bromofluorobenzene	71-144	95.2
Surr: Dibromofluoromethane	73-126	102
Surr: Toluene-d8	72-129	102

(801) 263-8686

Oil Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awat-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ANALYTICAL REPORT

Client: Wasatch Environmental  
Project ID:: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-05A  
Field Sample ID: SS#5 @ 13'  
Collected: 8/15/2007 10:25:00 AM  
Received: 8/16/2007

Analyzed: 8/23/2007

Analysis Requested: USC

Result

USC

463 West 3600 South  
Salt Lake City, Utah  
84115

Uniform Soil Classification

CH - Fat Clay

(801) 263-8686

1-800-868-8686

Fax (801) 263-8687

Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Main Street Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79393-10A  
Field Sample ID: SS#6 @ 3.5'  
Collected: 8/15/2007 2:10:00 PM  
Received: 8/16/2007

Analyzed: 8/18/2007 10:13:00 A

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/TPH

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 8.4

Dilution Factor = 2.51

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0055	< 0.0055
Benzene	0.0027	< 0.0027
Toluene	0.0055	< 0.0055
Ethylbenzene	0.0055	< 0.0055
Xylenes, Total	0.0055	< 0.0055
Naphthalene	0.0055	< 0.0055
TPH C6 to C10 (GRO)	0.055	< 0.055
TPH C11 to C15 (DRO)	0.055	< 0.055
Surr: 1,2-Dichloroethane-d4	72-135	108
Surr: 4-Bromofluorobenzene	71-144	94.7
Surr: Dibromofluoromethane	73-126	103
Surr: Toluene-d8	72-129	102

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
-mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



## ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-06A  
Field Sample ID: SS#6 @ 4'  
Collected: 8/14/2007 3:20:00 PM  
Received: 8/16/2007

Extracted: 8/21/2007  
Analyzed: 8/24/2007 3:16:19 AM

Analysis Requested: TPH by SW8015B

### Analytical Results

TPH-DRO by 8015B/3545

Compound	Reporting Limit	Analytical Result
Total Petroleum Hydrocarbon (DRO - C10-28)	24	< 24
Surr: 4-Bromofluorobenzene	10-169	56.0

Units = mg/kg-dry

% Moisture: 17

Dilution Factor = 1

463 West 3600 South  
Salt Lake City, Utah  
84115

Analytical

Result

Compound

Reporting Limit

Total Petroleum Hydrocarbon (DRO - C10-28)

24

< 24

Surr: 4-Bromofluorobenzene

10-169

56.0

(801) 263-8686

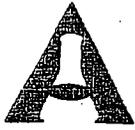
1-800-888-2638

Fax (801) 263-8687

Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



## ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-06A  
Field Sample ID: SS#6 @ 4'  
Collected: 8/14/2007 3:20:00 PM  
Received: 8/16/2007

Analyzed: 8/23/2007 2:37:00 AM

Analysis Requested: SW8260B/5030A

### Analytical Results

8260-S-MBTEXN/GRO

Units = mg/kg-dry

% Moisture: 17

Dilution Factor = 2.55

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether	0.0062	< 0.0062
Benzene	0.0031	< 0.0031
Toluene	0.0062	< 0.0062
Ethylbenzene	0.0062	< 0.0062
Xylenes, Total	0.0062	< 0.0062
Naphthalene	0.0062	< 0.0062
TPH C6 to C10 (GRO)	0.062	< 0.062
Surr: 1,2-Dichloroethane-d4	72-135	107
Surr: 4-Bromofluorobenzene	71-144	97.1
Surr: Dibromofluoromethane	73-126	102
Surr: Toluene-d8	72-129	102

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-07A  
Field Sample ID: SS#7 @ 4'  
Collected: 8/14/2007 2:45:00 PM  
Received: 8/16/2007

Analyzed: 8/23/2007 2:57:00 AM

Analysis Requested: SW8260B/5030A

Analytical Results

8260-S-MBTEXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 16

Dilution Factor = 2.48

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether

0.0059

< 0.0059

Benzene

0.0029

< 0.0029

Toluene

0.0059

< 0.0059

Ethylbenzene

0.0059

< 0.0059

Xylenes, Total

0.0059

0.031

Naphthalene

0.0059

< 0.0059

TPH C6 to C10 (GRO)

0.059

< 0.059

Surr: 1,2-Dichloroethane-d4

72-135

107

Surr: 4-Bromofluorobenzene

71-144

97.2

Surr: Dibromofluoromethane

73-126

102

Surr: Toluene-d8

72-129

101

(301) 263-8686  
Toll Free (888) 263-8686  
Fax (301) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-07A  
Field Sample ID: SS#7 @ 4'  
Collected: 8/14/2007 2:45:00 PM  
Received: 8/16/2007

Extracted: 8/21/2007  
Analyzed: 8/24/2007 3:36:37 AM

Analysis Requested: TPH by SW8015B

Analytical Results

TPH-DRO by 8015B/3545

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 16

Dilution Factor = 1

Compound	Reporting Limit	Analytical Result
Total Petroleum Hydrocarbon (DRO - C10-28)	24	< 24
Surr: 4-Bromofluorobenzene	10-169	49.9

(801) 263-8686  
Oil Free (888) 263-8686  
Fax (801) 263-8687  
Email: awai@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-08A  
Field Sample ID: SS#8 @ 4'  
Collected: 8/14/2007 2:30:00 PM  
Received: 8/16/2007

Extracted: 8/21/2007  
Analyzed: 8/24/2007 2:29:08 PM

Analysis Requested: TPH by SW8015B

## Analytical Results

TPH-DRO by 8015B/3545

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result	% Moisture:
Units = mg/kg-dry			17
Dilution Factor = 20			
Total Petroleum Hydrocarbon (DRO - C10-28)	480	5100	
Surr: 4-Bromofluorobenzene	10-169	185	S

*S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the MB & LCS.*

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-08A  
Field Sample ID: SS#8 @ 4'  
Collected: 8/14/2007 2:30:00 PM  
Received: 8/16/2007

Analyzed: 8/23/2007 12:18:00 PM

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/GRO

Units = mg/kg-dry  
Dilution Factor = 50

% Moisture: 17

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.12	< 0.12
Benzene	0.060	1.2
Toluene	0.12	11
Ethylbenzene	1.2	25
Xylenes, Total	1.2	200 *
Naphthalene	0.12	15 *
TPH C6 to C10 (GRO)	1.2	1200
Surr: 1,2-Dichloroethane-d4	72-135	88.1
Surr: 4-Bromofluorobenzene	71-144	100
Surr: Dibromofluoromethane	73-126	79.5
Surr: Toluene-d8	72-129	81.2

\* These analytes were obtained from a 1:500 dilution.

Sample required a methanol extraction that was performed by method 5035A (an improved version of the Utah certified method 5035).

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



## ANALYTICAL REPORT

Client: Wasatch Environmental  
Project ID: Top Stop Gunnison / 1241-026

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79394-09A  
Field Sample ID: SS#9 @ 4'  
Collected: 8/14/2007 2:30:00 PM  
Received: 8/16/2007

Analyzed: 8/23/2007

Analysis Requested: USC

### Result

USC

463 West 3600 South  
Salt Lake City, Utah  
84115

Uniform Soil Classification

CL - Sandy Fat Clay

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Main Street Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79393-17A  
Field Sample ID: SS#9A @ 8'  
Collected: 8/15/2007 3:40:00 PM  
Received: 8/16/2007

Analyzed: 8/18/2007 10:33:00 A

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/TPH

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 16

Dilution Factor = 2.48

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0060	< 0.0060
Benzene	0.0030	< 0.0030
Toluene	0.0060	< 0.0060
Ethylbenzene	0.0060	< 0.0060
Xylenes, Total	0.0060	< 0.0060
Naphthalene	0.0060	< 0.0060
TPH C6 to C10 (GRO)	0.060	< 0.060
TPH C11 to C15 (DRO)	0.060	< 0.060
Surr: 1,2-Dichloroethane-d4	72-135	116
Surr: 4-Bromofluorobenzene	71-144	93.8
Surr: Dibromofluoromethane	73-126	109
Surr: Toluene-d8	72-129	99.4

(801) 263-8686

1-800-888-2638

Fax (801) 263-8687

E-mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: Gunnison Top Stop/1241-026

Contact: TerrySmith

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79632-01A  
Field Sample ID: SS#11  
Collected: 8/27/2007 12:20:00 PM  
Received: 8/29/2007

Analyzed: 8/30/2007 11:50:00 A

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/TPH

Units= mg/kg-dry

% Moisture: 18

Dilution Factor= 50

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound

Reporting Limit

Analytical  
Result

Methyltert-butylether	0.12	< 0.12
Benzene	0.061	0.17
Toluene	0.12	2.9
Ethylbenzene	0.12	3.6
Xylenes, Total	0.12	30
Naphthalene	1.2	24 *
TPH C6 to C10 (GRO)	1.2	420
TPH C11 to C15 (DRO)	1.2	390
Surr:1,2-Dichloroethane-d4	72-135	85.0
Surr:4-Bromofluorobenzene	71-144	92.3
Surr:Dibromofluoromethane	73-126	82.8
Surr:Toluene-d8	72-129	88.0

\* This analyte was obtained from a 1:500 dilution.

Sample required a methanol extraction that was performed by method 5035A (an improved version of the Utah certified method 5035).

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: WasatchEnvironmental  
ProjectID: Gunnison Top Stop/1241-026

Contact: TerrySmith

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab SampleID: L79632-02A  
Field SampleID: SS#12  
Collected: 8/27/2007 12:25:00 PM  
Received: 8/29/2007

Analyzed: 8/30/2007 12:10:00P

AnalysisRequested: SW8260B/5030A

**Analytical Results**

**8260-S-MBTEXN/TPH**

Compound	ReportingLimit	Analytical Result	% Moisture: 16
Methyltert-butylether	0.12	< 0.12	
Benzene	0.059	0.18	
Toluene	0.12	3.3	
Ethylbenzene	0.12	3.9	
Xylenes, Total	0.12	32	
Naphthalene	1.2	31	*
TPH C6 to C10 (GRO)	1.2	510	
TPH C11 to C15 (DRO)	1.2	730	
Surr:1,2-Dichloroethane-d4	72-135	81.4	
Surr:4-Bromofluorobenzene	71-144	91.5	
Surr:Dibromofluoromethane	73-126	83.2	
Surr:Toluene-d8	72-129	88.0	

\* This analyte was obtained from a 1:500 dilution.  
Sample required a methanol extraction that was performed by method 5035A (an improved version of the Utah certified method 5035).

463 West 3600 South  
Salt Lake City, Utah  
84115

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79436-02A  
Field Sample ID: SS#15A @ 11'  
Collected: 8/17/2007 12:15:00 PM  
Received: 8/17/2007

Analyzed: 8/24/2007 2:46:00 PM

Analysis Requested: SW8260B/5030A

**Analytical Results**

**8260-S-MBTEXN/GRO**

Units = mg/kg-dry

% Moisture: 23

Dilution Factor = 500

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	1.3	< 1.3
Benzene	0.65	81
Toluene	13	410 *
Ethylbenzene	1.3	120
Xylenes, Total	13	610 *
Naphthalene	1.3	24
TPH C6 to C10 (GRO)	13	3100
Surr: 1,2-Dichloroethane-d4	72-135	94.7
Surr: 4-Bromofluorobenzene	71-144	98.4
Surr: Dibromofluoromethane	73-126	88.5
Surr: Toluene-d8	72-129	99.0

\* These analytes were obtained from a 1:5,000 dilution.

Sample required a methanol extraction that was performed by method 5035A (an improved version of the Utah certified method 5035).

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
Email: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicoli  
QA Officer



## ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79436-03A  
Field Sample ID: SS#16A @ 13'  
Collected: 8/17/2007 12:45:00 PM  
Received: 8/17/2007

Analyzed: 8/23/2007 3:57:00 AM

Analysis Requested: SW8260B/5030A

### Analytical Results

8260-S-MBTEXN/GRO

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0061	< 0.0061
Benzene	0.0031	0.29
Toluene	0.0061	0.32
Ethylbenzene	0.0061	< 0.0061
Xylenes, Total	0.0061	0.093
Naphthalene	0.0061	< 0.0061
TPH C6 to C10 (GRO)	0.061	0.91
Surr: 1,2-Dichloroethane-d4	72-135	97.1
Surr: 4-Bromofluorobenzene	71-144	98.3
Surr: Dibromofluoromethane	73-126	94.8
Surr: Toluene-d8	72-129	103

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 17

Dilution Factor = 2.54

Analytical  
Result

(801) 263-8686

Toll Free (888) 263-8686

Fax (801) 263-8687

E-mail: awal@awal-Labs.com

Kyle F. Gress  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79436-03A  
Field Sample ID: SS#16A @ 13'  
Collected: 8/17/2007 12:45:00 PM  
Received: 8/17/2007

Analyzed: 8/23/2007 3:57:00 AM

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Units = mg/kg-dry

% Moisture: 17

Dilution Factor = 2.54

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0061	< 0.0061
Benzene	0.0031	0.29
Toluene	0.0061	0.32
Ethylbenzene	0.0061	< 0.0061
Xylenes, Total	0.0061	0.093
Naphthalene	0.0061	< 0.0061
TPH C6 to C10 (GRO)	0.061	0.91
Surr: 1,2-Dichloroethane-d4	72-135	97.1
Surr: 4-Bromofluorobenzene	71-144	98.3
Surr: Dibromofluoromethane	73-126	94.8
Surr: Toluene-d8	72-129	103

(801) 263-8686

Oil Free (888) 263-8686

Fax (801) 263-8687

-mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L79436-04A  
Field Sample ID: SS#17A @ 8'  
Collected: 8/17/2007 1:00:00 PM  
Received: 8/17/2007

Analyzed: 8/23/2007 4:17:00 AM

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/GRO

463 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Units = mg/kg-dry		% Moisture: 11
Dilution Factor = 2.48		
Methyl tert-butyl ether	0.0056	< 0.0056
Benzene	0.0028	0.0030
Toluene	0.0056	< 0.0056
Ethylbenzene	0.0056	< 0.0056
Xylenes, Total	0.0056	< 0.0056
Naphthalene	0.0056	< 0.0056
TPH C6 to C10 (GRO)	0.056	< 0.056
Surr: 1,2-Dichloroethane-d4	72-135	99.2
Surr: 4-Bromofluorobenzene	71-144	95.8
Surr: Dibromofluoromethane	73-126	95.9
Surr: Toluene-d8	72-129	103

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
E-mail: awal@awal-Labs.com

Kyle F. Gross  
Laboratory Director

Peggy McNicol  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81868-01A  
Field Sample ID: Boring B243@ 14' depth  
Collected: 1/4/2008 3:50:00 PM  
Received: 1/7/2008

Analyzed: 1/8/2008 8:47:00 AM

Analysis Requested: SW8260B/5030A

Analytical Results

8260-S-MBTEXN/TPH

Units = mg/kg-dry

% Moisture: 5.3

Dilution Factor = 2.5

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0053	< 0.0053
Benzene	0.0026	< 0.0026
Toluene	0.0053	< 0.0053
Ethylbenzene	0.0053	< 0.0053
Xylenes, Total	0.0053	0.033
Naphthalene	0.0053	0.018
TPH C6 to C10 (GRO)	0.053	0.17
TPH C11 to C15 (DRO)	0.053	0.14
Surr: 1,2-Dichloroethane-d4	72-135	93.9
Surr: 4-Bromofluorobenzene	71-144	109
Surr: Dibromofluoromethane	73-126	99.8
Surr: Toluene-d8	72-129	109

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

DATE DRILLED:	November 19, 2007
LOGGED BY:	Les Pennington
REFERENCE ELEVATION:	—
DRILL RIG:	Mobile B61
TOTAL DEPTH:	18'
DEPTH TO GROUNDWATER:	14' ATD

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sampler	Blows/Foot	OVM (PPM)	Water Level	Well Construction
Description and Remarks	Color	Consist.	Soil Type						
Silty SAND/Sandy SILT	Light Brown	Medium Dense	SM/ML	1					
				2					
				3		0			
				4					
				5					
				6					
				7					
				8		0			
				9					
				10					
				11					
				12					
				13					
				14		0			
				15					
				16					
GRAVEL and COBBLES	Light Brown	Dense	GM	17					
Refusal at 18'				18					
				19					
				20					



Environmental Science and Engineering

WELL LOG

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

WELL NO.: MW-3

DATE DRILLED:	November 20, 2007
LOGGED BY:	Les Pennington
REFERENCE ELEVATION:	—
DRILL RIG:	Mobile B61
TOTAL DEPTH:	19'
DEPTH TO GROUNDWATER:	14' ATD

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sampler	Blows/Foot	OVM (PPM)	Water Level	Well Construction
Description and Remarks	Color	Consist.	Soil Type						
Silty SAND/Sandy SILT	Light Brown	Medium Dense	SM/ML	1					
				2					
				3					
				4			0		
				5					
				6					
				7			0		
				8					
				9					
				10					
				11					
				12			0		
				13					
				14					
				15					
				16			0		
GRAVEL and COBBLES	Light Brown	Dense	GM	17					
				18					
				19					
Refusal at 19'				20					



Environmental Science and Engineering

WELL LOG

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

WELL NO.: MW-4

DATE DRILLED:	November 20, 2007
LOGGED BY:	Les Pennington
REFERENCE ELEVATION:	—
DRILL RIG:	Mobile B61
TOTAL DEPTH:	20'
DEPTH TO GROUNDWATER:	12' ATD

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sampler	Blows/Foot	OVM (PPM)	Water Level	Well Construction
Description and Remarks	Color	Consist.	Soil Type						
Sandy SILT	Light Brown	Medium Dense	ML	1					
				2			0		
				3					
				4					
				5					
				6					
				7					
				8			0		
				9					
				10					
				11					
				12					
				13					
				14			0		
				15					
				16					
				17					
				18					
				19					
				20					
Refusal at 20'				21					



Environmental Science and Engineering

WELL LOG

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

WELL NO.: MW-5



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation / 1241-026A

Contact: Les Pennington

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Lab Sample ID: L81868-01A  
Field Sample ID: Boring B243@ 14' depth  
Collected: 1/4/2008 3:50:00 PM  
Received: 1/7/2008

Analyzed: 1/8/2008 8:47:00 AM

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/TPH

Units = mg/kg-dry

% Moisture: 5.3

Dilution Factor = 2.5

462 West 3600 South  
Salt Lake City, Utah  
84115

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0053	< 0.0053
Benzene	0.0026	< 0.0026
Toluene	0.0053	< 0.0053
Ethylbenzene	0.0053	< 0.0053
Xylenes, Total	0.0053	0.033
Naphthalene	0.0053	0.018
TPH C6 to C10 (GRO)	0.053	0.17
TPH C11 to C15 (DRO)	0.053	0.14
Surr: 1,2-Dichloroethane-d4	72-135	93.9
Surr: 4-Bromofluorobenzene	71-144	109
Surr: Dibromofluoromethane	73-126	99.8
Surr: Toluene-d8	72-129	109

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-01A  
Field Sample ID: B-253 @ 15'  
Collected: 1/10/2008 4:15:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 1:09:00 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030A

**Analytical Results**

**8260-S-MBTEXN/TPH**

Units = mg/kg-dry

% Moisture: 9.1

462 West 3600 South  
Salt Lake City, Utah  
84115

Dilution Factor = 2.5

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether

0.0055

< 0.0055

Benzene

0.0027

< 0.0027

Toluene

0.0055

< 0.0055

Ethylbenzene

0.0055

< 0.0055

Xylenes, Total

0.0055

< 0.0055

Naphthalene

0.0055

< 0.0055

TPH C6 to C10 (GRO)

0.055

< 0.055

TPH C11 to C15 (DRO)

0.055

< 0.055

Surr: 1,2-Dichloroethane-d4

72-135

102

Surr: 4-Bromofluorobenzene

71-144

96.7

Surr: Dibromofluoromethane

73-126

94.7

Surr: Toluene-d8

72-129

102

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-02A  
Field Sample ID: B-254 @ 15  
Collected: 1/10/2008 4:40:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 2:09:00 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/TPH

Units = mg/kg-dry

% Moisture: 7.7

462 West 3600 South  
Salt Lake City, Utah  
84115

Dilution Factor = 2.53

Compound	Reporting Limit	Analytical Result
Methyl tert-butyl ether	0.0055	< 0.0055
Benzene	0.0027	< 0.0027
Toluene	0.0055	< 0.0055
Ethylbenzene	0.0055	< 0.0055
Xylenes, Total	0.0055	< 0.0055
Naphthalene	0.0055	< 0.0055
TPH C6 to C10 (GRO)	0.055	< 0.055
TPH C11 to C15 (DRO)	0.055	< 0.055
Surr: 1,2-Dichloroethane-d4	72-135	104
Surr: 4-Bromofluorobenzene	71-144	96.4
Surr: Dibromofluoromethane	73-126	97.1
Surr: Toluene-d8	72-129	101

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer



# ORGANIC ANALYSIS REPORT

Client: Wasatch Environmental  
Project ID: Gunnison Remediation

Contact: Les Pennington

Lab Sample ID: L81968-03A  
Field Sample ID: B-255 @ 15  
Collected: 1/10/2008 4:43:00 PM  
Received: 1/14/2008

Analyzed: 1/16/2008 2:29:00 AM

AMERICAN  
WEST  
ANALYTICAL  
LABORATORIES

Analysis Requested: SW8260B/5030A

## Analytical Results

8260-S-MBTEXN/TPH

Units = mg/kg-dry

% Moisture: 13

462 West 3600 South  
Salt Lake City, Utah  
84115

Dilution Factor = 2.45

Compound

Reporting Limit

Analytical  
Result

Methyl tert-butyl ether

0.0056

< 0.0056

Benzene

0.0028

< 0.0028

Toluene

0.0056

< 0.0056

Ethylbenzene

0.0056

< 0.0056

Xylenes, Total

0.0056

< 0.0056

Naphthalene

0.0056

< 0.0056

TPH C6 to C10 (GRO)

0.056

< 0.056

TPH C11 to C15 (DRO)

0.056

< 0.056

Surr: 1,2-Dichloroethane-d4

72-135

107

Surr: 4-Bromofluorobenzene

71-144

94.8

Surr: Dibromofluoromethane

73-126

96.6

Surr: Toluene-d8

72-129

100

(801) 263-8686  
Toll Free (888) 263-8686  
Fax (801) 263-8687  
e-mail: awal@awal-labs.com

Kyle F. Gross  
Laboratory Director

Jose Rocha  
QA Officer

Appendix D

Monitoring Well Boring Logs at the Top Stop Site

DATE DRILLED:	November 19, 2007
LOGGED BY:	Les Pennington
REFERENCE ELEVATION:	—
DRILL RIG:	Mobile B61
TOTAL DEPTH:	19'
DEPTH TO GROUNDWATER:	14' ATD

DESCRIPTION AND CLASSIFICATION				Depth (Feet)	Sampler	Blows/Foot	OVM (PPM)	Water Level	Well Construction
Description and Remarks	Color	Consist.	Soil Type						
Silty SAND/Sandy SILT	Light Brown	Medium dense	SM/ML	1					
				2					
				3			0		
				4					
				5					
				6					
				7					
				8			0		
				9					
				10					
				11					
				12					
				13					
				14			0		
				15					
				16					
GRAVEL and COBBLES	Light Brown	Dense	GM	17					
				18					
				19					
Refusal at 19'				20					



Environmental Science and Engineering

WELL LOG

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

WELL NO.: MW-1

DATE DRILLED:	November 19, 2007
LOGGED BY:	Les Pennington
REFERENCE ELEVATION:	—
DRILL RIG:	Mobile B61
TOTAL DEPTH:	19'
DEPTH TO GROUNDWATER:	14' ATD

**DESCRIPTION AND CLASSIFICATION**

Description and Remarks	Color	Consist.	Soil Type	Depth (Feet)	Sampler	Blows/Foot	OMV (PPM)	Water Level	Well Construction
Silty SAND/Sandy SILT	Light Brown	Medium Dense	SM/ML	1					
				2					
				3					
				4					
				5		0			
				6					
				7					
				8					
				9					
				10		0			
				11					
				12					
				13					
				14					
				15		0			
GRAVEL and COBBLES	Light Brown	Dense	GM	16					
				17					
				18					
				19					
Refusal at 19'				20					



Environmental Science and Engineering

**WELL LOG**

C-4 Top Stop  
Gunnison, Utah

PROJECT NO.: 1241-026A

WELL NO.: MW-2