VOLUNTARY CLEANUP PROGRAM APPLICATION

13TH STREET PLAZA
1770 13TH STREET
BOULDER, COLORADO

Prepared for:

City of Boulder

Prepared by:

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

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ACRONYM LIST

AMSL	Above mean sea level
bgs	Below ground surface
BTEX	Benzene, toluene, ethyl benzene, xylenes
CDPHE	Colorado Department of Public Health and Environment
COC	Contaminants of concern
EDR	Environmental Data Resources, Inc.
ESA	Environmental Site Assessment
HAZWOPER	Hazardous Waste Operations and Emergency Response
HASP	Health and Safety Plan
LTM	Long-term monitoring
MMP	Materials management plan
MNA	Monitored natural attenuation
NAD	No Action Determination
NAPL	Non-aqueous phase liquid
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
PID	Photoionization detector
PAH	Polycyclic aromatic hydrocarbons
RCRA	Resource Conservation and Recovery Act
SVOC	Semi-volatile organic compounds
sf	Square feet
TOC	Top of casing
TPH	Total petroleum hydrocarbons
ug/l	Micrograms per liter
USEPA	United States Environmental Protection Agency
VCUP	Voluntary Cleanup Program
VCRA	Voluntary Cleanup and Redevelopment Act
VOC	Volatile organic compounds

1.0 INTRODUCTION

This Voluntary Cleanup Program (VCUP) Application (Application) has been prepared by USA Environment, L.P. (USA) on behalf of the City of Boulder – Public Works (city) to request that the Colorado Department of Public Health and Environment (CDPHE) accept the 13th Street Plaza located at 1770 13th Street in Boulder, Colorado (Site) into the VCUP per the CDPHE Voluntary Cleanup and Redevelopment Act (VCRA). This Application has been prepared in accordance with the requirements set forth in the *Voluntary Cleanup Roadmap – A How-to Guide* (CDPHE 2008).

The actions described within this document outline a remediation approach to support a functional objective that includes removal of MGP impacted materials associated with historic Site operations that if otherwise left in place could continue to impact Site conditions and groundwater quality. MGP impacted material may include soil (including fill material), non-aqueous phase liquid (NAPL), and infrastructure. Based on previous investigations, the impacts noted appear to be within proximity to former infrastructure components. Therefore, the actions defined herein identify the procedures necessary to remove infrastructure and media within the limits of the Site containing these MGP impacted materials, including soils, fluids, and debris as may be needed to address impacts from the Site to groundwater quality. These MGP impacted materials will be managed in accordance with a defined Materials Management Plan (MMP) that appropriately manages the wastes generated in accordance with applicable regulatory guidance and Waste Acceptance Criteria (WAC) for the selected disposal locations. The MMP is incorporated by reference. The actions described herein also include monitoring of groundwater quality as a means to validate the effectiveness of the remediation program.

1.1 Site Description

The Site is located in the southwest quarter of Section 30, Township 1 North, Range 70 West of the 6th Principal Meridian at 1770 13th Street in Boulder, Colorado as illustrated on **Figure 1**. The west side of the Site is bounded by 13th Street, the north side by a commercial office building and surface parking lot, the east side by 14th Street, and the south side by the Boulder and Left Hand Ditch followed by commercial buildings and a surface parking lot. The approximately 1.5 acre parcel includes the Dushanbe Teahouse (Teahouse) and the 13th Street Plaza (Plaza) on the western half of the parcel, and a paved surface parking lot on the eastern half of the parcel as illustrated on **Figure 2**.

The Site resides at an approximate elevation of 5,340 feet above mean sea level (AMSL). The surface topography at the Site is generally flat. In general, the adjacent land use is currently mixed-use commercial. The Site is zoned as Downtown 1(DT-1), which is intended for approved commercial, retail, and industrial uses.

1.2 Owner

The city purchased the Site from Watts-Hardy, Inc. in 1975. The city's contact for the Site is:

Mr. Joe Castro – PE, CPFP
Facilities and Fleet Manager
1720 13th Street
P.O. Box 791
Boulder, CO 80306-0791
Tel: (303) 441-3163
Fax: (303) 441-4063

1.3 Site History

A summary of the Site history was developed based on information obtained from recent investigations, a review of aerial photographs, a review of historical reports and documents, and a State and Federal database search performed by Environmental Data Resources, Inc. (EDR). A copy of a current EDR report (EDR 2013) for the Site is presented in **Appendix A**, which is provided on the attached CD-ROM disk.

1.3.1 *Regulatory History*

There are no known regulatory enforcement actions related to the Site. In 1994, the United States Environmental Protection Agency (USEPA) Region 8 identified the Site as a former coal gasification plant, which is further discussed in **Section 1.3.3**. In order to adequately characterize the Site for this Application, the city consulted with CDPHE regarding the Site's history as a manufactured gas plant (MGP), Site characterization activities, and remediation planning.

1.3.2 *Operational History*

The Site was first developed in 1902 as a coal-gas plant that manufactured gas from lignite coal. The facilities, as originally constructed, provided for gas generation using a conventional coal gas manufacturing process that was later updated in approximately 1920 to a more efficient and higher quality gas production process using a Carbureted Water Gas (CWG) approach. Originally, the main MGP infrastructure consisted of a process building and one gas holder, along with piping and other elements necessary for the coal-gas process. About the time that the plant was converted to a CWG-based MGP process, an additional gas holder was constructed and connected via piping to and from the process building. The process building and associated area included the following: 1) two purifiers, 2) a number of process tanks, 3) a coke bin, 4) a coal bin, 5) two boiler units, 6) two to three underground storage tanks (USTs) known as oil and reserve tanks and 7) other miscellaneous equipment associated with the historical MGP processes. Based upon historical documents, the original holder had an approximate volume of 40,000 cubic feet (ft^3) and is referred to as the Relief Holder. The second

holder had an approximate volume of 100,000 ft^3 and is referred to as the Main Holder. The gas plant operations were discontinued sometime between 1952 and 1954, and by the early 1960s, all aboveground infrastructure had been demolished. Historic MGP infrastructure overlain on the current Site aerial image is included as **Figure 3.**

Following demolition of the above-grade MGP infrastructure, the Site was vacant or used as a parking lot until the city began redevelopment in 1995. Construction related to the current configuration of the Site, which now includes the Teahouse, Plaza, and parking lot, was commenced in 1995 with construction of the Plaza. During utility trenching, the city's contractor discovered some soil contamination and some abandoned piping. The piping was removed and exposed soils were sampled. Soil results were below Resource Conservation and Recovery Act (RCRA) hazardous waste criteria and were disposed of at an off-site landfill. Subsequently, a limited soil and geotechnical investigation (1996) and a geophysical survey (1997) were conducted to plan for any potential MGP-related subsurface features or materials that might be encountered within the footprint of the planned Teahouse project. The results of the 1997 geophysical survey are illustrated on **Figure 4**. During construction of the Teahouse, in 1997 and 1998, some subsurface MGP-related features (piping, a brick-lined cistern, and a concrete pad) were encountered. The cistern contained a thick black material that was removed from the Site. The environmental reports related to Site development are included at **Appendix B**.

1.3.3 *Agency Notifications*

The city first received notification from the USEPA Region 8 in 1994 that the Site was identified as a former coal gasification plant. At that time, the USEPA entered the Site into the Superfund database known as the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and subsequently initiated a Preliminary Assessment (PA) (URS 1995). The PA was completed and a summary of the findings was transmitted in January 1995.

In May 1996, at the direction of the USEPA, an investigation was performed to evaluate any Site-related impacts by collecting both sediment and surface water samples from both Boulder Creek and the Boulder and Left Hand Ditch. Analytical data reported very low detections of total xylenes in surface water and toluene, ethylbenzene, and total xylenes in sediment. In a letter dated June 29, 1997, based on these data the USEPA recommended that a no-further action planned (NFA) would be filed in the Superfund database and the Site will be archived from the CERCLIS List (USEPA 1997).

In 2009, the city was contacted by a nearby property owner, who was concerned about naphthalene discovered in groundwater monitoring wells associated with a contaminated dry cleaner site. The owner's consultant identified the former coal-gas plant as a potential source of the naphthalene. In response, the city voluntarily undertook a joint investigation with Public Service Company of Colorado (PSCo), to initially investigate groundwater flow direction and quality. That data and subsequent groundwater data do not indicate that the Site is a source of the off-site contamination.

USEPA and CDPHE have been regularly apprised of the status of the city's investigations.

1.3.4 *Identification of Contaminants of Concern*

Based on previous investigative activities, the contaminants of concern (COCs) for the Site include volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) typical of MGP process wastes. The main COC in both soil and groundwater at the Site is naphthalene. Other COCs typical of MGP processes have also been observed in laboratory data for soil and groundwater, which are summarized in **Tables 1 and 2** for soil and **Tables 5 and 6** for groundwater.

1.4 Current Land Use

The Site is currently mixed use commercial and is occupied by the Teahouse on the southwestern quarter of the parcel and the Plaza on the northwestern quarter of the parcel. The majority of the remaining ground surface has been paved to allow for public uses in the Plaza, such as the Boulder Farmers' Market, and parking.

1.5 Future Land Use

In the near-term, the Site will continue to include the Teahouse, Plaza, and parking. In the future, property in the area is expected to be redeveloped as part of the implementation of the Boulder Civic Area Project. The Boulder Civic Area Project involves the development of a community-wide vision for an area between 9th and 17th Streets and Canyon Boulevard and Arapahoe Avenue, with the greatest focus on city-owned properties west of 14th Street. This plan, to be considered by the Boulder City Council in September 2013, will include an urban design vision for public and private properties in the area, determine best uses for city land, and guide decisions for the future of city facilities currently in high hazard flood zones.

1.6 Physical Setting

This section provides a general description of the proposed Site improvements, underlying geology, and water resources within the vicinity of the Site.

1.6.1 *Buildings, Transportation Routes and Utilities*

Figure 2 shows the location of the Teahouse, the Plaza and paved areas on the Site.

The west side of the Site is bounded by 13th Street, the north side by a commercial office building and surface lot parking, the east side by 14th Street, and the south side by the Boulder and Left Hand Ditch followed by commercial buildings and a surface parking lot. Based upon a review of historical documents, the north side of the parcel was at one time bounded by an alleyway. The Boulder and Left Hand Ditch was formerly known as the Boulder and White Rock Irrigation Ditch or the White Rock and Boulder Creek as shown on historical Certified Sanborn Maps dating back to 1906.

The primary transportation routes adjacent to the Site are 13th Street to the west, 14th Street to the east, Canyon Boulevard to the north, and Arapahoe Avenue to the south. Historically, Colorado Central Railroad lines ran down what is now Canyon Boulevard through approximately 1960.

Public utility lines at the Site include sanitary sewer, potable water, natural gas, and underground electrical lines that service the Teahouse and Plaza. The sanitary sewer, potable water, and natural gas lines come onto the Site from 14th Street. There is an electrical transformer located near the northwest corner of the parking lot which provides service to the Teahouse, a small electrical panel that provides power to a light pole located in the middle of the parking lot, and an overhead electrical line that provides power to a light pole located along the eastern edge of the parking lot.

1.6.2 *General Geology and Hydrogeology*

The Site is located in the City of Boulder on the eastern edge of the Front Range and the western edge of the Denver Basin. The general geology in the vicinity of the Site consists of Quaternary Age valley-filled terrace deposits that overlay Cretaceous Age bedrock. The fluvial/alluvial valley-filled terrace deposits in the vicinity of the Site are of the Broadway Formation and typically consist of gravels, sands and silts with cobbles and boulders (CGS 1988). The terrace deposits extend to approximately 18 feet below the ground surface at the Site. Beneath the Broadway Formation is the Pierre Formation. The Pierre Formation is generally dark gray in color and consists of shale and claystone (CGS 1988).

Groundwater beneath the Site ranges between 4.5 to 11 feet below ground surface (bgs), which corresponds to groundwater elevations between 5,329 feet and 5,332 feet AMSL. The groundwater flow direction at the Site is generally to the northeast based on several groundwater gauging events completed between 2010 and 2013.

1.6.3 *Water Resources within the Site Vicinity*

The Boulder and Left Hand Ditch (Ditch) is located along the southern edge of the Site. The Ditch originates at Boulder Creek (Creek) located approximately 300 feet to the west. Near the Site, the Ditch flows to the east, while the Creek flows to the south-southeast before turning to the east near 17th Street. Both the Ditch and Creek receive storm water runoff from the surrounding area.

The entire Site lies in the 100-year floodplain. The eastern third of the Site lies within the City Conveyance Zone (CCZ) and very small portions of the Site lie within the City High Hazard Zone (HHZ). The CCZ represents a preservation zone for passing flood flows along a creek corridor without increasing flood depths, redirecting flood waters or adversely impacting land areas. The CCZ recognizes that development activities are expected to occur in the 100-year floodplain, but places a limit on these activities to prevent adverse impacts to the floodplain. The City HHZ is the area of the 100-year

floodplain where there is the greatest risk for loss of life and should not be occupied by people during a flooding event. Development in the City HHZ is most restricted. The nearest identified regulatory wetland area is associated with Boulder Creek and is located west-southwest of the Site approximately 260 to 300 feet.

Well permits within a ½-mile radius of the Site were evaluated to identify the potential use of groundwater as a resource near the Site. Based on a review of state and federal databases provided by EDR, there are 74 wells registered within an approximate ½-mile radius of the Site. These wells include: one public water supply well; one industrial well; three commercial wells; five abandoned wells; seven domestic wells; 30 groundwater monitoring wells with status of "completed"; 27 groundwater monitoring wells with the status of "permit issued - completion status unknown" or "status not reported;" and one monitoring well reported with permit expired. The State and Federal database search was performed by EDR and the results are presented in **Appendix A**, which is provided on the attached CD-ROM disk.

The following section provides details on the public water supply, industrial, commercial and domestic wells identified by EDR. Based upon records searches and reconnaissance activities, it is likely that most of these wells are not in operation or have been abandoned as many of the well installations date back to the 1960s. Records for the City of Boulder Water Utility (Boulder Water) show that all addresses on streets near these potential well locations have active water meters and are provided with city water. City regulations require that if a property owner applies to redevelop a property and are not on city water at the time, it is required to connect to city water.

The State Engineer's records reflect the issuance of well permits for the following locations within ½ mile of the Site.

- One public water supply well (PWS CO0194993) at a location east-southeast of the Site, south of the Ditch, and near the intersection of 19th Street and Arapahoe Avenue. The permit does not identify an address for this well location or a drilling date. The USEPA Safe Drinking Water Information System (SDWIS) and State of Colorado Division of Water Resources (CDWR) do not have any information related to the public water supply well (PWS CO0194993) identified in the EDR. Boulder Water does not utilize a public water supply well in this area. All addresses in the vicinity of this potential public water supply well are connected to city water with active water meters.
- One industrial well (CDWR Permit #12839) drilled in 1951 to the north-northwest, and upgradient and cross-gradient of the Site. The well is not likely to be affected by groundwater conditions observed at the Site.
- Three commercial wells apparently were drilled at locations to the west-northwest (CDWR Permit #15530 drilled in 1948), northwest (CDWR Permit #2532 drilled in 1960), and north-northeast (CDWR Permit #2937 drilled in 1961), respectively. The wells to the west-northwest and north-northeast of the Site were permitted for use as cooling water, while the purpose of the well to the northwest is unknown. The wells to the northwest and west-northwest are upgradient of the Site, and

therefore are not likely to be affected by groundwater conditions observed at the Site. Additionally, based upon the distance from the Site (approximately ¼ mile) and the flow direction observed at the Site; the well location to the north-northeast will likely not be affected by groundwater conditions observed at the Site. All addresses in the vicinity of the north-northeast commercial well are connected to city water with active water meters.

- The seven domestic wells as follows:
  - One domestic well (CDWR Permit #19652) was drilled in 1964 to the north-northeast of the Site. The address associated with this well permit is connected to Boulder Water with an active water meter (#17879878).
  - One domestic well (CDWR Permit #21590) was drilled in 1964 to the east-southeast of the Site and on the other side of the Ditch. The address associated with this well permit is connected to Boulder Water with an active water meter (#9531345).
  - One domestic well (CDWR Permit #217989) was drilled in 1999 to the south-southeast of the Site and on the other side on of the Ditch and Creek. The well was designated as an irrigation well.
  - One domestic well (CDWR Permit #19135) was drilled in 1964 to the southeast of the Site and on the other side of the Ditch and Creek.
  - Three domestic wells were drilled in 1963 (CDWR Permit #s 15419 and 18044) and 1972 (CDWR Permit #55164) to the west-southwest of the Site and upgradient of both the Creek and Site.

  There is no evidence that any of these wells are in use. Plus, based on apparent locations of these domestic wells in relation to the Site, locations relative to the Ditch and Creek, and existing connections to Boulder Water; it is not likely that these locations would be affected by the groundwater conditions related to the historic MGP operations at the Site.

Well locations within the ½ mile radius of the Site are illustrated on the Physical Setting Source Map presented on page 197 of the EDR Radius Map™ Report with GeoCheck®, along with details of the well findings presented on pages 191 through 452. Certain corrections were made based upon a detailed CDWR Well Permit Search. The EDR Radius Map™ Report with GeoCheck® and other EDR related documents are presented in **Appendix A**, which is provided on the attached CD-ROM disk.

2.0 SITE CHARACTERIZATION

The city purchased the parcel more than 20 years after the cessation of MGP operations at the Site and has no first-hand knowledge or involvement regarding the origin of the environmental conditions at the Site. Site investigations confirm that the current environmental conditions at the Site are related to the former MGP operations prior to the city's purchase of the property in 1975. This section of the Application presents a summary of the Site conditions based on the results of these historical and recent investigations.

As noted, limited site characterization activities occurred between 1995 and 1997 by USEPA as a CERCLIS site and by consultants to the city in connection with the construction of the Plaza and Teahouse. Key documents associated with these efforts are listed in Section 5.0 and provided in **Appendix B**, including documents prepared by USEPA, Maxim Technologies Inc., and Huntingdon Engineering & Environmental, Inc. More recent investigations, performed by consultants for the city and PSCo between September 2010 and September 2013, focused on evaluating subsurface conditions associated with former MGP operations at the Site and are summarized below. Available boring logs and laboratory data reports for the more recent investigations are presented in **Appendix C** and **Appendix D**, respectively. Laboratory data for the 2010 subsurface investigation performed by Environmental Resources Management (ERM) was previously submitted under separate cover and is not included under **Appendix D**.

2.1 Recent Site Characterization Activities, 2010 to 2013

This section describes the recent Site characterization activities performed between 2010 and 2013 by the city, as the current owner, and PSCo, as the successor to past owner(s)/operator(s) of the Site. The characterization activities are summarized below in chronological order.

2.1.1 *September and October 2010*

Between September and October 2010, a subsurface soil and groundwater investigation was performed at the Site and was summarized in the *Limited Phase II Subsurface Investigation – 1770 13th Street, Boulder, CO 80302* report prepared by Environmental Resources Management (ERM) and dated April 14, 2011 (ERM 2011). In September 2010, six 8-inch soil borings were advanced on the Site using a hollow-stem auger drill rig. Soil samples were collected from each boring location and submitted for laboratory analysis of COCs based upon photoionization detector (PID) readings or other field observations. Soil data collected during this field event are presented in **Tables 1 and 2** and boring logs are presented in **Appendix C**. Based upon the drilling activities, the following observations and results were reported:

Field Observations

- No odors or visible staining were observed during the advancement of boring locations MW-1, MW-2, MW-3, and MW-4.
- Black and gray soil staining along with moderate to strong odors were observed during drilling activities at boring locations MW-5 (between 5 and 15 feet bgs) and MW-6 (between 10 and 15 feet bgs).

Laboratory Results

- VOCs were detected in the soil samples collected at boring location MW-5, but were reported below the applicable CDPHE Colorado Soil Evaluation Values (CSEV) Groundwater Protection Level (CDPHE 2011).
- SVOCs were detected above laboratory reporting limits at MW-2 and MW-3, but were reported below the applicable CDPHE CSEV Groundwater Protection Level (CDPHE 2011).
- SVOCs were reported above the applicable CDPHE CSEV Groundwater Protection Level (CDPHE 2011) at one of the boring locations with naphthalene reported above the CDPHE CSEV Groundwater Protection Level (CDPHE 2011) at MW-5 between 5 and 7 feet bgs.

Six soil borings were completed as 2-inch diameter groundwater monitoring wells, known as MW-1 through MW-6, with total depths ranging from 14 to 16 feet bgs. Upon completion of the well construction, each monitoring well was developed by removing a minimum of five borehole volumes of groundwater. On October 4, 2010, static water level measurements were collected at each well location and were evaluated to determine whether non-aqueous phase liquid (NAPL) was present in the wells. Following the collection of the static water levels, groundwater samples were collected from each of the monitoring wells. Groundwater field and laboratory data collected during this field event are presented in **Tables 3, 4 and 5**. Based upon the well development and groundwater sampling activities, the following observations and results were reported:

Field Observations

- A slight sheen was observed and an odor detected in groundwater recovered during the development of monitoring wells MW-3, MW-4, MW-5, and MW-6.
- No measurable NAPL was observed in the monitoring wells, although the interface probe indicated the potential presence of separate phase on the groundwater surface at MW-3, MW-5, and MW-6.
- Depth to groundwater ranged from 5.96 feet (MW-4) to 10.74 (MW-1) feet below the top of casing (TOC) elevation.
- Water levels indicate the groundwater flow direction is to the northeast.
- Sheen was observed and an odor detected in groundwater recovered during the purging and sampling of monitoring wells MW-3 and MW-5, while a slight odor was observed during the purging and sampling of MW-6.

Laboratory Results

- Groundwater samples collected from MW-1 and MW-2 did not contain detectable concentrations of COCs.
- Detectable concentrations of COCs were reported in groundwater samples collected from the other four monitoring well locations. Benzene at MW-3 and naphthalene at MW-3, MW-5 and MW-6 were reported above the CDPHE Regulation No. 41 – Water Quality Control Commission Basic Standards for Groundwater (Basic Standards for Groundwater) effective January 2013 (CDPHE 2013).

2.1.2 *September 2011*

A groundwater level gauging event conducted by ERM in September 2011 confirmed that groundwater flow direction was to the northeast, with depth to groundwater ranging from 6.12 (MW-4) to 10.79 (MW-1) feet below TOC. Depth to groundwater measurements and groundwater elevations are summarized on **Table 3**.

An indoor air survey was performed by Engineering Management Support, Inc. in September 2011 at the Teahouse and the Atrium Building located adjacent to and north of the Plaza at 1314 Canyon Boulevard. Nine indoor air samples and one outdoor air sample were collected over a 24-hour exposure period on September 11, 2011. Three of the indoor air samples were collected from the crawl space located below the Teahouse, and six of the indoor air samples were collected from different rooms located in the Atrium Building. Results of the indoor air samples collected from the Teahouse and Atrium Building were reported below both the Occupational Safety and Health Administration (OSHA) permissible exposure concentrations (PELs) and the USEPA regional screening levels (RSLs) for non-residential exposure. Data from the indoor air survey were summarized in a letter prepared by NewFields dated on January 9, 2012 *13th Street Plaza Investigation, Boulder, Colorado* (NewFields 2012).

2.1.3 *January 2012*

A groundwater level gauging event conducted by ERM in January 2012 confirmed the groundwater flow direction was to the northeast, with depth to groundwater ranging from 6.82 (MW-4) to 11.32 (MW-1) feet below TOC. Depth to groundwater measurements and groundwater elevations are summarized on **Table 3**.

2.1.4 *May 2012*

A groundwater level gauging event conducted by ERM in May 2012 again confirmed that groundwater flow direction was to the northeast, with depth to groundwater ranging from 4.51 (MW-4) to 9.71 (MW-1) feet below TOC. Depth to groundwater measurements and groundwater elevations are presented on **Table 3**.

2.1.5 *November and December 2012*

In November and December 2012, USA conducted a subsurface investigation on the south and east side of the parking lot at 1770 13th Street, which included identification of portions of the subsurface infrastructure, specifically the gas delivery piping and the Main Holder. Associated process residuals, and soil and groundwater impacts were also identified, evaluated, and managed as needed. During the investigative activities, USA excavated and segregated clean and impacted subsurface soils, removed gas delivery piping, encountered and evaluated the conditions associated with the historic MGP infrastructure, including the former Main Holder foundation, and installed and sampled two additional groundwater monitoring wells at the Site. In addition, residual MGP products that were observed in the Main Holder pipe chase during the investigation were removed by Tetra Tech at the direction of PSCo. These field efforts occurred at the Site between November 27, 2012 and December 18, 2012 and were reported in the *Summary of 2012 Subsurface Investigation Activities* dated April 8, 2013 (USA 2013). The following provides details of the November and December 2012 investigation activities.

- Soils were excavated along the 12-inch pipeline corridor from east of the Teahouse until the pipes headed north and in the direction of the Main Holder, where a concrete support and sub-grade concrete pipe chase structure as well as the foundation of the Main Holder were observed. Impacted soils were observed in several locations during excavation and were typically associated with strong VOCs/SVOCs odors consistent with residual MGP products and localized dark gray to black staining. These localized impacts were removed as part of the excavation process. The surface area of the completed excavation was approximately 1,750 square feet. Approximately 340 cubic yards of impacted soil was excavated and transported for off-site disposal at the Waste Management Denver Area Disposal Site (DADS) in Aurora, Colorado. An outline of the excavated area is illustrated on **Figure 6**. A brief summary of the other activities completed in conjunction with the excavation are provided below.
    - During the excavation activities, approximately 177 linear feet of the 12-inch diameter cast iron gas delivery piping was removed from the Site.
    - While there was some evidence of prior fluid leakage associated with the gas delivery pipe, the piping is not likely to be a significant source of MGP impacts because no NAPL or suspected source material was observed.
    - The southern end of the Main Holder was uncovered to evaluate the conditions of the foundation and sub-grade concrete pipe chase. Soils were removed between the surface asphalt and the top of the foundation and disposed of off-site. Upon completion of the evaluation, the Main Holder was left intact and covered with clean fill material.
    - The sub-grade concrete pipe chase was observed to be partially filled with soil, debris and an odorous fluid blend of oil, water, and sludge. Tetra Tech, at the direction of PSCo, removed approximately 1,700 gallons of total fluid from the pipe chase structures utilizing a vacuum truck, which was then transported to a

Clean Harbors facility. The concrete pipe chases were then temporarily flow filled with a low density, low compressive strength concrete prior to backfilling.

- Upon completion of the excavation activities, the entire void was backfilled with clean fill and re-surfaced with asphalt.

- Two groundwater monitoring wells (MW-7 and MW-8) were installed on November 29, 2013 to supplement groundwater flow direction data at the Site and to assess groundwater conditions proximate to the Relief and Main Holders. Both boring locations were advanced to approximately 16 feet bgs. During the advancement of the boring for MW-7, no impacts were observed in soil samples or soil cuttings. During the advancement of the boring for MW-8, impacted soils were observed based upon gray to black staining and strong odors consistent with residual MGP products in samples collected at depths between 9 and 10 feet bgs. Naphthalene was observed to exceed the CDPHE CSEV Groundwater Protection Level (CDPHE 2011) at MW-8, while other analyzed COCs were either below the laboratory detection limits or the CDPHE CSEV Groundwater Protection Level (CDPHE 2011). Soil data collected during this field event are presented in **Tables 1 and 2** and boring logs are presented in **Appendix C**.

- On November 30, 2012, a groundwater level gauging event was performed by USA in advance of groundwater sampling activities. Groundwater flow direction remained to the northeast and depth to groundwater ranged from 6.36 (MW-4) to 11.07 (MW-1) feet below TOC. Depth to groundwater measurements and groundwater elevations are summarized on **Table 3**.

- On November 30 and December 3, 2012, groundwater samples were collected from monitoring wells MW-1 through MW-8. Five of the eight groundwater wells contained COCs concentrations consistent with residual MGP products above the respective CDPHE Basic Standards for Groundwater (CDPHE 2013). The observed conditions and analytical results are consistent with a contaminant signature typical of historic MGP impacts. Historic and current groundwater sample results are presented on **Figure 7**. Laboratory results for groundwater samples collected during 2012 are summarized on **Tables 4 and 5**.

2.1.6 *March 2013*

During March 2013, first quarter 2013 groundwater samples were collected from the eight existing monitoring well locations. Also, additional subsurface investigation activities were performed at the Site to assess other potential remaining infrastructure and soil conditions near the Relief Holder and in the parking lot. The investigation included the advancement of nine 6-inch soil borings and a limited excavation at the Relief Holder. Details of the March 2013 activities are presented below:

- On March 20, 2013, groundwater gauging and sampling was performed at monitoring wells MW-1 through MW-8. Groundwater flow direction remained to the northeast and depth to groundwater ranged from 5.66 (MW-4) to 10.65 (MW-1)

feet below TOC. Five of the eight groundwater wells contained COCs concentrations consistent with residual MGP products above the respective CDPHE Basic Standards for Groundwater (CDPHE 2013). Depth to groundwater and groundwater elevation data are presented on **Table 3**. Laboratory results for the groundwater samples collected are summarized on **Tables 4 and 5**, and **Figure 7**.

- On March 21, 2013, five soil borings (B-1 through B-5) were advanced in the parking lot to further evaluate soil conditions between the Main and Relief Holders and to evaluate the depth to bedrock at the Site. Total depths of the soil borings ranged from 14 to 21.25 feet bgs, with bedrock encountered at approximately 18 feet bgs at boring location B-3. Six soil samples were collected and analyzed for Site COCs from the five boring locations. Historic and current soil sample results are presented on **Figure 6** and boring logs are presented in **Appendix C**. Laboratory results for soil samples collected are summarized on **Tables 1 and 2**. A brief summary of the field observations and laboratory results is provided below.

  Field Observations:

  - An apparent oily NAPL was observed at soil boring locations B-1, B-2 and B-5 during drilling and sampling operations.
  - Black and gray soil staining and a strong to moderate odors consistent with residual MGP products were observed at soil boring locations B-1, B-2, and B-5 during drilling and sampling operations.
  - Bedrock was observed at 18 feet bgs at boring location B-3.

  Laboratory Results:

  - VOCs were reported above laboratory detection limits in four of the five soil boring locations, but were reported below the applicable CDPHE CSEV Groundwater Protection Level (CDPHE 2011) for MGP-related constituents. Concentrations of bromomethane were reported in exceedance of the CDPHE CSEV Groundwater Protection Level (CDPHE 2011) in the soil sample collected from B-2 at a depth of 14 to 14.5 feet bgs. This is not considered a COC associated with MGP-related impacts, as it is a colorless gas typically used as a solvent, refrigerant, and fumigant.
  - SVOCs were reported above laboratory detection limits at all five soil boring locations, with concentrations of naphthalene reported in exceedance of the CDPHE CSEV Groundwater Protection Level (CDPHE 2011) in the soil sample collected from B-2 at a depth of 14 to 14.5 feet bgs.

- On March 25 and 26, 2013, a limited excavation was conducted to investigate potential subsurface infrastructure associated with the former Relief Holder. During excavation activities, remaining infrastructure from the Relief Holder was encountered. A brick and mortar wall, likely the Relief Holder foundation, approximately 1.5 feet wide was uncovered below the asphalt parking lot surface between 0.25 foot and one foot bgs and extended to at least nine feet bgs. The

wall was curved inward, consistent with the former infrastructure figures, although the radius of foundation appeared larger than originally anticipated. The limits of the excavation, former infrastructure and soil sample locations are presented on **Figures 5 and 6**. Laboratory results for soil samples during this field event are presented on **Tables 1 and 2.** Laboratory results for fluids collected in the open excavation (i.e. groundwater and NAPL) are presented on **Tables 6 and 7**. A brief summary of the field observations and laboratory results is provided below.

Field Observations:

- A brick and mortar wall was observed beneath the existing ground surface and extends to greater than 9 feet bgs.
- Soil excavated adjacent to the wall was observed to have black and gray staining and odors.
- A thin layer of an oily NAPL was observed on soils near the groundwater interface at approximately 8.5 feet bgs.
- Sheen and odors consistent with residual MGP products were observed on the groundwater surface encountered during the excavation.

Laboratory Results:

- VOCs were reported above laboratory detection limits in two of the three soil samples collected during the excavation, but were reported below the applicable CDPHE CSEV Groundwater Protection Level (CDPHE 2011).
- SVOCs were reported above laboratory detection limits in the three soil sample locations collected during the excavation, with concentrations of acenaphthene, anthracene, fluorene, naphthalene, and pyrene reported above the applicable CDPHE CSEV Groundwater Protection Levels (CDPHE 2011) at RH-EX-2 (8 ft bgs), and naphthalene reported above the applicable CDPHE CSEV Groundwater Protection Level (CDPHE 2011) at RH-EX-3 (8.5 to 9 ft bgs). No SVOCs were reported above the applicable CDPHE CSEV Groundwater Protection Levels (CDPHE 2011) at RH-EX-1.

- On March 28, 2013, four additional soil borings (B-6 through B-9) were advanced to further evaluate soil conditions between the Main and Relief Holders as well as to delineate the extents of the oily NAPL observed on March 21, 2013 at B-1, B-2 and B-5. Total depths of the soil borings ranged from 10.4 to 16 feet bgs. Four soil samples were collected and analyzed for Site COCs from the four boring locations. Historic and current soil sample results are presented on **Figure 6** and boring logs are presented in **Appendix C**. Laboratory results for soil samples collected are summarized on **Tables 1 and 2**. A brief summary of the field observations and laboratory results is provided below.

  Field Observations:

  - An apparent oily NAPL was observed in two of the four soil borings, at B-6 and B-8.

- Slight to strong odors consistent with residual MGP products were observed in the four soil borings during drilling and sampling operations.

Laboratory Results:

- VOCs were reported above laboratory detection limits in one of the four soil boring locations; although all reported COC concentrations were below the applicable CDPHE CSEV Groundwater Protection Levels (CDPHE 2011).
- SVOCs were reported above laboratory detection limits at the four soil boring locations, with concentrations of naphthalene reported in exceedance of the CDPHE CSEV Groundwater Protection Level (CDPHE 2011) in the soil sample collected from B-8 at a depth of 6.5 feet bgs.

2.1.7 *April 2013*

During April 2013, additional subsurface investigation activities were performed at the Site to assess soil conditions between the oil tanks and the Relief Holder in the Plaza. The investigation included advancement of four soil borings, with one boring completed as a 2-inch monitoring well. In addition, one groundwater sample was collected from the newly installed monitoring well, MW-9. Details of the April 2013 activities are presented below:

- On April 8, 2013, four additional soil borings (MW-9 and B-10 through B-12) were advanced in the Plaza to evaluate soil conditions between the oil tanks and Relief Holder. Total depths of the soil borings ranged from 4 to 17 feet bgs. A total of three soil samples were collected and analyzed for Site COCs from the four boring locations, as drilling was discontinued at B-12 due to a conduit encountered in the borehole. Historic and current soil sample results are presented on **Figure 6** and boring logs are presented in **Appendix C**. Laboratory results for soil samples collected are summarized on **Tables 1 and 2**. A brief summary of the field observations and laboratory results is provided below.

  Field Observations:

  - An apparent oily NAPL was observed in one of the four soil borings, at MW-9.
  - Slight to moderate odors consistent with residual MGP products were observed in two of the four soil borings during drilling and sampling operations, at MW-9 and B-10.

  Laboratory Results:

  - VOCs were reported above laboratory detection limits in two of the three soil boring locations sampled, with concentrations of bromomethane reported in exceedance of the CDPHE CSEV Groundwater Protection Level (CDPHE 2011) in the soil sample collected from MW-9 at a depth of 9.5 feet bgs although as stated previously, bromomethane is not considered a COC associated with MGP-related impacts.

- SVOCs were reported above laboratory detection limits in the three soil boring locations sampled, although all reported SVOCs concentrations were below the applicable CDPHE CSEV.

- On April 11, 2013, a groundwater gauging and sampling event was performed at monitoring well MW-9. Depth to groundwater was gauged at 9.45 feet below TOC. The groundwater sample contained COCs concentrations above the respective CDPHE Basic Standards for Groundwater (CDPHE 2013). Depth to groundwater and groundwater elevation data are presented on **Table 3**. Laboratory results for the groundwater samples collected are summarized on **Tables 4 and 5**, and **Figure 7**.

2.1.8 ***June 2013***

During June 2013, additional subsurface investigation activities were performed at the Site to assess soil conditions between the Main Holder and the eastern property boundary. The investigation included advancement of one soil boring which was completed as a 2-inch monitoring well known as MW-10. In addition, the second quarter 2013 groundwater sampling event was completed with the collection of samples from the ten existing monitoring well locations. Details of the June 2013 activities are presented below:

- On June 6, 2013, one additional soil boring, known as MW-10, was advanced to evaluate soil and groundwater conditions between the Main Holder and the eastern property boundary. The soil boring was advanced to a total depth of 15 feet bgs. One soil sample was collected and analyzed for Site COCs from the boring location. Historic and current soil sample results are presented on **Figure 6** and boring logs are presented in **Appendix C**. Laboratory results for soil samples collected are summarized on **Tables 1 and 2**. A brief summary of the field observations and laboratory results is provided below.

  Field Observations:

  - No apparent odors or NAPL were encountered during the advancement of the boring at MW-10.

  Laboratory Results:

  - No COCs were reported above laboratory detection limits in the soil sample submitted for boring location MW-10.

- On June 13, 2013, the second quarter 2013 groundwater gauging and sampling event was performed at monitoring wells MW-1 through MW-10. Depth to groundwater ranged from 4.36 (MW-4) to 9.13 (MW-1) feet below TOC, and groundwater flow direction was to northeast. Six of the ten groundwater wells contained COCs concentrations above the respective CDPHE Basic Standards for

Groundwater (CDPHE 2013). Historic and current groundwater sample results are presented on **Figure 7**. Depth to groundwater and groundwater elevation data are presented on **Table 3**. Laboratory results for the groundwater samples collected are summarized on **Tables 4 and 5**.

2.1.9 *September 2013*

During September 2013, the third quarter 2013 groundwater sampling event was completed with the collection of samples from the ten existing monitoring well locations. Details of the September 2013 activities are presented below:

- On September 9, 2013, the third quarter 2013 groundwater gauging and sampling event was performed at monitoring wells MW-1 through MW-10. Depth to groundwater ranged from 5.92 (MW-4) to 10.64 (MW-1) feet below TOC, and groundwater flow direction was to northeast. Eight of the ten groundwater wells contained COCs concentrations above the respective CDPHE Basic Standards for Groundwater (CDPHE 2013). Historic and current groundwater sample results are presented on **Figure 7**. Depth to groundwater and groundwater elevation data are presented on **Table 3**. Laboratory results for the groundwater samples collected are summarized on **Tables 4 and 5**.

2.2 Nature and Extent of Impacted Areas

The data obtained during the subsurface investigations performed since 2010 were used to evaluate the nature and extent of impacts in soil and groundwater at the Site due to contact with MGP impacted materials. The following sections describe the areas at the Site where historical site activities have caused impacts to soil and groundwater at concentrations exceeding the CDPHE CSEV Groundwater Protection Levels (CDPHE 2011), and/or CDPHE Basic Standards for Groundwater (CDPHE 2013), respectively. [NOTE: Naphthalene has been historically reported using both USEPA Method 8260B and USEPA Method 8270D. USEPA Method 8270D SIM was selected for analysis of SVOCs as this method provides more accurate determinations of the primary COCs (particularly naphthalene) at lower concentrations relative to benchmarks and standards. As such, this Method has been and will be used for future analytical characterization of MGP impacted material. The USEPA Method 8270D SIM reports the results for the 16 USEPA priority polycyclic aromatic hydrocarbons (PAHs), which will be compared to the applicable CDPHE CSEV Groundwater Protection Level (CDPHE 2011) and the CDPHE Basic Standards for Groundwater (CDPHE 2013). Therefore, for the purpose of providing clarity in reporting, only the results of naphthalene obtained using EPA Method 8270D SIM will be used for data presentation and evaluation.]

2.2.1 *Impacted Soil*

Impacted soils and staining typical of MGP-related waste materials have been observed by visual, olfactory, and PID methods. The location of these impacts correlated well with the historic MGP infrastructure including, piping, both holders, and near the former process area. Laboratory analysis has confirmed the presence of COCs at the Site, including VOCs and SVOCs as detailed below, in exceedance of the CDPHE CSEV Groundwater Protection Levels (CDPHE 2011). Exceedances of the CDPHE CSEV Groundwater Protection Levels (CDPHE 2011) have been observed in soil samples collected from soil borings advanced between 2010 and 2013, in soil samples collected from materials excavated during the 2012 investigation of the process pipes and the Main Holder, and in soil samples collected from the exploratory excavation completed during March 2013 at the Relief Holder.

Observation and sampling of fill materials and disturbed soils within the footprint of the Site to date consistently indicate the presence of soil mixed with MGP-related material and some construction debris in the top 7 feet of soil on the Site. Given this experience, it is anticipated that little native material will be encountered in the shallow soils during remediation. Below approximately 7 feet, it is anticipated that native material and groundwater will be encountered. Soil impacts also have been observed in this deeper horizon to a depth of 14.5 feet bgs at soil boring location B-2, advanced between the Relief Holder and Main Holder.

Soil analytical data are summarized in **Tables 1 and 2** and illustrated on **Figure 6**. Based upon exceedances of the CDPHE CSEV Groundwater Protection Levels (CDPHE 2011), the primary COCs associated with MGP impacted materials identified in soil include:

- Acenaphthene;
- Anthracene;
- Benzene;
- Fluorene;
- Naphthalene; and
- Pyrene.

The primary soil COCs listed above have been identified in NAPL samples submitted for laboratory analysis and reported at concentrations often significantly higher than those reported in soil. Analytical data for NAPL samples are summarized on **Tables 6 and 7**. Also, many of the soil exceedances coincide with observations of an oily dark brown to black NAPL encountered in the area immediately east-southeast of the Relief Holder as well as an observation at MW-9 near the former oil tanks. The approximate areal extent of the NAPL plume is illustrated on **Figure 6** and is based on the following:

- An oily dark brown to black NAPL was physically observed on drilling auger and in the split spoon samplers during the advancement of the soil borings associated with monitoring wells MW-8 and MW-9 during November 2012 and April 2013, respectively;

- An oily dark brown-black NAPL was physically observed in soil cuttings, on drilling auger, and/or in the split spoon samplers during the advancement of soil boring locations B-1, B-2, B-5, B-6, and B-8 during March 2013;
- A thin layer of a dark brown-black oily NAPL was observed on soils near the groundwater interface at approximately 8.5 feet bgs during the limited excavation completed at the Relief Holder during March 2013;
- The oily NAPL was observed at depths ranging from the groundwater surface (approximately 8 to 8.5 feet bgs) to approximately 16 feet bgs at boring location B-6;
- An oily dark brown-black NAPL was observed on the groundwater surface encountered during the limited excavation completed at the Relief Holder during March 2013;
    - Analysis of the combined oily dark brown-black NAPL and groundwater samples collected from the limited excavation at the Relief Holder had reported concentrations of COCs which are orders of magnitude higher than those observed in dissolved-phase groundwater samples collected at any groundwater monitoring well locations; and
- Measureable NAPL has not been observed at any of the monitoring well locations since gauging activities were initiated at the Site in 2010.

Figure 9 illustrates the alignment of geologic cross-sections at the Site. The geologic cross-sections A-A' and B-B' presented on **Figure 10** illustrate existing monitoring well locations, soil boring locations, approximate locations and dimensions of historic MGP infrastructure, approximate vertical and horizontal extents of NAPL in the subsurface, and depth to water measurements recorded in March 2013. Results of recent analyses for fluids collected in the open excavation (i.e. groundwater and NAPL) samples are summarized on **Tables 6 and 7**.

2.2.2 *Impacted Groundwater*

The dissolved-phase COC concentrations documented in the laboratory reports are consistent with a contaminant signature typically associated with the presence of MGP impacted materials. Dissolved-phase COCs associated with MGP impacted materials are present across most of the Site and appear to be primarily associated with the Relief Holder and the Process Area.

The following paragraphs summarize the results of analyses for dissolved-phase groundwater samples collected at the Site during 2010, 2012, and 2013. Based upon exceedances of the CDPHE Basic Standards for Groundwater (CDPHE 2013) as well as frequency of occurrences, the primary COCs associated with MGP impacted materials identified in groundwater include:

- Acenaphthene;
- Benzene;
- Benzo(a)anthracene;
- Benzo(b)fluoranthene;

- Benzo(k)fluoranthene;
- Benzo(a)pyrene;
- Chrysene;
- Dibenz(a,h)anthracene;
- Ethylbenzene;
- Indeno(1,2,3-cd)pyrene;
- Naphthalene; and
- Pyrene.

The primary dissolved-phase COCs listed above, with the exception of dibenz(a,h)anthracene, have been identified in NAPL samples submitted for laboratory analysis and results show concentrations significantly higher than those reported in dissolved-phase groundwater, which suggests NAPL at the site acts as a continuing source to groundwater. Also, a previous one-time reported observation below CDPHE Basic Standards for Groundwater (CDPHE 2013) of methyl tert-butyl ether (MTBE) at monitoring well location MW-3 is likely sourced from an off-Site source located in the vicinity of the Site. MTBE is not a constituent observed in NAPL collected at the Site, nor is it a COC associated with MGP-related materials. Analytical data for NAPL samples are summarized on **Tables 6 and 7**.

Based upon observations of dissolved-phase COC concentrations, certain well locations have shown some attenuation of the primary COCs concentrations since groundwater monitoring activities were initiated at the Site in 2010. Concentrations of the primary COCs will continue to be monitored to evaluate trends prior to, during, and subsequent to the proposed remedial actions as discussed in Section 4. Occurrences of other COC constituents have been observed in groundwater samples collected since 2010, although these other constituents have either not been above the CDPHE Basic Standards for Groundwater (CDPHE 2013) or have only been sporadically observed at monitoring well locations. Groundwater analytical results are summarized in **Tables 4 and 5** and illustrated on **Figure 7**.

3.0 RISK EVALUATION

The potential risk(s) to human health posed by the COCs for this Site are presented below based upon the media impacted by MGP impacted materials (soil and groundwater) and the resulting pathways for potential exposure. While remaining MGP impacted materials represent a known source due to historic MGP operations at the Site, the overall conditions observed at the Site indicate there are no complete exposure pathways to potential receptors. The following sections document this conclusion and provide information regarding worker protection during the proposed remedial actions.

3.1 Potential Exposure Pathways – Soil

The majority of the parcel is covered by asphalt and concrete paving. Therefore, ingestion of impacted soil and dermal contact with impacted soil regardless of depth is highly unlikely under current Site conditions. Also, there is not an inhalation risk at the Site for outdoor surface use or for nearby indoor building use based upon the findings of the 2011 investigation (NewFields 2012), as discussed in Section 2.1.2. Engineering controls will be in place to protect the public from exposure to the COCs while remediation work is in progress. Once the excavation for recovery of the MGP impacted materials is completed, the Site will be backfilled with clean soils and re-paved. Therefore, any ingestion, inhalation, and dermal contact pathways will again be incomplete.

3.2 Potential Exposure Pathways – Groundwater

As discussed above, the majority of the parcel is covered by asphalt and concrete paving and the depth to groundwater is typically greater than 7 feet bgs. Therefore, ingestion and dermal contact with the impacted groundwater and any inhalation of vapors associated with dissolved-phase groundwater impacts are unlikely. Planned excavation and dewatering activities to remove MGP impacted materials (as contained within impacted soil, residual oily NAPL, and remaining infrastructure) and impacted groundwater will result in the further reduction of source mass and COCs concentrations in Site groundwater. Engineering controls will be in place to protect the public from exposure to the COCs while work is in progress.

There are no operational domestic or industrial use groundwater wells permitted at the Site. Potable water is provided to the Site and surrounding area by Boulder Water; therefore, there is no complete ingestion pathway for COCs observed in groundwater at the Site. Based upon the relative location to the Site, as well as other conditions discussed in Section 1.6.3, permitted well locations within ½ mile are unlikely to be impacted by the groundwater conditions associated with the Site.

3.3 Potential Exposure Pathways – Surface Water

The Site is bounded along the southern east-west boundary by the Boulder and Left Hand Ditch. This Ditch is fed by Boulder Creek and runs in an easterly direction

through a well-defined channel. Therefore, the Ditch is hydraulically upgradient of the Site and acts as a significant control on the direction of groundwater flow, which is away from the Ditch and, as evidenced by monitoring, typically to the northeast.

There is a stormwater drain located on the eastern portion of the Site parking lot that collects stormwater from the paved areas on the Site and conveys it for discharge to the Ditch. A video survey completed during 2012 confirmed the stormwater drain and associated discharge piping are intact and in good condition. Therefore, stormwater contact with the impacted soil and groundwater is unlikely, thus limiting surface water as a viable exposure pathway.

3.4 Construction Related Risk – Vapors and Odors

The remediation activities proposed for the Site may result in vapor generation and fugitive odors from the excavation area. A temporary ventilated structure will be available, in combination with foaming agents, to control fugitive vapor and odor emissions from the Site. An air treatment system, such as an activated carbon system, capable of reducing COC vapor emissions and odors before release to the environment will be incorporated into the temporary ventilated structure. This ventilated structure will also provide worker protection, reducing inhalation risk associated with the potential COC vapors and odors. The city will coordinate with the CDPHE to obtain an air emission permit, if necessary.

3.5 Vapor Migration

As summarized in Section 2.1.2 of this Application, results of the indoor air survey performed in 2011 were well below both OSHA PELs and USEPA RSLs at the Teahouse and Atrium Building. Based upon the planned remedial activities designed to remove residual source mass materials, the potential for vapor generation and migration will be significantly reduced. As a consequence of the disturbance created during these activities, concentrations of dissolved-phase COCs in groundwater may increase slightly in the short-term, followed by a decreasing trend as a result of the removal of the residual source mass materials. The dissolved-phase COC concentration trends will be monitored as part of the proposed monitoring program further detailed in Section 4.3 of this Application.

3.6 Worker Protection

The remediation activities proposed for the Site may result in some exposure of the impacted media (NAPL, soil, and groundwater) to construction workers. Therefore, the selected remediation contractor will be required to utilize 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained personnel working under the guidance of a Site-specific health and safety plan (HASP). Workers will utilize appropriate personal protective equipment (PPE) as required by the HASP and based upon the conditions encountered during remediation activities. PPE will likely include some forms of chemical resistant clothing, respiratory protection, head protection, eye protection, and hearing protection as required by the Site-specific HASP and

HAZWOPER guidance. In addition, as discussed in Section 3.4, engineering controls will be in place to further protect the workers from exposure to the COCs while work is in progress.

4.0 REMEDIATION ACTION PLAN

This section presents remediation goals, points-of-compliance for impacted soil and groundwater, and the proposed remedial action plan to address residual impacts observed at the Site.

4.1 Remedial Goals

The overall remedial goal for the Site is to address existing soil and groundwater impacts associated with historic MGP operations to meet the objectives set forth in this VCRA and to obtain a No Action Determination (NAD) from CDPHE. The city's intent is to remediate the parcel by removing residual MGP impacted materials present within soils, NAPL, and infrastructure components as needed to meet the CDPHE remediation cleanup standards.

4.2 Remedial Action Plan

The proposed remediation components for the Site are illustrated on **Figure 11** and include: 1) deconstruction and removal of historic MGP infrastructure that contains MGP impacted materials contributing to environmental impacts, and the removal of impacted soils and NAPL, as necessary to meet applicable groundwater standards at the property boundary; and 2) post-remediation groundwater monitoring. Excavation and subsurface infrastructure removal activities will be overseen by an environmental professional and management of excavated soils and NAPL will be conducted in accordance with the MMP.

To support various facets of remediation, contingency plans (detailed below) have been developed to prevent environmental impacts associated with the remediation activities. This includes a fluids management plan to prevent, to the extent possible, releases of MGP impacted materials as may be encountered within subsurface infrastructure related to the holders, piping, or other components. Further, to prevent vapors and fugitive odors from being released from excavations in an uncontrolled manner, a temporary ventilated structure will be available, in combination with foaming agents, to control fugitive vapor and odor emissions from the Site.

In addition to the actions noted, contingencies will also be in place for in situ treatment in the event that residual source mass material is not accessible during the field excavation activities as described in Section 4.2.5. The need for such contingency will be evaluated further as the work progresses.

Prior to initiating the remediation activities at the Site, the city and its selected contractor will acquire all necessary state and local permits. These may include but not be limited to the following permits: excavation permit, demolition permit, underground storage tank removal permit, traffic control permit, temporary building permit, and air discharge permit. The Site is located in a congested area and impacts associated with truck traffic will be managed and engineering controls will be in place to limit air emissions and surface water discharge from the Site during active remediation. Throughout the period

of remediation, planning and mitigation efforts will be ongoing in light of the then current site conditions to limit remediation-related impacts.

4.2.1 *Excavation and Dewatering*

Soil excavation activities will be performed to remove residual MGP impacted materials present within impacted soil, NAPL mass, and infrastructure as needed at the Site within the area illustrated on **Figure 11.** The approximate extent of the soil excavation was developed based on the available soil data, the approximate extent of NAPL, and the property boundaries as illustrated on **Figure 6**. Soil excavation activities will be performed utilizing conventional mechanical methods, including the use of hydraulic excavator(s). Dewatering will be performed as needed to facilitate excavation where such work encounters the local groundwater table.

Engineering controls being considered to optimize protection of workers and the general public include use of a ventilated structure to control odors and vapor emissions during excavation and removal activities and shoring to enable vertical wall excavations. The final design and utilization of these engineered controls will be determined by the remediation contractor selected to perform the excavation activities. Also, an emergency response and contingency plan will be required for the selected contractor to address unexpected conditions or fluids observed within historical infrastructure and to reduce the possibility of MGP-related product releases or spills. As noted in Section 4.2, contingency plans will be employed to prevent uncontrolled releases during the remediation program.

4.2.1.1 Summary of Overall Soil Remediation Approach

The general remedial approach will include excavation of the majority of soils from ground surface to depths of approximately 7 feet bgs as illustrated on **Figure 11**. Such excavation will be supplemented by deeper excavations to enable focused deconstruction and removal of infrastructure as needed to remove MGP impacted materials observed within soils and NAPL. The excavation depths represented on **Figure 11** are approximate and represent the maximum depths anticipated for the specific areas. Actual depths of excavation will be driven by the presence and need to access MGP impacted material removal and based upon field observations.

The estimated footprint of excavation area is approximately 18,600 square feet (sf), of which approximately 10,500 sf will be advanced to a depth of approximately 7 feet bgs with the remaining area advanced to a maximum of up to 18 feet bgs. The deepest area of the excavation is expected to be within the area represented by the Relief Holder and Oil Tanks. Based on these areas and depths, the maximum anticipated volume of soil to be excavated is approximately 7,000 to 8,000 cubic yards (cy).

Below approximately 7 feet bgs, it is anticipated that native material and groundwater will be encountered. Visual, olfactory, and real-time instrumentation (e.g., PID) will be used to determine whether NAPL and other MGP-related materials have impacted

media in this horizon. All material below 7-8 feet determined in the field to have been impacted by NAPL or other MGP impacted materials will be excavated and likely managed as non-hazardous or special waste.

During all excavation activities, care will be taken to avoid any potential impacts to the foundation or outdoor patio of the Teahouse, existing utility corridors, and other public facilities including sidewalks. If impacted soil deeper than 7 feet bgs must be left in-place within inaccessible areas, the contingency plan outlined in Section 4.2.5 will be used to address these impacts. Once the excavation activities are completed, imported clean soils will be placed in a series of lifts within the excavation and compacted to 95% of the maximum dry density as determined by standard proctor methods. The selected contractor will be required to follow a clean fill specification for all imported backfill material, which will be included in the MMP. The excavation will then be brought to the pre-existing grade for subsequent re-paving of surfaces.

4.2.1.2 Shallow Excavation

The shallow excavation area will include removal of impacted soils to depths ranging from 3 feet possibly up to 7 feet bgs, as well as evaluation and removal, as necessary, of historic MGP infrastructure components including: starting with the soils located above and in close proximity to the Main Holder foundation and associated pipe chase, the Relief Holder foundation and wall, the Process Area, and the Oil Tanks.

In areas investigated at the Site to date, soil mixed with MGP-related material and some construction debris predominates in the upper 3 feet to 7 feet of soil. Given the limited space for staging excavated material on the Site, we anticipate that most of the material excavated above 7 feet bgs will be managed as solid waste and disposed of accordingly. Therefore, these materials will be direct loaded into dump trucks for off-site disposal at an approved facility. If significant amounts of native material are encountered, the decision will be made in the field as to how best to manage this material.

Areas inaccessible for excavation in the first 7 feet bgs will be evaluated based on visual, olfactory and PID evaluation of the exposed sidewall(s)

4.2.1.3 Deeper Excavation

In those areas where deeper excavation, greater than 7 feet bgs, is required to remove impacted soil, NAPL, and/or MGP infrastructure, the shallow excavation will be deepened to allow for continued excavation into the groundwater table. Below approximately 7 feet bgs, it is anticipated that native material and groundwater will be encountered. The deeper excavation activities will be focused on the removal of MGP-related soil impacts and NAPL, to the extent practicable, and the evaluation and, as necessary, removal of historic MGP infrastructure that are potential continuing sources of MGP-related impacts. Visual, olfactory, and real-time instrumentation (e.g., PID) will be used to determine whether NAPL and MGP-related materials have impacted media

in this horizon. Based upon current information, these localized, deeper excavations could extend to a depth of approximately 15 feet bgs, with competent bedrock observed at 18 feet bgs. Confirmation soil sampling will not be feasible at these deeper excavation depths because of the interactions with groundwater.

These deeper excavations to remove NAPL will be conducted by moving outward from the historic infrastructure to the approximate limits of the oily NAPL and/or stained soils. The COCs present in the oily NAPL appear to be a key contributor to groundwater impacts beneath the Site with observed COC concentrations typically highest near the historic MGP infrastructure. The excavation, both horizontally and vertically, will continue until i) field screening by visual, olfactory, and real-time instrumentation (e.g., PID) of soils no longer indicates the presence of COC impacts, ii) a property boundary or bedrock is encountered, or iii) if advancing the excavation is otherwise deemed impracticable. Based upon the existing data, it is currently unknown whether any impracticable conditions may exist that would prevent or limit excavation (i.e. excavation will be discontinued where the integrity of sidewalks or a building foundation may be compromised). Below 7 feet bgs, areas inaccessible for excavation will be evaluated for use of oxidant as a means of mitigating impacts from MGP impacted materials in soils left in place as described in Section 4.2.5.

4.2.1.4 Dewatering

Dewatering will be required to facilitate the excavation activities in areas that extend beneath the groundwater table, which likely includes areas advanced deeper than approximately 8 feet bgs. Dewatering will be accomplished utilizing appropriate standard methods that will be designed and operated by the selected remediation contractor. Dewatering efforts will be sustained during the deeper excavation activities to maintain a lowered groundwater table at the Site, as well as to create an inward gradient for the removal of impacted groundwater. Groundwater recovered during the dewatering activities will be containerized temporarily on-Site for subsequent disposal to the city's sewer system in accordance with city wastewater utility guidelines. Residual NAPL, if present, in the open excavations will be removed using vacuum trucks, or other acceptable means. This NAPL will be pumped from the excavation, transported to a pre-approved off-site disposal facility, to be determined by the remediation contractor, and likely disposed of as a special waste.

4.2.2 *Infrastructure Evaluation and Removal*

To facilitate excavation activities of MGP impacted materials, select components of historic MGP infrastructure will require removal. Based upon recent subsurface investigation activities, three categories of infrastructure have been identified, including: i) infrastructure confirmed to contain, likely containing, or effected by MGP impacted materials that will require removal (the Relief Holder); ii) infrastructure requiring additional evaluation during excavation activities to determine whether MGP impacted materials are present, thus requiring removal (Main Holder foundation and associated pipe chase, the Oil Tanks, slab foundation for tanks in the Process Area, and process

piping between the Process Area and Relief Holder); and iii) infrastructure above the groundwater surface not planned for removal due to the lack of exposure pathway (the gas delivery piping located under the Teahouse). Based upon previous removal activities, the remaining piping is above the groundwater, intact, and does not contain significant mobile MGP impacted materials. Based on investigations to date, it is anticipated that MGP infrastructure removed from the Site will be managed as solid waste. Any liquids encountered in MGP infrastructure on the Site will be containerized and sampled for laboratory analysis to determine disposal requirements.

4.2.3 ***Remedial Excavation Program***

As discussed above, remediation of the Site will be accomplished through excavation and management of MGP impacted materials. The approach employed for these efforts is generally noted in previous sections, with MGP impacted materials being managed per the MMP. Within the broad context of the remediation efforts noted, the following sections provide additional detail with regard to infrastructure-specific work elements.

4.2.3.1 General Work Area Excavation

Excavation of the subsurface materials across the Site will be accomplished using a hydraulic excavator capable of reaching the maximum extent of excavation necessary. In general, surficial materials such as asphalt and concrete will be saw-cut such that they may be removed as efficiently as possible. These materials will be removed and transported off-site for recycling. Once the underlying soils are exposed, excavation will be performed such that the soils recovered will be placed directly into trucks for off-site management in accordance with the MMP. As noted previously, based on previous investigations, all soils overlying encountered infrastructure components were impacted with MGP-related materials. Thus it is anticipated that all these materials will be removed for off-site disposal. If, however, significant amounts of native underlying soils that are not impacted by MGP-related materials are encountered, the decision will be made in the field as to how best to manage this material. Once discrete areas of the excavations have been completed, these areas will be subject to backfilling using clean soils placed in compacted lifts. Surface areas will be restored using asphalt or concrete based on the final needs for restoration.

4.2.3.2 UST Removal Program

The USTs (also known as the Oil Tanks) used to support process operations have been generally located within the Plaza adjacent to the Teahouse. These USTs and MGP impacted materials or other contamination from releases of the contents will be recovered through excavation for management off-site in accordance with the MMP.

UST removal will commence by saw-cutting the concrete plaza around the perimeter of the tank locations. These concrete materials will be subject to recovery and off-site recycling. Once the concrete overlying the USTs has been removed to expose the underlying soil surface, hand or hydro-excavation methods will be used to define the depth and horizontal extent of the upper surface of the tanks. Any exposed fill ports will be used to gauge the amount of fluids or materials within the tanks and to sample the contents for profiling. If liquids are identified, a process will be developed based on the type of fluid and its characteristics, for subsequent recovery and management. Once these fluids are recovered, then the USTs will be subject to inertion and removed following applicable UST removal protocols. Excavation of soils to the extent necessary to safely remove the tanks will be performed with the recovered soils being subject to real-time characterization. Once a sufficient amount of soil has been removed, the inerted USTs will be removed as well as MGP or other regulated waste materials.

4.2.3.3 Relief Holder Removal Program

Relief Holder removal will commence by saw-cutting the concrete plaza and parking areas around the full perimeter of the identified location. These materials will be subject to recovery and off-site recycling. Once removed to expose the underlying soils, excavation of the soils and Relief Holder materials will be performed. Such excavation will progress downward in lifts such that the materials encountered can be field-screened and an appropriate means of management identified. All of the materials associated with such excavation will be managed as an MGP impacted material. As the excavation extends vertically downward, sidewall stability will be managed through lay-backs, piling, or other acceptable methods. Any liquids encountered in the Relief Holder will be containerized and sampled for laboratory analysis to determine disposal requirements. To the extent possible, all excavated materials will be directly loaded into trucks and manifested for off-site management. Excavation will continue to the established horizontal limits of excavation and to the depth required to recover NAPL and other forms of MGP impacted materials.

4.2.3.4 Main Holder Removal Program

Portions of the Main Holder were encountered during the 2012 subsurface investigation program, and in particular, a concrete pipe chase sump containing MGP impacted materials was vacuumed out to remove an oil-water mix as part of these efforts. Also, sampling and analysis indicated that surficial soils between the base of the asphalt and the upper surface of the Main Holder foundation represent MGP impacted material, as did materials surrounding the foundation perimeter. Therefore, these materials will be excavated and appropriately managed. As part of the overall remedial program, added

evaluation will be performed with regard to the remaining Main Holder foundation and concrete pipe chase to evaluate whether any other MGP impacted materials exist that may require removal at the surface, within the limits of the foundation, or at the base of the foundation.

Foundation removal is likely to include demolition of concrete either through breaking or saw-cutting to remove elements of the Main Holder as may be needed to identify and recover MGP impacted materials. Initially the concrete foundation above the pipe chase will be opened to allow for additional evaluation and removal as necessary of any MGP impacted materials remaining subsequent to the December 2012 vacuum removal activities. Concrete materials recovered from the foundation will be evaluated to establish whether it is impacted MGP-related material or whether it can be managed through off-site recycling. Once foundation elements are removed to expose the adjacent or underlying soils, excavation of MGP materials will be performed to the extent necessary. Any such excavation will progress downward in lifts such that the materials encountered can be field-screened and an appropriate means of management identified (fluid vs. solid). All of the materials associated with such excavation will be managed as an MGP impacted material. As the excavation extends vertically downward, sidewall stability will be managed through lay-backs, piling, or other acceptable methods. Any liquids encountered in the Main Holder will be containerized and sampled for laboratory analysis to determine disposal requirements. To the extent possible, all excavated materials will be directly loaded into trucks and manifested for off-site management. Excavation will continue to the established horizontal limits of excavation and to the depth required to recover MGP impacted materials as may be identified.

4.2.4 *Fluids Management Plan*

A fluids management plan will be in place during remediation activities to address the range of conditions that could be encountered while removing various infrastructure components suspected of containing MGP impacted materials and to avoid, to the extent possible, a release of these materials during remediation. The uncertain distribution of NAPL, integrity of underground oil storage tanks, and the potential for encountering presently unknown infrastructure components impacted with MGP-related materials define the need for preparatory contingencies to address whatever conditions may be encountered. Therefore, the city will have in place a fluids management plan as part of the MMP to support recovery of MGP impacted materials that are encountered as well as infrastructure components containing MGP impacted materials in a manner that prevents releases to the environment. To meet these needs, fluids encountered will be actively isolated from release either through direct recovery or through containment using geomembranes. Any fluid based MGP impacted materials recovered during the

field program will be containerized, sampled for laboratory analysis to determine disposal requirements, and will be managed subject to the Materials Management Plan.

4.2.5 *Soil Contingency Plan*

Upon approval of this VCUP application, measures to actively remediate MGP-related materials within impacted soils, NAPL, and infrastructure will be implemented. As described previously, areas inaccessible for excavation below 7 feet bgs will be evaluated by field personnel to evaluate whether MGP impacted materials remain in-place that require further treatment.

To address remaining impacted soils, the contingency plan includes a one-time emplacement of a chemical oxidant where needed to address residual COC contamination. The selected chemical oxidant(s) will be evenly dispersed in open excavations using an excavator bucket. Using chemical oxidation by initiating mixing-based contact between the oxidant(s) and impacted soil will support destruction of COCs. The goal for the use of the chemical oxidant is to treat residual MGP impacted materials that cannot be practically removed during excavation efforts. It is not planned that any such actions will be necessary in the vertical dimension. Thus this contingency will only be necessary if MGP impacted materials are identified at the perimeter of the horizontal expression of the excavation. If use of this contingency is necessary and feasible without mobilizing COCs, COCs will be treated as appropriate. Subsequent to any chemical oxidant emplacement, performance groundwater monitoring would be conducted at monitoring locations nearest the treatment areas and near the property boundaries. Performance groundwater monitoring would be performed with and where appropriate in addition to the scheduled quarterly groundwater monitoring program to evaluate post-remediation dissolved-phase COC concentrations.

Chemical oxidants being considered for treatment at the Site include sodium persulfate ($Na_2S_2O_8$), potassium permanganate ($KMnO_4$) and calcium peroxide (CaO_2), which are capable of treatment of a wide range of environmental constituents, including the COCs present at the Site. Bench-scale testing may be performed prior to initiating field work using Site groundwater and soil to determine the best chemical oxidant option. Descriptions for each of these chemical oxidants are provided below:

Sodium persulfate ($Na_2S_2O_8$) is a water-soluble, crystalline solid that when activated, reacts to form persulfate radicals (SO_4^{2-}). Activation of persulfate can be accomplished with the addition of heat, a transition metal-based catalyst such as iron, alkaline conditions, or hydrogen peroxide. The sulfate radical is a strong oxidizer that reacts with COCs as well as non-target compounds such as natural organic matter and other oxidizable soil species. The end product of the persulfate oxidation reaction is sulfate, and depending on the buffering capacity of the affected aquifer, slight, temporary decreases in pH may be observed due to the formation of sulfuric acid.

Potassium permanganate ($KMnO_4$) is a water-soluble, crystalline solid that reacts with water, COCs and other organics. The oxidation of SVOCs by potassium permanganate

involves the direct electron transfer rather than the free-radical processes that characterize oxidation by persulfate. The end product of the permanganate oxidation reaction is magnesium dioxide (MnO_2) and hydroxide (OH^-), and depending on the buffering capacity of the affected aquifer, slight, temporary changes in pH may be observed due to the reaction chemistry.

Calcium peroxide (CaO_2) is a water-soluble powder that reacts once saturated with COCs and other organics. The end product of this oxidation reaction is calcium hydroxide ($Ca(OH)_2$) and hydroxide (OH^-), and will likely result in an increased pH. Once in contact with groundwater, the compound slowly releases oxygen for long-term aerobic biodegradation in the subsurface.

4.2.6 *Well Abandonment*

Certain monitoring wells installed previously for soil and groundwater investigation may be eliminated to implement the proposed excavation activities. These wells will be abandoned in accordance with the applicable rules established by the State Engineer's office. Based upon the wells location relative to the proposed excavation plan, it is anticipated that monitoring wells MW-3, MW-8, and MW-9 may require abandonment prior to the start of excavation activities. Additional wells may be abandoned if proposed excavation extents and/or removal of infrastructure activities are adjusted. Following successful implementation of the remedial action and receipt of a NAD from CDPHE, the Site monitoring wells will be abandoned in accordance with the applicable rules established by the State Engineer's office.

4.3 Post-Remediation Groundwater Monitoring Program

Based on groundwater flow direction at the Site, the point-of-compliance (POC) for impacted groundwater will be established at the property boundaries to the east along 14th Street and to the north. POC wells to be used for ongoing monitoring include: MW-6, MW-7 and MW-10. In the event that a POC well is damaged, destroyed or removed as a result of the excavation activities, the monitoring well would be replaced within direct proximity to the abandoned location or relocated to the respective property boundary location for use as a POC well. Additional POC wells will be identified or installed along the northern property boundary as needed following the completion of excavation activities to evaluate those areas where the greatest quantity of residual impacts were observed, particularly relative to the Relief Holder and Process Area.

Following the implementation of remediation activities at the Site (excavation of soil and NAPL), groundwater monitoring at the POC wells will be initially performed on a quarterly basis for a period of up to 2 years. After two years, monitoring will be conducted on a semi-annual basis, as needed, to confirm a stable or declining trend in COC concentrations at the Site. During this post-remediation monitoring program, groundwater samples would be collected and analyzed for COCs using USEPA methods 8270D SIM and 8260B.

It is planned that the quarterly sampling events will be performed in March, June, September and December. Once monitoring is adjusted to a semi-annual schedule, the monitoring events will likely be performed in June and December. Based upon the available groundwater data, these months have been selected based on the seasonal groundwater table high occurring in or near June and the seasonal groundwater table low occurring in or near December. Once monitoring has been completed, a NAD Request will be submitted to CDPHE for approval.

5.0 REFERENCE LIST

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TABLES

TABLE 1
Summary of VOC and TPH Analytical Results in Soil

1770 13th Street
Boulder, Colorado
All constituents are reported in milligrams per kilogram (mg/kg)

Analyte (VOCs by 8260B)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations															
		MW-1[4]	MW-2[4]	MW-3[4]	MW-4[4]	MW-5[4]	MW-5[4]	MW-6[4]	EX-1	EX-2	EX-3	EX-4	EX-5	EX-6	MW-7	MW-8	B-1
Sample Depth (feet bgs)		9 to 10	8 to 10	9 to 10	5 to 7	5 to 7	8 to 10	5 to 7	4.75	6.5	8.5	7	6	1.25	10 to 11	9 to 10	9
Sample Date:		9/30/2010	9/30/2010	9/28/2010	9/29/2010	9/28/2010	9/28/2010	9/29/2010	11/27/2012	11/29/2012	11/29/2012	11/29/2012	12/4/2012	12/5/2012	11/29/2012	11/29/2012	3/21/2013
Benzene	0.17	ND(<0.052)	ND(<0.055)	ND(<0.052)	ND(<0.057)	ND(<0.058)	ND(<0.055)	ND(<0.053)	ND (<0.005)	ND(<0.002)	ND(<0.002)	ND(<0.002)	ND(<0.002)	0.18	ND(<0.002)	0.051	ND (<0.005)
Bromobenzene	3	NA	NA		NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND (<0.005)
Bromochloromethane		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND (<0.005)
Bromodichloromethane	0.007	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND (<0.005)
Bromoform	0.048	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND (<0.005)
Bromomethane	0.16	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND (<0.01)
n-Butylbenzene	240	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
sec-Butylbenzene	230	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	1.3	0.36	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
tert-Butylbenzene	230	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Carbon tetrachloride	0.92	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Chlorobenzene	5.3	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Chloroethane	520	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Chloroform	0.085	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Chloromethane	20	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)
Chlorodibromomethane	0.11	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND (<0.01)
2-Chlorotoluene		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
4-Chlorotoluene		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,2-Dibromo-3-chloropropane	0.002	NA	NA	NA	NA	NA	NA	NA	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)
1,2-Dibromoethane (EDB)	0.00018	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Dibromomethane		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,2-Dichlorobenzene	57	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,3-Dichlorobenzene	8.5	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,4-Dichlorobenzene	7.8	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Dichlorodifluoromethane	390	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,1-Dichloroethane	1.8	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,2-Dichloroethane (EDC)	0.0036	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,1-Dichloroethene	12	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
cis-1,2-Dichloroethene	1.3	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
trans-1,2-Dichloroethene	5.4	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,2-Dichloropropane	0.0087	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,3-Dichloropropane		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
2,2-Dichloropropane		NA	NA	NA	NA	NA	NA	NA	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
1,1-Dichloropropene		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
cis-1,3-Dichloropropene		ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
trans-1,3-Dichloropropene		ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Ethylbenzene	100	ND(<0.100)	ND(<0.110)	ND(<0.100)	ND(<0.110)	0.507	0.0542[3]	ND(<0.110)	0.277	5.0	3.0	ND(<0.005)	ND(<0.005)	0.18	ND(<0.005)	0.23	0.0117
Hexachlorobutadiene	0.17	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Tert-amyl methyl ether		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Tert-butyl alcohol		NA	NA	NA	NA	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Ethyl tert-butyl ether		NA	NA	NA	NA	NA	NA	NA	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
Isopropylbenzene		NA	NA	NA	NA	NA	NA	NA	0.127	2.0	0.74	ND(<0.005)	ND(<0.005)	0.052	ND(<0.005)	0.14	ND(<0.005)
Di-Isopropyl Ether		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
p-Isopropyltoluene		NA	NA	NA	NA	NA	NA	NA	0.088	2.1	0.41	ND(<0.01)	ND(<0.01)	0.25	ND(<0.01)	0.24	ND(<0.01)
Methylene Chloride	0.06	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)
Methyl tert-butyl ether		ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.005)
Naphthalene	23	NA	NA	NA	NA	NA	NA	NA	NA	210	130	ND(<0.01)	360	960	ND<0.01	210	1.71
n-Propylbenzene	77	NA	NA	NA	NA	NA	NA	NA	0.0571	2.2	0.82	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.06	ND(<0.005)
Styrene	14	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.01)	2.2	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.010)
1,1,2,2-Tetrachloroethane	0.0024	ND(<0.520)	ND(<0.550)	ND(<0.520)	ND(<0.570)	ND(<0.580)	ND(<0.550)	ND(<0.530)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,1,1,2-Tetrachloroethane	0.16	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Tetrachloroethene	1.9	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Toluene	50	ND(<0.100)	ND(<0.110)	ND(<0.100)	ND(<0.110)	ND(<0.120)	ND(<0.110)	ND(<0.110)	ND(<0.005)	ND(<0.005)	0.02	ND(<0.005)	ND(<0.005)	0.24	ND(<0.005)	0.033	ND(<0.005)
1,2,3-Trichlorobenzene		NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,2,4-Trichlorobenzene	13	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,1,2-Trichloroethane	0.038	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,1,1-Trichloroethane	62	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Trichloroethene	0.68	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
Trichlorofluoromethane	1,000	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
1,2,3-Trichloropropane	27	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)
1,3,5-Trimethylbenzene	23	NA	NA	NA	NA	NA	NA	NA	0.105	2.0	0.84	ND(<0.005)	ND(<0.005)	0.06	ND(<0.005)	0.17	ND(<0.005)
1,2,4-Trimethylbenzene	71	NA	NA	NA	NA	NA	NA	NA	0.338	10.0	6.2	ND(<0.005)	ND(<0.005)	12.0	ND(<0.005)	0.74	0.0124
Vinyl chloride	0.11	ND(<0.260)	ND(<0.270)	ND(<0.260)	ND(<0.280)	ND(<0.290)	ND(<0.270)	ND(<0.260)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)
m,p-Xylene	75[2]	NA	NA	NA	NA	NA	NA	NA	0.105	1.8	1.7	ND(<0.01)	ND(<0.01)	18.0	ND(<0.01)	0.26	ND(<0.010)
o-Xylene	75[2]	NA	NA	NA	NA	NA	NA	NA	0.225	5.2	3.2	ND(<0.005)	6.8	13.0	ND(<0.005)	0.42	0.00774
Xylene (total)	75	ND(<0.100)	ND(<0.110)	ND(<0.100)	ND(<0.110)	2.48	0.245	ND(<0.110)	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-GRO		NA	NA	NA	NA	NA	NA	NA	NA	1800	1400	ND(<0.5)	ND(<0.5)	3,500	ND(<0.5)	260	NA

Analyte (TPH-DRO by 8015)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations															
		MW-1	MW-2	MW-3	MW-4	MW-5	MW-5	MW-6	EX-1	EX-2	EX-3	EX-4	EX-5	EX-6	MW-7	MW-8	B-1
Sample Depth (feet bgs)		9 to 10	8 to 10	9 to 10	5 to 7	5 to 7	8 to 10	5 to 7	4.75	6.5	8.5	7	6	1.25	10 to 11	9 to 10	9
Sample Date:		9/30/2010	9/30/2010	9/28/2010	9/29/2010				11/27/2012	11/29/2012	11/29/2012	11/29/2012	12/4/2012	12/5/2012	11/29/2012	11/29/2012	3/21/2013
TPH-DRO		NA	NA	NA	NA	NA	NA	NA	NA	NA	4900	NA	460	11,000	NA	NA	NA

TABLE 1
Summary of VOC and TPH Analytical Results in Soil

1770 13th Street
Boulder, Colorado
All constituents are reported in milligrams per kilogram (mg/kg)

Analyte (VOCs by 8260B)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations															
		B-2	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	RH-EX-1	RH-EX-2	RH-EX-3	MW-9	MW-10
Sample Depth (feet bgs)		8.5	14 to 14.5	8.5	10	8.5	8.5	8.0	6.5	7.5	9.5	9.0	4.75	8	8.5-9	9.5	8
Sample Date:		3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/28/2013	3/28/2013	3/28/2013	3/28/2013	4/8/2013	4/8/2013	3/25/2013	3/25/2013	3/25/2013	4/8/2013	6/6/2013
Benzene	0.17	ND (<0.005)	0.0564	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	0.0645	ND (<0.005)	ND (<0.005)	ND(<0.5)	ND(<0.5)	0.118	ND (<0.005)
Bromobenzene	3	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND (<0.005)
Bromochloromethane		ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND (<0.005)
Bromodichloromethane	0.007	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND (<0.005)
Bromoform	0.048	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND (<0.005)	ND(<0.05)	ND (<0.005)	ND (<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND (<0.005)
Bromomethane	0.16	ND (<0.01)	0.285	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND (<0.01)	0.105	ND (<0.01)	ND (<0.01)	ND(<1.0)	ND(<1.0)	0.166	ND (<0.01)
n-Butylbenzene	240	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.368	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	2.53	ND(<0.005)
sec-Butylbenzene	230	ND(<0.005)	0.0522	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.108	ND(<0.005)	1.42	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	1.72	ND(<0.005)
tert-Butylbenzene	230	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	1.01	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	2.05	ND(<0.005)
Carbon tetrachloride	0.92	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Chlorobenzene	5.3	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Chloroethane	520	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Chloroform	0.085	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Chloromethane	20	ND(<0.015)	ND(<0.15)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.15)	ND(<0.015)	ND(<0.015)	ND(<1.5)	ND(<1.5)	ND(<0.15)	ND(<0.015)
Chlorodibromomethane	0.11	ND (<0.01)	ND(<0.1)	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND (<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<1.0)	ND(<1.0)	ND(<0.1)	ND(<0.01)
2-Chlorotoluene		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
4-Chlorotoluene		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,2-Dibromo-3-chloropropane	0.002	ND(<0.015)	ND(<0.15)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.15)	ND(<0.015)	ND(<0.015)	ND(<1.5)	ND(<1.5)	ND(<0.15)	ND(<0.015)
1,2-Dibromoethane (EDB)	0.00018	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Dibromomethane		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,2-Dichlorobenzene	57	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,3-Dichlorobenzene	8.5	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,4-Dichlorobenzene	7.8	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Dichlorodifluoromethane	390	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,1-Dichloroethane	1.8	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,2-Dichloroethane (EDC)	0.0036	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,1-Dichloroethene	12	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
cis-1,2-Dichloroethene	1.3	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
trans-1,2-Dichloroethene	5.4	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,2-Dichloropropane	0.0087	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,3-Dichloropropane		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
2,2-Dichloropropane		ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<1.0)	ND(<1.0)	ND(<0.1)	ND(<0.01)
1,1-Dichloropropene		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
cis-1,3-Dichloropropene		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
trans-1,3-Dichloropropene		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Ethylbenzene	100	ND(<0.005)	2.3	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.328	ND(<0.005)	0.194	ND(<0.005)	ND(<0.005)	11.3	0.855	4.44	ND(<0.005)
Hexachlorobutadiene	0.17	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Tert-amyl methyl ether		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Tert-butyl alcohol		ND(<0.02)	0.766	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.2)	ND(<0.02)	ND(<0.02)	ND(<2.0)	ND(<2.0)	ND(<0.2)	ND(<0.02)
Ethyl tert-butyl ether		ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<1.0)	ND(<1.0)	ND(<0.1)	ND(<0.01)
Isopropylbenzene		ND(<0.005)	0.957	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.155	ND(<0.005)	0.84	ND(<0.005)	ND(<0.005)	1.77	1.51	2.25	ND(<0.005)
Di-Isopropyl Ether		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
p-Isopropyltoluene		ND(<0.01)	0.822	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	0.147	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	1.30	4.46	ND(<0.1)	ND(<0.01)
Methylene Chloride	0.06	ND(<0.015)	ND(<0.150)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.015)	ND(<0.15)	ND(<0.015)	ND(<0.015)	ND(<1.5)	ND(<1.5)	ND(<0.15)	ND(<0.015)
Methyl tert-butyl ether		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Naphthalene	23	0.256	120	ND(<0.010)	0.0425	0.310	NA	NA	NA	NA	2.05	ND(<0.01)	NA	NA	NA	27.2	ND(<0.01)
n-Propylbenzene	77	ND(<0.005)	0.515	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.197	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	1.12	ND(<0.5)	ND(<0.05)	ND(<0.005)
Styrene	14	ND(<0.010)	ND(<0.100)	ND(<0.010)	ND(<0.010)	ND(<0.010)	ND(<0.010)	ND(<0.010)	ND(<0.01)	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<1.0)	ND(<1.0)	ND(<0.1)	ND(<0.01)
1,1,2,2-Tetrachloroethane	0.0024	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,1,1,2-Tetrachloroethane	0.16	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Tetrachloroethene	1.9	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Toluene	50	ND(<0.005)	0.0585	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	1.06	1.06	0.0969	ND(<0.005)
1,2,3-Trichlorobenzene		ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,2,4-Trichlorobenzene	13	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,1,2-Trichloroethane	0.038	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,1,1-Trichloroethane	62	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Trichloroethene	0.68	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
Trichlorofluoromethane	1,000	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
1,2,3-Trichloropropane	27	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	ND(<1.0)	ND(<1.0)	ND(<0.1)	ND(<0.01)
1,3,5-Trimethylbenzene	23	ND(<0.005)	1.09	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.149	ND(<0.005)	0.936	ND(<0.005)	ND(<0.005)	1.56	1.46	9.36	ND(<0.005)
1,2,4-Trimethylbenzene	71	ND(<0.005)	2.09	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	3.51	ND(<0.005)	3.97	ND(<0.005)	ND(<0.005)	6.88	18.2	20.0	ND(<0.005)
Vinyl chloride	0.11	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	ND(<0.5)	ND(<0.5)	ND(<0.05)	ND(<0.005)
m,p-Xylene	75[2]	ND(<0.010)	0.929	ND(<0.010)	ND(<0.010)	ND(<0.010)	ND(<0.010)	ND(<0.010)	0.625	ND(<0.01)	0.169	ND(<0.01)	ND(<0.01)	6.64	9.86	16.0	ND(<0.01)
o-Xylene	75[2]	ND(<0.005)	0.920	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	ND(<0.005)	0.416	ND(<0.005)	ND(<0.05)	ND(<0.005)	ND(<0.005)	5.6	10.2	0.917	ND(<0.005)
Xylene (total)	75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-GRO		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analyte (TPH-DRO by 8015)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations															
		B-2	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	RH-EX-1	RH-EX-2	RH-EX-3	MW9	MW-10
Sample Depth (feet bgs)		8.5	14 to 14.5	8.5	10	8.5	8.5	8.0	6.5	7.5	9.5	9.0	4.75	8	8.5-9	9.5	8
Sample Date:		3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/28/2013	3/28/2013	3/28/2013	3/28/2013	4/8/2013	4/8/2013	3/25/2013	3/25/2013	3/25/2013	4/8/2013	6/6/2013
TPH-DRO		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 - The Colorado Department of Public Health and Environment (CDPHE) utilizes the Colorado Soil Evaluation Values (CSEV Table) for screening of the Groundwater Protection Level. The most recent version (July 2011) of the CSEV Table was utilized to evaluate the Groundwater Protection Levels.
2 - CDHPE CSEV Groundwater Protection Level for xylenes is reported for total xylenes
3 - Detected but below the reporting limit; therefore, result is an estimated concentration.
4 - Soil samples collected by others.

Volatile Organic Compounds (VOCs) analyzed by USEPA Method 8260B.
Cells highlighted in **BLUE** indicate an exceedance of the CSEV for Groundwater Protection Levels.

ND = Not detected at or above the reporting limit.

NA = Not analyzed.
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics.
TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics.

TABLE 2
Summary of SVOC Analytical Results in Soil

1700 13st Street

Boulder, Colorado

All constituents are reported in milligrams per kilogram (mg/kg)

Analyte (SVOCs by 8270D)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations						
		MW-1[5]	MW-2[5]	MW-3[5]	MW-4[5]	MW-5[5]	MW-5[5]	MW-6[5]
Sample Depth (feet bgs)		9 to 10	8 to 10	9 to 10	5 to 7	5 to 7	8 to 10	5 to 7
Sample Date:		9/30/2010	9/30/2010	9/28/2010	9/29/2010	9/28/2010	9/28/2010	9/29/2010
Acenaphthene	1,000	ND<(0.037)	ND<(0.038)	ND<(0.075)	ND<(0.039)	43.7	8.85	ND<(0.038)
Acenaphthylene		ND<(0.037)	ND<(0.038)	0.105	ND<(0.039)	1.37	ND<(0.77)	ND<(0.038)
Anthracene	1,000	ND<(0.037)	ND<(0.038)	ND<(0.075)	ND<(0.039)	15.7	3.63	ND<(0.038)
Benzo (a) anthracene	1,000	ND<(0.037)	0.0422	0.751	ND<(0.039)	10.5	3.1	ND<(0.038)
Benzo (b) fluoranthene	1,000	ND<(0.041)	ND<(0.042)	0.66	ND<(0.043)	3.73	1.23	ND<(0.041)
Benzo (k) fluoranthene	1,000	ND<(0.047)	ND<(0.049)	0.729	ND<(0.050)	4.54	1.67	ND<(0.048)
Benzo (g,h,i) perylene		ND<(0.037)	ND<(0.038)	0.95	ND<(0.039)	2.66	1.01	ND<(0.038)
Benzo (a) pyrene	1,000	ND<(0.037)	0.0385	0.924	ND<(0.039)	7.56	2.19	ND<(0.038)
Chrysene	1,000	ND<(0.047)	ND<(0.049)	0.821	ND<(0.050)	8.57	2.73	ND<(0.048)
Dibenz (a,h) anthracene	1,000	ND<(0.041)	ND<(0.042)	0.179	ND<(0.043)	ND<(0.86)	ND<(0.84)	ND<(0.041)
Fluoranthene	1,000	ND<(0.071)	0.0463[3]	0.647	ND<(0.075)	21.5	5.95	ND<(0.072)
Fluorene	1,000	ND<(0.041)	ND<(0.042)	ND<(0.082)	ND<(0.043)	20.7	4.86	ND<(0.041)
Indeno (1,2,3-cd) pyrene	1,000	ND<(0.037)	ND<(0.038)	0.796	ND<(0.039)	2.73	1.07	ND<(0.038)
Naphthalene	23	ND<(0.071)	ND<(0.073)	ND<(0.14)	ND<(0.075)	91.8	10.8	0.0365[3]
Phenanthrene		ND<(0.071)	ND<(0.073)	0.281	ND<(0.075)	58.3	14.3	ND<(0.072)
Pyrene	1,000	ND<(0.041)	0.108	2.09	ND<(0.043)	39.9	9.68	0.0381[3]

TABLE 2
Summary of SVOC Analytical Results in Soil

1700 13st Street
Boulder, Colorado
All constituents are reported in milligrams per kilogram (mg/kg)

Analyte (SVOCs by 8270D)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations							
		EX-1[2][4]	EX-2[2]	EX-3[2]	EX-4	EX-5	EX-6	MW-7	MW-8[2]
Sample Depth (feet bgs)		4.75	6.5	8.5	7	6	1.25	10 to 11	9 to 10
Sample Date:		11/27/2012	11/29/2012	11/29/2012	11/29/2012	12/4/2012	12/5/2012	11/29/2012	11/29/2012
Acenaphthene	1,000	0.79[3]	51.0	26.0	0.1[3]	ND (<3.3)	140	ND (<0.33)	130
Acenaphthylene		1.7	2.4[3]	1.4[3]	0.021[3]	5.3	440	ND (<0.33)	49
Anthracene	1,000	0.97[3]	20.0	9.6	0.18[3]	ND (<3.3)	190	0.0077[3]	68
Benzo (a) anthracene	1,000	0.8[3]	9.3	5.4	0.014[3]	12.0	180	0.0087[4]	49
Benzo (b) fluoranthene	1,000	0.23[3]	3.8	2.8[4]	ND (<0.33)	12.0	68.0	ND (<0.33)	77
Benzo (k) fluoranthene	1,000	0.34[3]	6.4	3.8	ND (<0.33)	13.0	110	ND (<0.33)	75
Benzo (g,h,i) perylene		0.11[3]	1.6[3]	0.77[3]	ND (<0.33)	4.2	ND (<33.0)	ND (<0.33)	9.1[3]
Benzo (a) pyrene	1,000	0.44[3]	8.7	4.8	ND (<0.33)	15.0	150	ND (<0.33)	53
Chrysene	1,000	0.86[3]	8.8	4.8	0.014[3]	13.0	180	0.009[3]	45
Dibenz (a,h) anthracene	1,000	ND (<1.3)	0.27[3]	0.57[3]	ND (<0.33)	ND (<0.33)	ND (<33.0)	ND (<0.33)	1.0[3]
Fluoranthene	1,000	0.87[3]	25.0	13.0	0.17[3]	9.8	260	0.016[3]	90
Fluorene	1,000	2.1	25.0	15.0	0.12[3]	ND (<3.3)	440	ND (<0.33)	110
Indeno (1,2,3-cd) pyrene	1,000	0.055[3]	2.1[3]	1.0[3]	ND (<0.33)	5.9	ND (<33.0)	ND (<0.33)	10[3]
Naphthalene	23	24.0	140	67.0	0.021[3]	8.8	1,400	ND (<0.33)	230
Phenanthrene		3.2	64.0	39.0	0.57	ND (<3.3)	830	0.026[3]	250
Pyrene	1,000	3.0	ND (<3.3)	ND (<3.3)	ND (<0.33)	25.0	650	ND (<0.33)	NA

TABLE 2
Summary of SVOC Analytical Results in Soil

1700 13st Street

Boulder, Colorado

All constituents are reported in milligrams per kilogram (mg/kg)

Analyte (SVOCs by 8270D)	CDPHE CSEV-Groundwater Protection Level - July 2011[(1)]	Soil Sample Locations							
		B-1	B-2	B-2	B-3	B-4	B-5	B-6	B-7
Sample Depth (feet bgs)		9	8.5	14 to 14.5	8.5	10	8.5	8.5	8.0
Sample Date:		3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/21/2013	3/28/2013	3/28/2013
Acenaphthene	1,000	1.47	0.319	136	0.0294	0.116	0.181	0.065	0.0328
Acenaphthylene		0.266	0.108	1.37	0.0145	0.0531	0.101	0.0345	0.0423
Anthracene	1,000	0.626	0.48	31.7	0.0433	0.14	0.398	0.118	0.0603
Benzo (a) anthracene	1,000	0.596	0.338	26.5	0.019	0.149	0.206	0.0918	0.0617
Benzo (b) fluoranthene	1,000	0.117	0.0788	0.631	ND(<0.005)	0.0631	0.0873	0.0259	0.0271
Benzo (k) fluoranthene	1,000	0.123	0.0494	0.469	ND(<0.005)	0.0377	0.0672	0.0329	0.0261
Benzo (g,h,i) perylene		0.0604	0.036	0.191	ND(<0.005)	0.0249	0.0352	0.0155	0.0129
Benzo (a) pyrene	1,000	0.267	0.125	0.905	0.00609	0.0877	0.132	0.0741	0.0595
Chrysene	1,000	0.37	0.0182	1.46	0.0113	0.0599	0.177	0.0812	0.0636
Dibenz (a,h) anthracene	1,000	0.0364	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.01)	0.0139	ND(<0.01)	ND(<0.01)
Fluoranthene	1,000	0.667	0.846	31.0	0.0633	0.18	0.242	0.131	0.12
Fluorene	1,000	1.06	0.383	56.5	0.0322	0.107	0.331	0.094	0.0775
Indeno (1,2,3-cd) pyrene	1,000	0.0601	0.0342	0.224	ND(<0.01)	0.0237	0.0348	0.0164	0.0133
Naphthalene	23	1.16	0.143	257	ND(<0.005)	0.00978	0.135	0.0251	0.0148
Phenanthrene		2.54	1.32	168	0.16	0.521	79.2	0.305	0.187
Pyrene	1,000	1.18	1.66	49.7	0.101	0.351	0.478	0.202	0.19

TABLE 2
Summary of SVOC Analytical Results in Soil

1700 13st Street
Boulder, Colorado
All constituents are reported in milligrams per kilogram (mg/kg)

Analyte (SVOCs by 8270D)	CDPHE CSEV-Groundwater Protection Level - July 2011[1]	Soil Sample Locations								
		B-8[2]	B-9	B-10	B-11	RH-EX-1	RH-EX-2	RH-EX-3	MW-9	MW-10[2]
Sample Depth (feet bgs)		6.5	7.5	9.5	9.0	4.75	8	8.5-9	9.5	8
Sample Date:		3/28/2013	3/28/2013	4/8/2013	4/8/2013	3/25/2013	3/25/2013	3/25/2013	4/8/2013	6/6/2013
Acenaphthene	1,000	12.6	0.0382	3.49	0.0096	ND(<0.15)	1,510	4.08	4.03	ND(<0.99)
Acenaphthylene		0.388	0.0112	0.315	0.0702	0.548	3.83	2.74	1.12	ND(<0.99)
Anthracene	1,000	4.06	0.179	2.14	0.0231	ND(<0.15)	2,100	2.16	2.29	ND(<0.99)
Benzo (a) anthracene	1,000	2.76	0.0442	0.803	0.0564	1.05	5.08	1.82	2.36	ND(<0.99)
Benzo (b) fluoranthene	1,000	0.952	0.0202	0.317	0.0297	0.923	1.72	0.705	2.09	ND(<0.99)
Benzo (k) fluoranthene	1,000	1.03	0.0206	0.427	0.0207	0.657	1.3	0.461	2.67	ND(<0.99)
Benzo (g,h,i) perylene		0.223	0.00885	0.128	0.0402	0.505	0.635	0.201	1.23	ND(<0.99)
Benzo (a) pyrene	1,000	3.41	0.0537	0.559	0.0133	1.23	2.57	0.873	2.31	ND(<0.99)
Chrysene	1,000	2.18	0.041	0.89	0.0923	0.896	3.26	1.28	2.9	ND(<0.99)
Dibenz (a,h) anthracene	1,000	ND(<0.1)	ND(<0.01)	ND(<0.1)	ND(<0.01)	ND(<0.3)	ND(<0.3)	ND(<0.3)	ND(<1.0)	ND(<0.99)
Fluoranthene	1,000	4.99	0.116	1.18	0.0449	1.2	721	2.9	3.93	ND(<0.99)
Fluorene	1,000	6.43	0.0686	2.86	0.0097	ND(<0.150)	1,100	3.62	3.49	ND(<0.99)
Indeno (1,2,3-cd) pyrene	1,000	0.284	0.0108	0.148	0.0295	0.417	0.602	ND(<0.3)	1.43	ND(<0.99)
Naphthalene	23	36.5	0.0321	1.48	0.0188	ND(<0.150)	1,980	2,250	12.7	ND(<0.99)
Phenanthrene		15.4	0.0634	6.48	0.0432	ND(<0.150)	3,210	1,040	9.71	ND(<0.99)
Pyrene	1,000	8.29	0.215	3.03	0.368	3.63	1,230	4.96	5.62	1.1

Notes:

1 - The Colorado Department of Public Health and Environment (CDPHE) utilizes the Colorado Soil Evaluation Values (CSEV Table) for screening of the Groundwater Protection Level. The most recent version (July 2011) of the CSEV Table was utilized to evaluate the Groundwater Protection Levels.
2 - The reporting limit for analytes have been raised to account for matrix interference.
3 - Detected but below the reporting limit; therefore, result is an estimated concentration.
4 - The full 8270D list was reported for sample. Of the 57 other constituents reported, only six constituents were detected. Of the six detections, nitrobenzene at 0.18 mg/kg was the only analyte to exceed CDPHE CSEV Groundwater Protection Level of 0.061 mg/kg.
5 - Soil sample collected by others.

Semi-volatile Organic Compounds (SVOCs) analyzed by USEPA Method 8270D SIM, except at EX-1 where SVOCs analyzed by USEPA Method 8270D Full Scan and soil samples collected in 2010 where SVOCs analyzed by USEPA Method 8270C.
Cells highlighted in **BLUE** indicate an exceedance of the CSEV for Groundwater Protection Levels.
ND - Not detected at or above the reporting limit.
NA - Not analyzed.

Table 3
Summary of Groundwater Monitoring Well Measurements

October 2010 - September 2013
1770 13th Street
Boulder, Colorado

Monitoring Well Location	Date	Depth to Groundwater BTOC [1] (feet)	Depth to Product BTOC [1] (feet)	Product Thickness (feet)	Total Depth (feet)	TOC Elevation[2] (feet amsl)	Groundwater Elevation (feet amsl)	Change in Groundwater Elevation Since Previous Event [3] (feet)	Comments:
MW-1	10/4/2010	10.74	ND	None		5,341.51	5,330.77	NM	
MW-1	9/27/2011	10.79	ND	None			5,330.72	-0.05	
MW-1	1/16/2012	11.32	ND	None			5,330.19	-0.53	
MW-1	5/7/2012	9.71	ND	None			5,331.80	1.61	
MW-1	11/30/2012	11.07	ND	None	15.73	5,341.52	5,330.45	-1.36	
MW-1	3/20/2013	10.65	ND	None	15.48		5,330.87	0.42	
MW-1	6/13/2013	9.13	ND	None	15.39		5,332.39	1.52	
MW-1	9/9/2013	10.64	ND	None	15.40		5,330.88	-1.51	
MW-2	10/4/2010	9.91	ND	None		5,339.48	5,329.57	NM	
MW-2	9/27/2011	10.02	ND	None			5,329.46	-0.11	
MW-2	1/16/2012	10.51	ND	None			5,328.97	-0.49	
MW-2	5/7/2012	8.95	ND	None			5,330.53	1.56	
MW-2	11/30/2012	10.18	ND	None	13.40	5,339.52	5,329.34	-1.23	
MW-2	3/20/2013	9.73	ND	None	13.51		5,329.79	0.45	
MW-2	6/13/2013	8.78	ND	None	13.48		5,330.74	0.95	
MW-2	9/9/2013	9.90	ND	None	13.49		5,329.62	-1.12	
MW-3	10/4/2010	8.53	ND	None		5,338.04	5,329.51	NM	
MW-3	9/27/2011	8.62	ND	None			5,329.42	-0.09	
MW-3	1/16/2012	9.12	ND	None			5,328.92	-0.50	
MW-3	5/7/2012	7.52	ND	None			5,330.52	1.60	
MW-3	11/30/2012	8.79	ND	None	14.31	5,338.09	5,329.30	-1.27	Sheen
MW-3	3/20/2013	8.27	ND	None	14.27		5,329.82	0.52	
MW-3	6/13/2013	7.39	ND	None	14.24		5,330.70	0.88	
MW-3	9/9/2013	8.52	ND	None	14.19		5,329.57	-1.13	Sheen
MW-4	10/4/2010	5.96	ND	None		5,336.63	5,330.67	NM	
MW-4	9/27/2011	6.12	ND	None			5,330.51	-0.16	
MW-4	1/16/2012	6.82	ND	None			5,329.81	-0.70	
MW-4	5/7/2012	4.51	ND	None			5,332.12	2.31	
MW-4	11/30/2012	6.36	ND	None	14.06	5,336.64	5,330.28	-1.85	
MW-4	3/20/2013	5.66	ND	None	14.07		5,330.98	0.70	
MW-4	6/13/2013	4.36	ND	None	14.02		5,332.28	1.30	
MW-4	9/9/2013	5.92	ND	None	14.00		5,330.72	-1.56	
MW-5	10/4/2010	8.02	ND	None		5,338.13	5,330.11	NM	
MW-5	9/27/2011	8.17	ND	None			5,329.96	-0.15	
MW-5	1/16/2012	8.81	ND	None			5,329.32	-0.64	
MW-5	5/7/2012	6.57	ND	None			5,331.56	2.24	
MW-5	11/30/2012	8.33	ND	None	14.00	5,338.18	5,329.85	-1.76	Sheen
MW-5	3/20/2013	7.70	ND	None	13.56		5,330.48	0.63	Sheen
MW-5	6/13/2013	6.52	ND	None	13.44		5,331.66	1.18	
MW-5	9/9/2013	8.01	ND	None	13.40		5,330.17	-1.49	Sheen
MW-6	10/4/2010	7.83	ND	None		5,337.51	5,329.68	NM	
MW-6	9/27/2011	8.05	ND	None			5,329.46	-0.22	
MW-6	1/16/2012	8.72	ND	None			5,328.79	-0.67	
MW-6	5/7/2012	6.32	ND	None			5,331.19	2.40	
MW-6	11/30/2012	8.17	ND	None	14.39	5,337.53	5,329.36	-1.85	
MW-6	3/20/2013	7.29	ND	None	14.39		5,330.24	0.88	
MW-6	6/13/2013	6.49	ND	None	14.38		5,331.04	0.80	
MW-6	9/9/2013	7.90	ND	None	14.41		5,329.63	-1.41	Sheen
MW-7	11/30/2012	8.50	ND	None	14.67	5,337.69	5,329.19	NM	
MW-7	3/20/2013	7.96	ND	None	14.58		5,329.73	0.54	
MW-7	6/13/2013	7.09	ND	None	14.54		5,330.60	0.87	
MW-7	9/9/2013	8.25	ND	None	14.56		5,329.44	-1.16	

Table 3
Summary of Groundwater Monitoring Well Measurements

October 2010 - September 2013
1770 13th Street
Boulder, Colorado

Monitoring Well Location	Date	Depth to Groundwater BTOC [1] (feet)	Depth to Product BTOC [1] (feet)	Product Thickness (feet)	Total Depth (feet)	TOC Elevation[2] (feet amsl)	Groundwater Elevation (feet amsl)	Change in Groundwater Elevation Since Previous Event [3] (feet)	Comments:
MW-8	11/30/2012	8.83	ND	None	13.95	5,338.44	5,329.61	NM	Sheen
MW-8	3/20/2013	8.27	ND	None	13.77		5,330.17	0.56	Sheen
MW-8	6/13/2013	7.24	ND	None	13.76		5,331.20	1.03	Sheen
MW-8	9/9/2013	8.53	ND	None	13.74		5,329.91	-1.29	Sheen
MW-9	4/11/2013	9.45	ND	None	15.59	5,340.77	5,331.32	NM	Sheen
MW-9	6/13/2013	8.41	ND	None	15.56		5,332.36	1.04	Sheen
MW-9	9/9/2013	9.91	ND	None	14.93		5,330.86	-1.50	Sheen
MW-10	6/13/2013	6.84	ND	None	13.93	5,337.47	5,330.63	NM	
MW-10	9/9/2013	8.02	ND	None	13.89		5,329.45	-1.18	

Notes:

1 - Depths to groundwater/product measured from the north edge of the well casing. Measurements prior to 11/30/12, were collected by others.

2 - Monitoring wells MW-1 through MW-8 were surveyed on December 3, 2012 by Flagstaff Surveying, Inc. to NAVD 88 datum. Monitoring wells MW-9 and MW-10 were surveyed on April 26 and June 11, 2013, respectively, by Flagstaff Surveying, Inc. to NAVD 88 datum.

3 - Change in groundwater elevation is based on the change in elevation since the most recent measuring event. Change in groundwater elevations calculated for 9/9/2013 are based on depth to water measurements between June 2013 and September 2013.

amsl - above mean sea level
BTOC - below top of casing
TOC - top of casing
ND - not detected
NM - not measured
Sheen - sheen observed on water surface during purging activities for sample collection.

TABLE 4

Summary of VOC and TPH Analytical Results in Groundwater

1770 13th Street
Boulder, Colorado

Sample Location	Sample Date	Analyte (VOCs by 8260B); concentrations are reported in micrograms per liter (ug/L)																															
		Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Chlorodibromomethane	2-Chlorotoluene	4-Chlorotoluene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane (EDC)	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene
Colorado Basic Standards for Groundwater[1]		5.0	56.0		0.56	4.0					5.0	100		3.5		14.0			0.2	0.018		600	94.0	75.0			5.0	7.0	70.0	100	5.0			
MW-1	10/4/2010	ND(<1.0)	NA	NA	ND(<2.0)	ND(<4.0)	ND(<4.0)	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	NA	NA	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA
MW-1	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-1	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-1	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-1	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-2	10/4/2010	ND(<1.0)	NA	NA	ND(<2.0)	ND(<4.0)	ND(<4.0)	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	NA	NA	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA
MW-2	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-2	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-2	6/13/2013	1.09	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-2	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-3	10/4/2010	8.4	NA	NA	ND(<10)	ND(<20)	ND(<20)	NA	NA	NA	ND(<10)	ND(<10)	ND(<20)	ND(<10)	ND(<20)	ND(<10)	NA	NA	NA	NA	NA	ND(<10)	ND(<10)	ND(<10)	NA	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	NA
MW-3	12/3/2012	26.0	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-3-DUP	12/3/2012	28.0	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-3	3/20/2013	7.04	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-3	6/13/2013	7.44	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-3	9/9/2013	4.66	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-4	10/4/2010	ND(<1.0)	NA	NA	ND(<2.0)	ND(<4.0)	ND(<4.0)	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	NA	NA	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA
MW-4	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-4	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-4	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-4	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-5	10/4/2010	0.46	NA	NA	ND(<2.0)	ND(<4.0)	ND(<4.0)	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	NA	NA	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA
MW-5	12/3/2012	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-5	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-5-DUP	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-5	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-5	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-6	10/4/2010	0.71	NA	NA	ND(<2.0)	ND(<4.0)	ND(<4.0)	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	ND(<4.0)	ND(<2.0)	NA	NA	NA	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA
MW-6	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-6	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-6	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-6-DUP	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-6	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-7	12/3/2012	28.0	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-7	3/20/2013	17.6	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-7	6/13/2013	11.1	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-7	9/9/2013	10.7	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-8	12/3/2012	780	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-8	3/20/2013	309	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-8	6/13/2013	696	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	8.10	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-8	9/9/2013	637	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	7.47	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-9	4/11/2013	5.47	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	6.10	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-9	6/13/2013	1.03	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	2.81	3.21	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-9	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-9-DUP	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.82	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-10	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
MW-10	9/9/2013	9.60	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)

TABLE 4

Summary of VOC and TPH Analytical Results in Groundwater

1770 13th Street
Boulder, Colorado

Sample Location	Sample Date	Analyte (VOCs by 8260B); concentrations are reported in micrograms per liter (ug/L)																														TPH-DRO (EPA method 8015)
		cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	Hexachlorobutadiene	Tert-amyl methyl ether	Tert-butyl alcohol	Tert-butyl ether	Ethyl tert-butyl ether	Isopropylbenzene	Di-Isopropyl Ether	p-Isopropyltoluene	Methylene Chloride	Methyl tert-butyl ether	Naphthalene	n-Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,2-Trichloroethane	1,1,1-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Vinyl chloride	m,p-Xylene	o-Xylene	TPH-GRO	
Colorado Basic Standards for Groundwater[1]				700	0.45									20[2]	140		100	0.18		5	1,000		70	5	200	5		0.00034			2	10,000	10,000		
MW-1	10/4/2010	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	NA	NA	NA	NA	ND(<5.0)	ND(<2.0)	NA	NA	ND(<4.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	ND(<2.0)	NA	ND(<2.0)[3]	NA	NA
MW-1	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	ND(<500)	ND(<5,000)
MW-1	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-1	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-1	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-2	10/4/2010	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	NA	NA	NA	NA	ND(<5.0)	ND(<2.0)	NA	NA	ND(<4.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	ND(<2.0)	NA	ND(<2.0)[3]	NA	NA
MW-2	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	ND(<500)	ND(<5,000)
MW-2	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-2	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-2	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-3	10/4/2010	ND(<10)	ND(<10)	227	NA	NA	NA	NA	NA	NA	NA	NA	ND(<25)	11.6	NA	NA	ND(<20)	ND(<10)	NA	ND(<10)	24.3	NA	NA	ND(<10)	ND(<10)	ND(<10)	NA	NA	NA	NA	ND(<10)	NA	189[3]	NA	NA
MW-3	12/3/2012	ND(<1.0)	ND(<1.0)	60	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	11	ND(<5.0)	4.3	ND(<5.0)	ND(<5.0)	800	2.9	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	7.4	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	11	11	ND(<1.0)	12	31	1,600	6,190
MW-3 DUP	12/3/2012	ND(<1.0)	ND(<1.0)	62	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	12	ND(<5.0)	4.9	ND(<5.0)	ND(<5.0)	740	3.1	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	7.7	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	12	12	ND(<1.0)	13	35	1,700	NA
MW-3	3/20/2013	ND(<1.0)	ND(<1.0)	41.4	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	11.1	ND(<5.0)	4.07	ND(<5.0)	ND(<5.0)	NA	3.02	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	2.84	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	10.3	8.59	ND(<1.0)	9.62	23.6	NA	NA
MW-3	6/13/2013	ND(<1.0)	ND(<1.0)	77.2	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	17.3	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	3.45	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	15.6	57.2	ND(<1.0)	19.5	34.3	NA	NA
MW-3	9/9/2013	ND(<1.0)	ND(<1.0)	44.4	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	11.9	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	184	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	2.66	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	7.84	29.4	ND(<1.0)	7.22	24.4	NA	NA
MW-4	10/4/2010	ND(<2.0)	ND(<2.0)	1.2	NA	NA	NA	NA	NA	NA	NA	NA	ND(<5.0)	ND(<2.0)	NA	NA	ND(<4.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	ND(<2.0)	NA	3.7[3]	NA	NA
MW-4	11/30/2012	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	2.9	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	ND(<500)	ND(<5,000)
MW-4	3/20/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-4	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-4	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-5	10/4/2010	ND(<2.0)	ND(<2.0)	53.6	NA	NA	NA	NA	NA	NA	NA	NA	ND(<5.0)	ND(<2.0)	NA	NA	ND(<4.0)	ND(<2.0)	NA	ND(<2.0)	2.2	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	ND(<2.0)	NA	58.7[3]	NA	NA
MW-5	12/3/2012	ND(<1.0)	ND(<1.0)	2.9	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	4.9	ND(<5.0)	4.5	ND(<5.0)	ND(<5.0)	1,000	3.4	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	4.8	12	ND(<1.0)	ND(<2.0)	1.6	1,400	6,880
MW-5	3/20/2013	ND(<1.0)	ND(<1.0)	1.23	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	1.73	ND(<5.0)	1.47	ND(<5.0)	ND(<5.0)	NA	1.08	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.63	4.33	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-5-DUP	3/20/2013	ND(<1.0)	ND(<1.0)	1.21	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	1.69	ND(<5.0)	1.49	ND(<5.0)	ND(<5.0)	NA	1.14	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.60	4.35	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-5	6/13/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND<1.0	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-5	9/9/2013	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND<1.1	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	11.3	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.89	ND(<1.0)	ND(<2.0)	ND(<1.0)	NA	NA
MW-6	10/4/2010	ND(<2.0)	ND(<2.0)	30	NA	NA	NA	NA	NA	NA	NA	NA	ND(<5.0)	ND(<2.0)	NA	NA	ND(<4.0)	ND(<2.0)	NA	ND(<2.0)	ND(<2.0)	NA	NA	ND(<2.0)	ND(<2.0)	ND(<2.0)	NA	NA	NA	NA	ND(<2.0)	NA	21.6[3]	NA	NA
MW-6	11/30/2012	ND(<1.0)	ND(<1.0)	8.8	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	2.4	ND(<5.0)	1.7	ND(<5.0)	ND(<5.0)	270	1.1	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	2.5	4.2	ND(<1.0)	4.6	5.3	ND(<500)	ND(<5,000)
MW-6	3/20/2013	ND(<1.0)	ND(<1.0)	22.4	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	5.98	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	2.54	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.78	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	5.80	9.20	ND(<1.0)	10.4	11.2	NA	NA
MW-6	6/13/2013	ND(<1.0)	ND(<1.0)	29.7	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	7.83	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	2.4	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	10.90	38.80	ND(<1.0)	15.5	15.4	NA	NA
MW-6-DUP	6/13/2013	ND(<1.0)	ND(<1.0)	19.8	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	5.13	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.68	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	6.52	26.0	ND(<1.0)	10.2	10.1	NA	NA
MW-6	9/9/2013	ND(<1.0)	ND(<1.0)	18.7	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	4.17	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	395	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.29	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	6.02	20.9	ND(<1.0)	7.44	8.51	NA	NA
MW-7	12/3/2012	ND(<1.0)	ND(<1.0)	30	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	9.3	ND(<5.0)	2.0	ND(<5.0)	ND(<5.0)	120	1.1	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	7.8	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	9.2	4.2	ND(<1.0)	5.8	35	1,200	ND(<5,000)
MW-7	3/20/2013	ND(<1.0)	ND(<1.0)	22.2	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	10.6	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.78	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	9.08	2.04	ND(<1.0)	5.15	36.1	NA	NA
MW-7	6/13/2013	ND(<1.0)	ND(<1.0)	24.8	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	12.2	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.62	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.64	20.4	ND(<1.0)	4.34	35.6	NA	NA
MW-7	9/9/2013	ND(<1.0)	ND(<1.0)	16.2	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	11.7	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	37	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.78	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.77	14.4	ND(<1.0)	ND(<2.0)	32.4	NA	NA
MW-8	12/3/2012	ND(<1.0)	ND(<1.0)	710	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	55	ND(<5.0)	8.6	ND(<5.0)	ND(<5.0)	4,700	16	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	210	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	47	62	ND(<1.0)	220	270	9,700	26,000
MW-8	3/20/2013	ND(<1.0)	ND(<1.0)	310	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	31.7	ND(<5.0)	6.46	ND(<5.0)	ND(<5.0)	NA	10.1	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	21.7	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	27.5	44.2	ND(<1.0)	103	126	NA	NA
MW-8	6/13/2013	ND(<1.0)	ND(<1.0)	514	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	39.5	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	30.1	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	60.9	165	ND(<1.0)	137	164	NA	NA
MW-8	9/9/2013	ND(<1.0)	ND(<1.0)	664	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	45.3	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	7,300	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	44.8	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	65.6	184	ND(<1.0)	134	196	NA	NA
MW-9	4/11/2013	ND(<1.0)	ND(<1.0)	53.5	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	14.7	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	177	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.86	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	50.4	120	ND(<1.0)	200	13	NA	NA
MW-9	6/13/2013	ND(<1.0)	ND(<1.0)	16.5	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	7.12	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	23.1	58.0	ND(<1.0)	51.9	6.61	NA	NA
MW-9	9/9/2013	ND(<1.0)	ND(<1.0)	11.0	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	4.56	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	30.8	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	5.49	21.5	ND(<1.0)	5.51	4.43	NA	NA
MW-9-DUP	9/9/2013	ND(<1.0)	ND(<1.0)	10.8	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	4.52	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	51.5	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	5.25	23.2	ND(<1.0)	5.62	4.31	NA	NA
MW-10	6/13/2013	ND(<1.0)	ND(<1.0)	3.08	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	1.49	ND(<1.0)	ND(<2.0)	1.49	NA	NA
MW-10	9/9/2013	ND(<1.0)	ND(<1.0)	78.8	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	25.1	ND(<5.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	1010	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	9.88	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	18.4	83.8	ND(<1.0)	36.7	67.0	NA	NA

Notes:

1 - The Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission, 5CCR 1002-41, The Basic Standards for Groundwater, Amended September 11, 2012, effective January 31, 2013 was utilized to evaluate groundwater quality.

2 - Methyl tert-butyl ether (MTBE) is not listed in the CDPHE groundwater standards, so the Colorado Department of Labor and Employment (CDLE), Division of Oil and Public Safety, Storage Tank Regulations 7 C.C.R. 1101-14, Effective: January 1, 2009, Tier 1 Risk Based Screening Level is listed was utilized to evaluate MTBE in groundwater.

3 - Reported as Total Xylenes.

Volatile Organic Compounds (VOCs) analyzed by USEPA Method 8260B.
Cells highlighted in**BLUE** indicate an exceedance of the respective CDPHE or the CDLE groundwater standard.
ND - Not detected at or above the reporting limit.
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics.

TABLE 5

Summary of SVOC Analytical Results in Groundwater

1770 13th Street

Boulder, Colorado

Sample Location	Sample Date	Analyte (VOCs by 8270D); concentrations are reported in micrograms per liter (ug/L)																										
		Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Benzoic acid	Pyridine	Chrysene	Dibenz (a,h) anthracene	Diethyl phthalate	2,4-Dimethylphenol	2,4-Dinitrotoluene	Fluoranthene	Fluorene	Hexachloroethane	Indeno (1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Methylphenol	4-Methylphenol	Naphthalene	Phenanthrene	Phenol	Aniline	Pyrene
Colorado Basic Standards for Groundwater[1]		420		2,100	0.0048	0.0048	0.0048		0.2			0.0048	0.0048	5,600	140	0.11	280	280	0.88	0.0048	140				140		2,100	6.1	210
MW-1	10/4/2010	ND(<1.0)	ND(<1.0)	ND(<1.3)	ND(<1.0)	ND(<1.5)	ND(<1.5)	ND(<2.0)	ND(<1.0)	ND(<5.0)	NA	ND(<1.0)	ND(<2.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.2)	ND(<1.4)	ND(<1.0)	ND(<2.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)
MW-1	11/30/2012	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	ND(<10)	NA	ND(<10)	NA	NA	NA	NA	ND(<10)	ND(<10)	NA	NA	ND(<10)
MW-1	3/20/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	ND(<1.0)
MW-1	6/13/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	ND(<1.0)
MW-1	9/9/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	ND(<1.0)
MW-2	10/4/2010	ND(<1.0)	ND(<1.0)	ND(<1.3)	ND(<1.0)	ND(<1.5)	ND(<1.5)	ND(<2.0)	ND(<1.0)	ND(<5.0)	NA	ND(<1.0)	ND(<2.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.2)	ND(<1.4)	ND(<1.0)	ND(<2.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<5.0)	ND(<5.0)	NA	ND(<1.0)
MW-2	11/30/2012	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	ND(<10)	NA	ND(<10)	NA	NA	NA	NA	ND(<10)	ND(<10)	NA	NA	ND(<10)
MW-2	3/20/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	ND(<1.0)
MW-2	6/13/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	1.13	ND(<0.5)	NA	NA	ND(<1.0)
MW-2	9/9/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	0.368
MW-3	10/4/2010	115	170	ND(<13)	ND(<10)	ND(<15)	ND(<15)	ND(<20)	ND(<10)	ND(<50)	NA	ND(<10)	ND(<20)	ND(<50)	ND(<10)	ND(<10)	ND(<12)	50.2	ND(<10)	ND(<20)	ND(<10)	568	ND(<50)	ND(<20)	1,880	60.3	ND(<50)	NA	ND(<10)
MW-3	12/3/2012	153	32.8	14.4	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	57.7	NA	ND(<10)	NA	NA	NA	NA	371	71.5	NA	NA	ND(<10)
MW-3-DUP	12/3/2012	162	33.8	14.6	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	46.3	NA	ND(<10)	NA	NA	NA	NA	341	72.3	NA	NA	ND(<10)
MW-3	3/20/2013	157	31.4	15.5	0.550	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	0.437	ND(<0.2)	NA	NA	NA	3.51	40.4	NA	ND(<0.3)	NA	NA	NA	NA	182	58.1	NA	NA	5.45
MW-3	6/13/2013	160	38.3	42	0.385	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	0.367	ND(<0.2)	NA	NA	NA	3.94	45.0	NA	ND(<0.3)	NA	NA	NA	NA	366	47.9	NA	NA	5.84
MW-3	9/9/2013	173	37.7	15.2	1.280	0.466	ND(<0.2)	ND(<0.2)	0.503	NA	NA	1.11	ND(<0.2)	NA	NA	NA	5.94	45.6	NA	ND(<0.3)	NA	NA	NA	NA	239	67.7	NA	NA	8.09
MW-4	10/4/2010	2.0	4.2	1.8	ND(<1.0)	ND(<1.5)	ND(<1.5)	ND(<2.0)	ND(<1.0)	ND(<5.0)	NA	ND(<1.0)	ND(<2.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.2)	3.8	ND(<1.0)	ND(<2.0)	ND(<1.0)	10.2	ND(<5.0)	ND(<2.0)	7.5	5.4	ND(<5.0)	NA	1.1
MW-4	11/30/2012	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	ND(<10)	NA	ND(<10)	NA	NA	NA	NA	ND(<10)	ND(<10)	NA	NA	ND(<10)
MW-4	3/20/2013	ND(<0.5)	0.470	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	ND(<1.0)
MW-4	6/13/2013	ND(<0.5)	ND(<0.2)	ND(<0.2)	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	ND(<0.2)	NA	ND(<0.3)	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	ND(<1.0)
MW-4	9/9/2013	ND(<0.5)	1.47	ND(<0.2)	ND(<0.1)	0.248	ND(<0.2)	0.559	0.388	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	0.245	ND(<0.2)	NA	0.514	NA	NA	NA	NA	ND(<0.2)	ND(<0.5)	NA	NA	0.437
MW-5	10/4/2010	63.9	168	ND(<13)	ND(<10)	ND(<15)	ND(<15)	ND(<20)	ND(<10)	ND(<50)	NA	ND(<10)	ND(<20)	ND(<50)	ND(<10)	ND(<10)	ND(<12)	39.7	ND(<10)	ND(<20)	ND(<10)	482	ND(<50)	ND(<20)	2,050	61.3	ND(<50)	NA	ND(<10)
MW-5	12/3/2012	51.0	102	17.9	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	12.0	46.7	NA	ND(<10)	NA	NA	NA	NA	545	86.2	NA	NA	16.4
MW-5	3/20/2013	33.2	70.3	13.8	3.9	0.451	0.59	0.354	1.19	NA	NA	2.61	ND(<0.2)	NA	NA	NA	9.18	32.7	NA	0.316	NA	NA	NA	NA	254	65.4	NA	NA	15.4
MW-5-DUP	3/20/2013	284	62.1	12.1	1.57	ND(<0.2)	0.219	ND(<0.2)	0.418	NA	NA	1.11	ND(<0.2)	NA	NA	NA	5.94	27.8	NA	ND(<0.3)	NA	NA	NA	NA	221	50.3	NA	NA	ND(<10.0)
MW-5	6/13/2013	34.0	15.0	4.06	0.688	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	0.648	ND(<0.2)	NA	NA	NA	3.84	9.70	NA	ND(<0.3)	NA	NA	NA	NA	23.8	15.3	NA	NA	8.03
MW-5	9/9/2013	14.1	13.5	19.1	14.9	8.21	2.49	2.21	9.43	NA	NA	13.6	0.721	NA	NA	NA	28.4	15.4	NA	2.7	NA	NA	NA	NA	6.74	71.7	NA	NA	47.3
MW-6	10/4/2010	48.9	67.4	ND(<13)	ND(<10)	ND(<15)	ND(<15)	ND(<20)	ND(<10)	ND(<50)	NA	ND(<10)	ND(<20)	ND(<50)	ND(<10)	ND(<10)	ND(<12)	28.6	ND(<10)	ND(<20)	ND(<10)	114	ND(<50)	ND(<20)	371	47.4	ND(<50)	NA	ND(<10)
MW-6	11/30/2012	52.0	63.8	12.1	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	42.7	NA	ND(<10)	NA	NA	NA	NA	184	63.8	NA	NA	ND(<10)
MW-6	3/20/2013	58.7	77.7	12.2	1.40	0.219	0.286	0.284	0.450	NA	NA	1.04	ND(<0.2)	NA	NA	NA	6.04	40.8	NA	ND(<0.3)	NA	NA	NA	NA	324	68.7	NA	NA	ND(<10)
MW-6	6/13/2013	49.2	59.4	13.1	0.724	0.276	0.247	ND(<0.2)	0.404	NA	NA	0.724	ND(<0.2)	NA	NA	NA	6.40	39.3	NA	ND(<0.3)	NA	NA	NA	NA	185	67.0	NA	NA	10.1
MW-6-DUP	6/13/2013	52.0	69.2	18.9	0.931	0.668	0.465	ND(<0.2)	0.621	NA	NA	0.922	ND(<0.2)	NA	NA	NA	7.19	42.0	NA	ND(<0.3)	NA	NA	NA	NA	373	71.3	NA	NA	10.8
MW-6	9/9/2013	74.3	79.2	33.8	9.780	7.60	2.13	2.86	7.72	NA	NA	8.86	0.746	NA	NA	NA	36.0	69.5	NA	3.18	NA	NA	NA	NA	622	216	NA	NA	41.8
MW-7	12/3/2012	80.3	16.1	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	NA	NA	ND(<10)	ND(<10)	NA	NA	NA	ND(<10)	26.6	NA	ND(<10)	NA	NA	NA	NA	79.7	25.0	NA	NA	ND(<10)
MW-7	3/20/2013	109	23.6	8.63	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	2.37	9.45	NA	ND(<0.3)	NA	NA	NA	NA	84.5	35.6	NA	NA	3.53
MW-7	6/13/2013	132	24.7	11.3	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	2.82	27.3	NA	ND(<0.3)	NA	NA	NA	NA	78.8	35.3	NA	NA	4.50
MW-7	9/9/2013	144	27.3	12.2	0.138	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	3.42	33.2	NA	ND(<0.3)	NA	NA	NA	NA	21.7	48.9	NA	NA	4.22
MW-8	12/3/2012	444	92.8	91.0	52.7	28.6	38.6	14.4	71.9	NA	NA	49.7	ND(<10)	NA	NA	NA	105	207	NA	12.2	NA	NA	NA	NA	3,950	494	NA	NA	154
MW-8	3/20/2013	214	ND(<2.0)	24.3	8.34	2.40	2.11	1.64	4.52	NA	NA	6.75	0.665	NA	NA	NA	17.0	89.2	NA	1.49	NA	NA	NA	NA	211,000	143	NA	NA	29.5
MW-8	6/13/2013	243	83.4	40.1	13.5	4.24	5.81	1.29	9.54	NA	NA	15.3	0.457	NA	NA	NA	31.8	143	NA	1.71	NA	NA	NA	NA	3,310	148	NA	NA	58.6
MW-8	9/9/2013	201	72.1	21.0	5.20	3.58	1.23	1.29	4.21	NA	NA	4.22	0.377	NA	NA	NA	14.5	74.4	NA	1.43	NA	NA	NA	NA	4,570	106	NA	NA	19.2
MW-9	4/11/2013	36.8	37.8	75.4	74.4	30.7	41.9	12.3	52.2	NA	NA	70.3	2.84	NA	NA	NA	152	36.7	NA	12.8	NA	NA	NA	NA	158	222	NA	NA	298
MW-9	6/13/2013	20.7	28.3	33.8	20.7	6.16	5.95	1.17	9.56	NA	NA	19.7	0.408	NA	NA	NA	41.7	21.3	NA	1.77	NA	NA	NA	NA	77.2	99.1	NA	NA	79.7
MW-9	9/9/2013	10.3	8.96	10.7	2.86	1.41	0.465	0.502	1.78	NA	NA	2.33	ND(<0.2)	NA	NA	NA	7.80	7.65	NA	0.566	NA	NA	NA	NA	21.5	33.3	NA	NA	12.3
MW-10	6/13/2013	7.30	3.19	0.331	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	ND(<0.2)	0.584	NA	ND(<0.3)	NA	NA	NA	NA	96.6	1.62	NA	NA	ND(<1.0)
MW-10	9/9/2013	166	59.0	10.9	ND(<0.1)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	NA	NA	ND(<0.2)	ND(<0.2)	NA	NA	NA	2.70	16.8	NA	ND(<0.3)	NA	NA	NA	NA	846	53.5	NA	NA	3.09

Notes:

1 - The Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission, 5CCR 1002-41, The Basic Standards for Groundwater, Amended September 11, 2012, effective January 31, 2013.

Semi-volatile Organic Compounds (SVOCs) analyzed by USEPA Method 8270D SIM.

Cells highlighted in**BLUE** indicate an exceedance of the CDPHE groundwater standards.

ND - Not detected at or above the reporting limit.

TABLE 6

Summary of VOC and TPH Analytical Results in Non-Aqueous Phase Liquids

1770 13th Street
Boulder, Colorado

Sample Location	Sample Date	Analyte (VOCs by 8260B); concentrations are reported in micrograms per liter (ug/L)																														
		Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Chlorodibromomethane	2-Chlorotoluene	4-Chlorotoluene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane (EDC)	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene
Colorado Basic Standards for Groundwater[1]		5.0	56.0		0.56	4.0					5.0	100		3.5		14.0			0.2	0.018		600	94.0	75.0			5.0	7.0	70.0	100	5.0			
SPWATER[3]	11/27/2012	3,170	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
NPWATER[4]	11/28/2012	4,000	ND(<1.0)	ND(<5.0)	ND(<2.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<5.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)
HOLDER[5]	12/6/2012	2,400,000	ND(<10,000)	ND(<50,000)	ND<20,000	ND(<10,000)	ND(<10,000)	150,000	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<50,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)
RH-EX-FLUID-01[6]	3/25/2013	405	ND(<10)	ND(<50)	ND(<20)	ND(<10)	51.8	471	92.8	1,770	ND(<10)	ND(<10)	ND(<10)	ND(<50)	ND(<10)	ND(<10)	493	ND(<10)	522	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)
RH-EX-FLUID-02[6]	3/25/2013	114	ND(<10)	ND(<50)	ND(<20)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<50)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)

Sample Location	Sample Date	Analyte (VOCs by 8260B); concentrations are reported in micrograms per liter (ug/L)																																TPH-DRO **(EPA method 8015)**
		cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	Hexachlorobutadiene	Tert-amyl methyl ether	Tert-butyl alcohol	Ethyl tert-butyl ether	Isopropylbenzene	Di-Isopropyl Ether	p-Isopropyltoluene	Methylene Chloride	Methyl tert-butyl ether	Naphthalene	n-Propylbenzene	Styrene	1,1,2,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,2-Trichloroethane	1,1,1-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Vinyl chloride	m,p-Xylene	o-Xylene	TPH-GRO	
Colorado Basic Standards for Groundwater[1]				700	0.45								20[2]	140		100	0.18		5	1,000		70	5	200	5		0.00034			2	10,000	10,000		
SPWATER[3]	11/27/2012	ND(<1.0)	ND(<1.0)	1,480	ND(<1.0)	ND(<1.0)	ND(<20)	ND(<10)	69.9	ND(<5.0)	9.75	ND(<5.0)	ND(<5.0)	NA	17	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	2,980	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	65.8	ND(<1.0)	ND(<1.0)	1,150	532	NA	NA
NPWATER[4]	11/28/2012	ND(<1.0)	ND(<1.0)	1,390	ND(<1.0)	ND(<1.0)	23.7	ND(<10)	64.9	ND(<5.0)	10.2	ND(<5.0)	ND(<5.0)	15,800	21.5	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	4,040	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<1.0)	60.4	99	ND(<1.0)	1,310	610	NA	NA
HOLDER[5]	12/6/2012	ND(<10,000)	ND(<10,000)	4,500,000	ND(<10,000)	ND(<10,000)	ND<200,000	NA	480,000	NA	390,000	ND(<50,000)	ND(<50,000)	60,000,000	210,000	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	4,300,000	ND(<10,000)	ND(<10,000)	ND(<10,000)	ND(<10,000)	38,000	ND(<10,000)	ND(<10,000)	490,000	810,000	ND(<10,000)	3,500,000	1,500,000	120,000,000	477,000,000
RH-EX-FLUID-01[6]	3/25/2013	ND(<10)	ND(<10)	1,180	ND(<10)	ND(<10)	ND(<200)	ND(<100)	1,860	ND(<50)	1,020	1,400	ND(<50)	NA	1260	565	76.9	ND(<10)	ND(<10)	997	ND(<10)	ND(<10)	62.9	ND(<10)	ND(<10)	ND(<10)	ND(<10)	1,980	5,760	ND(<10)	6,090	144	NA	NA
RH-EX-FLUID-02[6]	3/25/2013	ND(<10)	ND(<10)	51.8	ND(<10)	ND(<10)	ND(<200)	ND(<100)	ND(<10)	ND(<50)	ND(<10)	154	ND(<50)	NA	ND(<10)	10.2	ND(<10)	ND(<10)	ND(<10)	89.6	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	44.7	ND(<10)	133	112	NA	NA

Notes:

1 - The Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission, 5CCR 1002-41, The Basic Standards for Groundwater, Amended September 11, 2012, effective January 31, 2013 was utilized to evaluate groundwater quality.
2 - Methyl tert-butyl ether (MTBE) is not listed in the CDPHE groundwater standards, so the Colorado Department of Labor and Employment (CDLE), Division of Oil and Public Safety, Storage Tank Regulations 7 C.C.R. 1101-14, Effective: January 1, 2009, Tier 1 Risk Based Screening Level is listed was utilized to evaluate MTBE in groundwater.
3 - SPWATER sample was collected from fluid observed in the southern 12-inch process pipe during the 2012 investigation.
4 - NPWATER sample was collected from fluid observed in the northern 12-inch process pipe during the 2012 investigation.
5 - HOLDER sample was collected from the fluid observed in the underground vault structure below the Main Holder foundation during the 2012 investigation.
6 - RH-EX-FLUID-01 and RH-EX-FLUID-02 samples were collected from fluid observed in the March 2013 excavation adjacent to east side of the relief holder.

Volatile Organic Compounds (VOCs) analyzed by USEPA Method 8260B.
Cells highlighted in **BLUE** indicate an exceedance of the respective CDPHE or the CDLE groundwater standard.
ND - Not detected at or above the reporting limit.
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics.
TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics.

TABLE 7

Summary of SVOC Analytical Results in Non-Aqueous Phase Liquids

1770 13th Street
Boulder, Colorado

Sample Location	Sample Date	Analyte (VOCs by 8270D); concentrations are reported in micrograms per liter (ug/L)																										
		Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Benzoic acid	Pyridine	Chrysene	Dibenz (a,h) anthracene	Diethyl phthalate	2,4-Dimethylphenol	2,4-Dinitrotoluene	Fluoranthene	Fluorene	Hexachloroethane	Indeno (1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Methylphenol	4-Methylphenol	Naphthalene	Phenanthrene	Phenol	Aniline	Pyrene
Colorado Basic Standards for Groundwater[1]		420		2,100	0.0048	0.0048	0.0048		0.2			0.0048	0.0048	5,600	140	0.11	280	280	0.88	0.0048	140				140		2,100	6.1	210
SPWATER[3]	11/27/2012	19.5	144	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<30)	ND(<20)	ND(<10)	ND(<10)	ND(<10)	26.9	ND(<10)	ND(<10)	39.1	ND(<10)	15.3	ND(<10)	1,190	29.7	126	7,210	39.1	ND(<10)	ND(<20)	ND(<10)
NPWATER[4]	11/28/2012	40.2	258	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	ND(<10)	334	147	ND(<10)	ND(<10)	79.3	130	41.2	ND(<10)	72.3	11.4	ND(<10)	49.5	109	149	229	13,300	ND(<10)	205	26.4	ND(<10)
HOLDER[2][5]	12/6/2012	2,140,000	12,000,000	3,630,000	3,000,000	1,410,000	1,910,000	226,000	2,240,000	NA	NA	2,850,000	ND(<3,300)	NA	NA	NA	3,260,000	8,590,000	NA	452,000	NA	NA	NA	NA	79,000,000	12,500,000	NA	NA	8,180,000
RH-EX-FLUID-01[6]	3/25/2013	8,260	4,570	5,580	2,880	ND(<1,000)	ND(<1,000)	ND(<1,000)	1,050	NA	NA	2,450	ND(<1,000)	NA	NA	NA	5,210	6,430	NA	ND(<1,500)	NA	NA	NA	NA	45,700	21,300	NA	NA	9,710
RH-EX-FLUID-02[6]	3/25/2013	59,800	43,400	44,000	19,800	ND(<20,000)	ND(<20,000)	ND(<20,000)	ND(<20,000)	NA	NA	ND(<20,000)	ND(<20,000)	NA	NA	NA	38,400	49,400	NA	ND(<30,000)	NA	NA	NA	NA	390,000	161,000	NA	NA	ND(<100,000)

Notes:

1 - The Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission, 5CCR 1002-41, The Basic Standards for Groundwater, Amended September 11, 2012, effective January 31, 2013.

2 - The reporting limit for analytes have been raised to account for matrix interference.

3 - SPWATER sample was collected from fluid observed in the southern 12-inch process pipe. Laboratory reported the full 8270D list; constituents reported that are not included on this table were not detected above laboratory limits.

4 - NPWATER sample was collected from fluid observed in the northern 12-inch process pipe. Laboratory reported the full 8270D list; constituents reported that are not included on this table were not detected above laboratory limits.

5 - HOLDER sample was collected from the fluids observed in the underground vault structure below the Main Holder foundation.

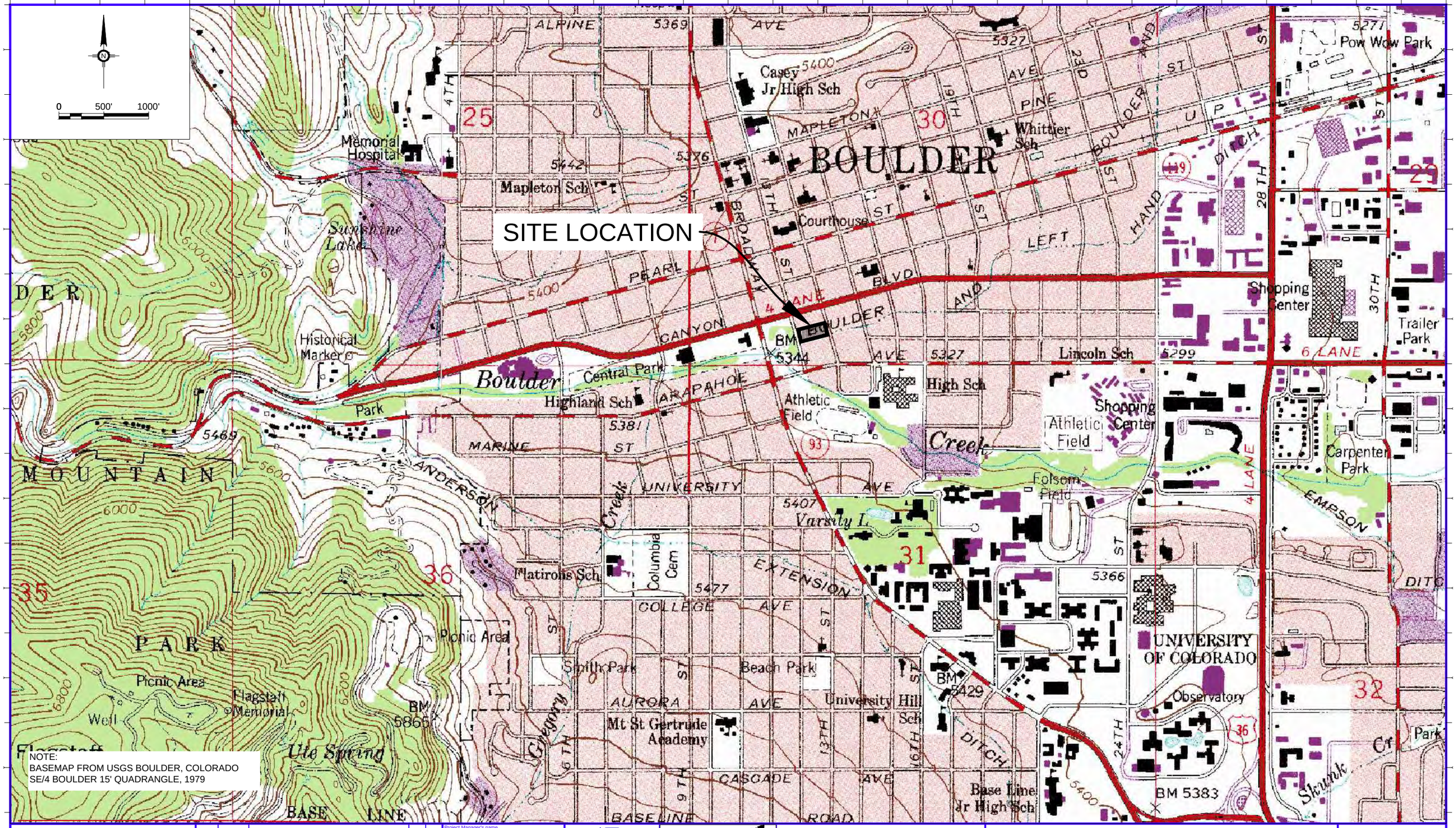
6 - RH-EX-FLUID-01 and RH-EX-FLUID-02 samples were collected from fluid observed in the March 2013 excavation adjacent to east side of the relief holder.

Semi-volatile Organic Compounds (SVOCs) analyzed by USEPA Method 8270D SIM.

Cells highlighted in**BLUE** indicate an exceedance of the CDPHE groundwater standards.

ND - Not detected at or above the reporting limit.

FIGURES



NOTE:
BASEMAP FROM USGS BOULDER, COLORADO
SE/4 BOULDER 15' QUADRANGLE, 1979

No.	Date	Revisions	By	Ckd

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Project Manager's name: CRAIG LUGOWSKI
Date: October 14, 2013

State	Date Signed	Project Mgr.
CO		

Designed by	Drawn by	Checked by
MM	ET	

USA ENVIRONMENT, L.P.
A Full Service Environmental Company
17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

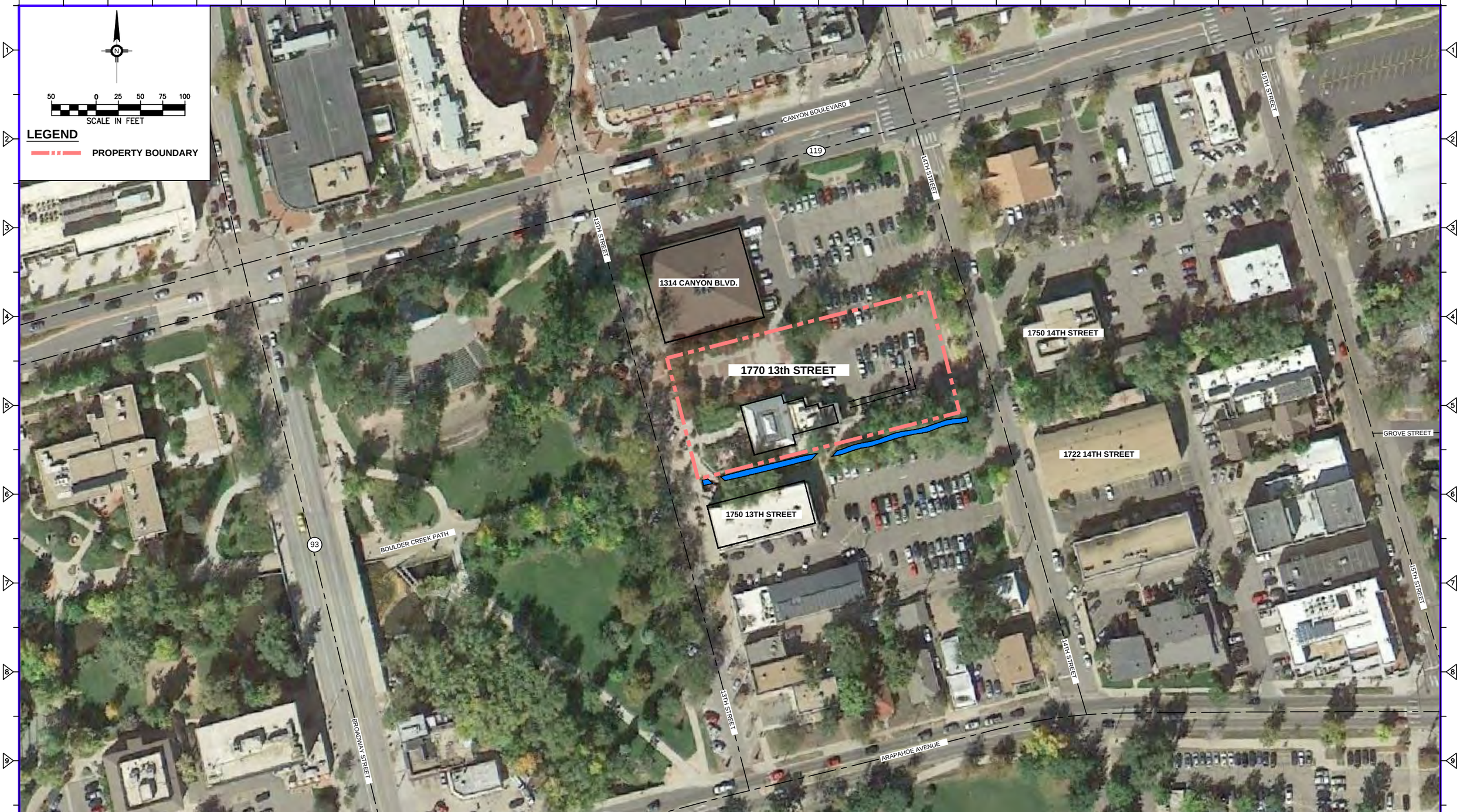
City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

SITE VICINITY MAP

USA ENVIRONMENT Project No .: 5047
Drawing Name: Boulder Gas Plant_101413.dwg
FIGURE 1

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg



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Project Manager's name
CRAIG LUGOWSKI

Date
October 14, 2013

State	Date Signed	Project Mgr.
SITE LOCATION MAP		
Designed by: MM	Drawn by: ET	Checked by:

USA ENVIRONMENT, L.P.
*A Full **Service** Environmental Company*
17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

SITE LOCATION MAP
2011 AERIAL IMAGE

USA ENVIRONMENT Project No .
5047
Drawing Name
Boulder Gas Plant_101413.dwg

FIGURE 2

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg

No.	Date	Revisions	By	Ckd

Project Manager's name: CRAIG LUGOWSKI

Date: October 14, 2013

State	Date Signed	Project Mgr.
CO		

Designed by	Drawn by	Checked by
MM	ET	

USA ENVIRONMENT, L.P.
A Full Service Environmental Company
17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

APPROXIMATE LOCATIONS OF HISTORICAL MGP INFRASTRUCTURE

USA ENVIRONMENT Project No .: 5047

Drawing Name: Boulder Gas Plant_101413.dwg

FIGURE 3

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg

1314 CANYON BLVD.

MW-2

ADJACENT PROPERTY

B-11

B-9

COKE BIN

COAL BIN

BOILER

BOILER

MW-1

MW-7

MW-3

B-4

PROCESS TANKS

B-10

RELIEF HOLDER

MW-9

OVERHEAD LINE

B-1

B-2

B-3

OIL TANK

OIL TANK

RESER.

PROCESS BUILDING

MW-8

MAIN HOLDER

TAR WELL

B-12

B-5

CONDENSER

8" - GAS LINE

6" - GAS LINE

PURIFIER

B-8

B-6

B-7

MW-10

SIDEWALK

PURIFIER

BOULDER TEAHOUSE
1770 13th STREET

MW-5

12" - GAS LINE

12" - GAS LINE

6" - NATURAL GAS LINE

MW-6

WATER WELL

BIKE PATH

BOULDER & LEFT HAND DITCH

BOULDER & LEFT HAND DITCH

N

10 0 5 10 15 20

SCALE IN FEET

LEGEND

PROPERTY BOUNDARY

No.	Date	Revisions	By	Ckd

Project Manager's name: CRAIG LUGOWSKI

Date: October 14, 2013

State	Date Signed	Project Mgr.
CO		

Designed by	Drawn by	Checked by
MM	ET	

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17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

FORMER MGP INFRASTRUCTURE WITH EM-61/DIFFERENTIAL CHANNEL ELECTRO-MAGNETIC SURVEY (RDS)

USA ENVIRONMENT Project No .

5047

Drawing Name: Boulder Gas Plant_101413.dwg

FIGURE 4

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg

No.	Date	Revisions	By	Ckd

Project Manager's name
CRAIG LUGOWSKI

Date
October 14, 2013

State	Date Signed	Project Mgr.
CO		
Designed by	Drawn by	Checked by
MM	ET	

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17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

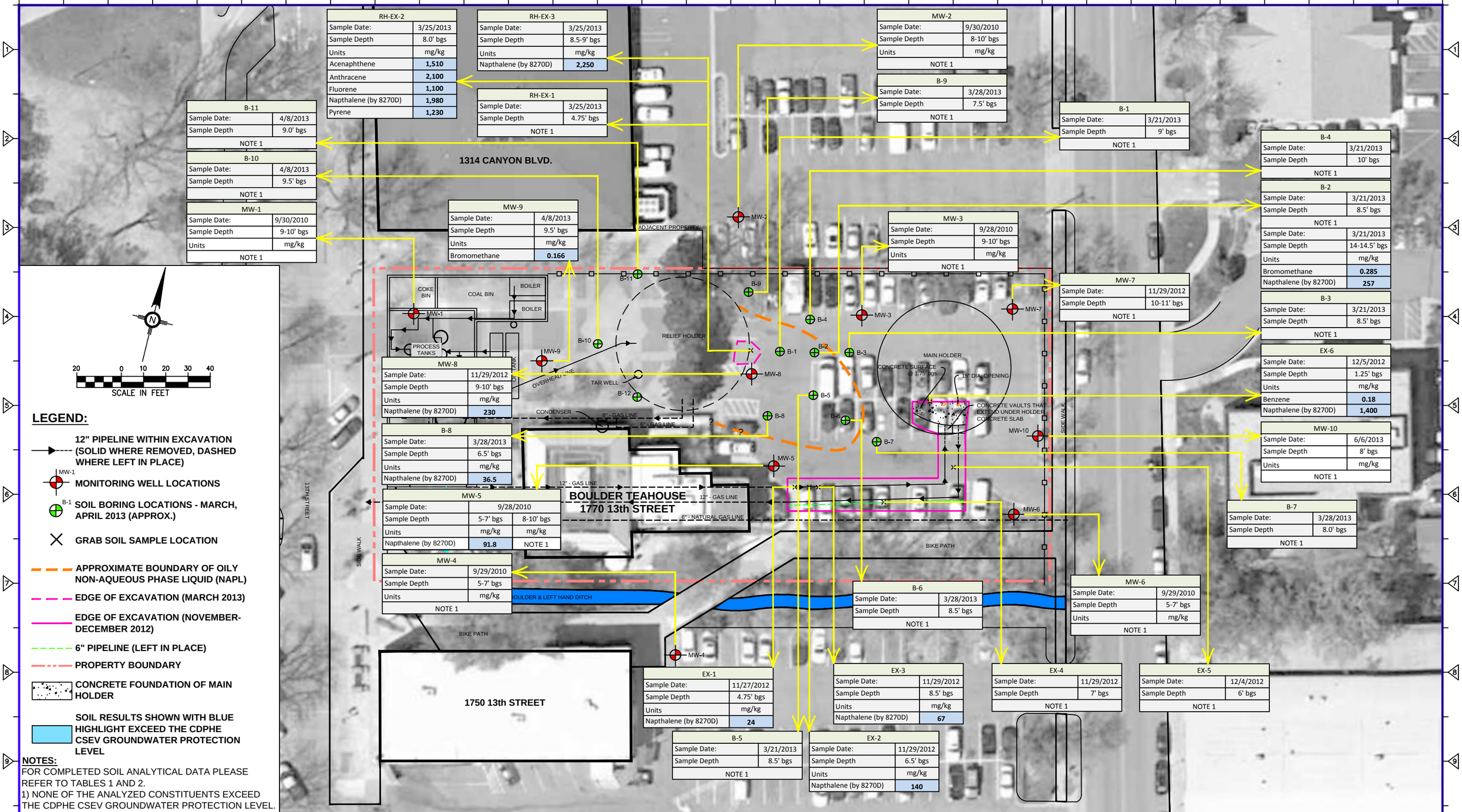
SOIL BORING AND GROUNDWATER MONITORING WELL LOCATIONS

USA ENVIRONMENT Project No .
5047

Drawing Name
Boulder Gas Plant_101413.dwg

FIGURE 5

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg



RH-EX-2	
Sample Date:	3/25/2013
Sample Depth	8.0' bgs
Units	mg/kg
Acenaphthene	**1,510**
Anthracene	**2,100**
Fluorene	**1,100**
Napthalene (by 8270D)	**1,980**
Pyrene	**1,230**

RH-EX-3	
Sample Date:	3/25/2013
Sample Depth	8.5-9' bgs
Units	mg/kg
Napthalene (by 8270D)	**2,250**

RH-EX-1	
Sample Date:	3/25/2013
Sample Depth	4.75' bgs
NOTE 1	

MW-2	
Sample Date:	9/30/2010
Sample Depth	8-10' bgs
Units	mg/kg
NOTE 1	

B-9	
Sample Date:	3/28/2013
Sample Depth	7.5' bgs
NOTE 1	

B-11	
Sample Date:	4/8/2013
Sample Depth	9.0' bgs
NOTE 1	

B-10	
Sample Date:	4/8/2013
Sample Depth	9.5' bgs
NOTE 1	

MW-1	
Sample Date:	9/30/2010
Sample Depth	9-10' bgs
Units	mg/kg
NOTE 1	

MW-9	
Sample Date:	4/8/2013
Sample Depth	9.5' bgs
Units	mg/kg
Bromomethane	**0.166**

MW-3	
Sample Date:	9/28/2010
Sample Depth	9-10' bgs
Units	mg/kg
NOTE 1	

B-1	
Sample Date:	3/21/2013
Sample Depth	9' bgs
NOTE 1	

B-4	
Sample Date:	3/21/2013
Sample Depth	10' bgs
NOTE 1	

B-2	
Sample Date:	3/21/2013
Sample Depth	8.5' bgs
NOTE 1	
Sample Date:	3/21/2013
Sample Depth	14-14.5' bgs
Units	mg/kg
Bromomethane	**0.285**
Napthalene (by 8270D)	**257**

MW-7	
Sample Date:	11/29/2012
Sample Depth	10-11' bgs
NOTE 1	

B-3	
Sample Date:	3/21/2013
Sample Depth	8.5' bgs
NOTE 1	

EX-6	
Sample Date:	12/5/2012
Sample Depth	1.25' bgs
Units	mg/kg
Benzene	**0.18**
Napthalene (by 8270D)	**1,400**

MW-8	
Sample Date:	11/29/2012
Sample Depth	9-10' bgs
Units	mg/kg
Napthalene (by 8270D)	**230**

MW-10	
Sample Date:	6/6/2013
Sample Depth	8' bgs
Units	mg/kg
NOTE 1	

B-8	
Sample Date:	3/28/2013
Sample Depth	6.5' bgs
Units	mg/kg
Napthalene (by 8270D)	**36.5**

B-7	
Sample Date:	3/28/2013
Sample Depth	8.0' bgs
NOTE 1	

MW-5		
Sample Date:	9/28/2010	
Sample Depth	5-7' bgs	8-10' bgs
Units	mg/kg	mg/kg
Napthalene (by 8270D)	**91.8**	NOTE 1

MW-4	
Sample Date:	9/29/2010
Sample Depth	5-7' bgs
Units	mg/kg
NOTE 1	

B-6	
Sample Date:	3/28/2013
Sample Depth	8.5' bgs
NOTE 1	

MW-6	
Sample Date:	9/29/2010
Sample Depth	5-7' bgs
Units	mg/kg
NOTE 1	

EX-1	
Sample Date:	11/27/2012
Sample Depth	4.75' bgs
Units	mg/kg
Napthalene (by 8270D)	**24**

EX-3	
Sample Date:	11/29/2012
Sample Depth	8.5' bgs
Units	mg/kg
Napthalene (by 8270D)	**67**

EX-4	
Sample Date:	11/29/2012
Sample Depth	7' bgs
NOTE 1	

EX-5	
Sample Date:	12/4/2012
Sample Depth	6' bgs
NOTE 1	

B-5	
Sample Date:	3/21/2013
Sample Depth	8.5' bgs
NOTE 1	

EX-2	
Sample Date:	11/29/2012
Sample Depth	6.5' bgs
Units	mg/kg
Napthalene (by 8270D)	**140**

20 0 10 20 30 40
SCALE IN FEET

LEGEND:

- 12" PIPELINE WITHIN EXCAVATION (SOLID WHERE REMOVED, DASHED WHERE LEFT IN PLACE)
- MW-1 MONITORING WELL LOCATIONS
- B-1 SOIL BORING LOCATIONS - MARCH, APRIL 2013 (APPROX.)
- GRAB SOIL SAMPLE LOCATION
- APPROXIMATE BOUNDARY OF OILY NON-AQUEOUS PHASE LIQUID (NAPL)
- EDGE OF EXCAVATION (MARCH 2013)
- EDGE OF EXCAVATION (NOVEMBER-DECEMBER 2012)
- 6" PIPELINE (LEFT IN PLACE)
- PROPERTY BOUNDARY
- CONCRETE FOUNDATION OF MAIN HOLDER
- SOIL RESULTS SHOWN WITH BLUE HIGHLIGHT EXCEED THE CDPHE CSEV GROUNDWATER PROTECTION LEVEL

NOTES:

FOR COMPLETED SOIL ANALYTICAL DATA PLEASE REFER TO TABLES 1 AND 2.

1) NONE OF THE ANALYZED CONSTITUENTS EXCEED THE CDPHE CSEV GROUNDWATER PROTECTION LEVEL.

No.	Date	Revisions	By	Ckd

Project Manager's name: CRAIG LUGOWSKI

Date: October 18, 2013

State	Date Signed	Project Mgr.
CO		
Designed by: MM	Drawn by: ET	Checked by

USA ENVIRONMENT, L.P.
A Full Service Environmental Company
17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

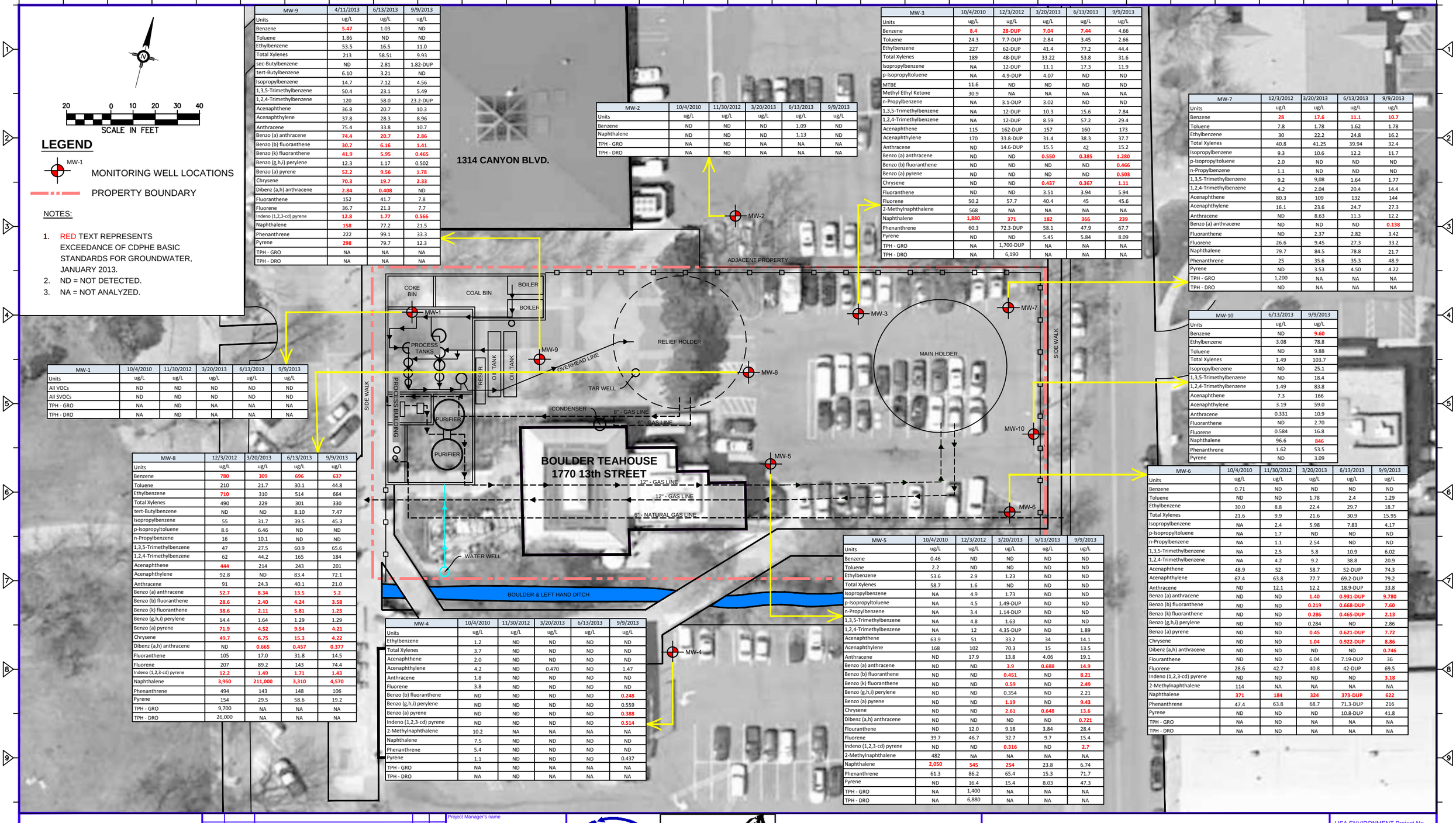
VOC AND SVOC CONCENTRATIONS IN SOIL (2010 THRU 2013)

USA ENVIRONMENT Project No .: 5047

Drawing Name: Boulder Gas Plant_101413.dwg

FIGURE 6

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg



MW-9	4/11/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L
Benzene	**5.47**	1.03	ND
Toluene	1.86	ND	ND
Ethylbenzene	53.5	16.5	11.0
Total Xylenes	213	58.51	9.93
sec-Butylbenzene	ND	2.81	1.82-DUP
tert-Butylbenzene	6.10	3.21	ND
Isopropylbenzene	14.7	7.12	4.56
1,3,5-Trimethylbenzene	50.4	23.1	5.49
1,2,4-Trimethylbenzene	120	58.0	23.2-DUP
Acenaphthene	36.8	20.7	10.3
Acenaphthylene	37.8	28.3	8.96
Anthracene	75.4	33.8	10.7
Benzo (a) anthracene	**74.4**	**20.7**	**2.86**
Benzo (b) fluoranthene	**30.7**	**6.16**	**1.41**
Benzo (k) fluoranthene	**41.9**	**5.95**	**0.465**
Benzo (g,h,i) perylene	12.3	1.17	0.502
Benzo (a) pyrene	**52.2**	**9.56**	**1.78**
Chrysene	**70.3**	**19.7**	**2.33**
Dibenz (a,h) anthracene	**2.84**	**0.408**	ND
Fluoranthene	152	41.7	7.8
Fluorene	36.7	21.3	7.7
Indeno (1,2,3-cd) pyrene	**12.8**	**1.77**	**0.566**
Naphthalene	**158**	77.2	21.5
Phenanthrene	222	99.1	33.3
Pyrene	**298**	79.7	12.3
TPH - GRO	NA	NA	NA
TPH - DRO	NA	NA	NA

MW-2	10/4/2010	11/30/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Benzene	ND	ND	ND	1.09	ND
Naphthalene	ND	ND	ND	1.13	ND
TPH - GRO	NA	ND	NA	NA	NA
TPH - DRO	NA	ND	NA	NA	NA

MW-3	10/4/2010	12/3/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Benzene	**8.4**	**28-DUP**	**7.04**	**7.44**	4.66
Toluene	24.3	7.7-DUP	2.84	3.45	2.66
Ethylbenzene	227	62-DUP	41.4	77.2	44.4
Total Xylenes	189	48-DUP	33.22	53.8	31.6
Isopropylbenzene	NA	12-DUP	11.1	17.3	11.9
p-Isopropyltoluene	NA	4.9-DUP	4.07	ND	ND
MTBE	11.6	ND	ND	ND	ND
Methyl Ethyl Ketone	30.9	NA	NA	NA	NA
n-Propylbenzene	NA	3.1-DUP	3.02	ND	ND
1,3,5-Trimethylbenzene	NA	12-DUP	10.3	15.6	7.84
1,2,4-Trimethylbenzene	NA	12-DUP	8.59	57.2	29.4
Acenaphthene	115	162-DUP	157	160	173
Acenaphthylene	170	33.8-DUP	31.4	38.3	37.7
Anthracene	ND	14.6-DUP	15.5	42	15.2
Benzo (a) anthracene	ND	ND	**0.550**	**0.385**	**1.280**
Benzo (b) fluoranthene	ND	ND	ND	ND	**0.466**
Benzo (a) pyrene	ND	ND	ND	ND	**0.503**
Chrysene	ND	ND	**0.437**	**0.367**	**1.11**
Fluoranthene	ND	ND	3.51	3.94	5.94
Fluorene	50.2	57.7	40.4	45	45.6
2-Methylnaphthalene	568	NA	NA	NA	NA
Naphthalene	**1,880**	**371**	**182**	**366**	**239**
Phenanthrene	60.3	72.3-DUP	58.1	47.9	67.7
Pyrene	ND	ND	5.45	5.84	8.09
TPH - GRO	NA	1,700-DUP	NA	NA	NA
TPH - DRO	NA	6,190	NA	NA	NA

MW-7	12/3/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L
Benzene	**28**	**17.6**	**11.1**	**10.7**
Toluene	7.8	1.78	1.62	1.78
Ethylbenzene	30	22.2	24.8	16.2
Total Xylenes	40.8	41.25	39.94	32.4
Isopropylbenzene	9.3	10.6	12.2	11.7
p-Isopropyltoluene	2.0	ND	ND	ND
n-Propylbenzene	1.1	ND	ND	ND
1,3,5-Trimethylbenzene	9.2	9.08	1.64	1.77
1,2,4-Trimethylbenzene	4.2	2.04	20.4	14.4
Acenaphthene	80.3	109	132	144
Acenaphthylene	16.1	23.6	24.7	27.3
Anthracene	ND	8.63	11.3	12.2
Benzo (a) anthracene	ND	ND	ND	**0.138**
Fluoranthene	ND	2.37	2.82	3.42
Fluorene	26.6	9.45	27.3	33.2
Naphthalene	79.7	84.5	78.8	21.7
Phenanthrene	25	35.6	35.3	48.9
Pyrene	ND	3.53	4.50	4.22
TPH - GRO	1,200	NA	NA	NA
TPH - DRO	ND	NA	NA	NA

MW-10	6/13/2013	9/9/2013
Units	ug/L	ug/L
Benzene	ND	**9.60**
Ethylbenzene	3.08	78.8
Toluene	ND	9.88
Total Xylenes	1.49	103.7
Isopropylbenzene	ND	25.1
1,3,5-Trimethylbenzene	ND	18.4
1,2,4-Trimethylbenzene	1.49	83.8
Acenaphthene	7.3	166
Acenaphthylene	3.19	59.0
Anthracene	0.331	10.9
Fluoranthene	ND	2.70
Fluorene	0.584	16.8
Naphthalene	96.6	**846**
Phenanthrene	1.62	53.5
Pyrene	ND	3.09

MW-1	10/4/2010	11/30/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L	ug/L
All VOCs	ND	ND	ND	ND	ND
All SVOCs	ND	ND	ND	ND	ND
TPH - GRO	NA	ND	NA	NA	NA
TPH - DRO	NA	ND	NA	NA	NA

MW-8	12/3/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L
Benzene	**780**	**309**	**696**	**637**
Toluene	210	21.7	30.1	44.8
Ethylbenzene	**710**	310	514	664
Total Xylenes	490	229	301	330
tert-Butylbenzene	ND	ND	8.10	7.47
Isopropylbenzene	55	31.7	39.5	45.3
p-Isopropyltoluene	8.6	6.46	ND	ND
n-Propylbenzene	16	10.1	ND	ND
1,3,5-Trimethylbenzene	47	27.5	60.9	65.6
1,2,4-Trimethylbenzene	62	44.2	165	184
Acenaphthene	**444**	214	243	201
Acenaphthylene	92.8	ND	83.4	72.1
Anthracene	91	24.3	40.1	21.0
Benzo (a) anthracene	**52.7**	**8.34**	**13.5**	**5.2**
Benzo (b) fluoranthene	**28.6**	**2.40**	**4.24**	**3.58**
Benzo (k) fluoranthene	**38.6**	**2.11**	**5.81**	**1.23**
Benzo (g,h,i) perylene	14.4	1.64	1.29	1.29
Benzo (a) pyrene	**71.9**	**4.52**	**9.54**	**4.21**
Chrysene	**49.7**	**6.75**	**15.3**	**4.22**
Dibenz (a,h) anthracene	ND	**0.665**	**0.457**	**0.377**
Fluoranthene	105	17.0	31.8	14.5
Fluorene	207	89.2	143	74.4
Indeno (1,2,3-cd) pyrene	**12.2**	**1.49**	**1.71**	**1.43**
Naphthalene	**3,950**	**211,000**	**3,310**	**4,570**
Phenanthrene	494	143	148	106
Pyrene	154	29.5	58.6	19.2
TPH - GRO	9,700	NA	NA	NA
TPH - DRO	26,000	NA	NA	NA

MW-4	10/4/2010	11/30/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Ethylbenzene	1.2	ND	ND	ND	ND
Total Xylenes	3.7	ND	ND	ND	ND
Acenaphthene	2.0	ND	ND	ND	ND
Acenaphthylene	4.2	ND	0.470	ND	1.47
Anthracene	1.8	ND	ND	ND	ND
Fluorene	3.8	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	**0.248**
Benzo (g,h,i) perylene	ND	ND	ND	ND	0.559
Benzo (a) pyrene	ND	ND	ND	ND	**0.388**
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	**0.514**
2-Methylnaphthalene	10.2	NA	NA	NA	NA
Naphthalene	7.5	ND	ND	ND	ND
Phenanthrene	5.4	ND	ND	ND	ND
Pyrene	1.1	ND	ND	ND	0.437
TPH - GRO	NA	ND	NA	NA	NA
TPH - DRO	NA	ND	NA	NA	NA

MW-5	10/4/2010	12/3/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Benzene	0.46	ND	ND	ND	ND
Toluene	2.2	ND	ND	ND	ND
Ethylbenzene	53.6	2.9	1.23	ND	ND
Total Xylenes	58.7	1.6	ND	ND	ND
Isopropylbenzene	NA	4.9	1.73	ND	ND
p-Isopropyltoluene	NA	4.5	1.49-DUP	ND	ND
n-Propylbenzene	NA	3.4	1.14-DUP	ND	ND
1,3,5-Trimethylbenzene	NA	4.8	1.63	ND	ND
1,2,4-Trimethylbenzene	NA	12	4.35-DUP	ND	1.89
Acenaphthene	63.9	51	33.2	34	14.1
Acenaphthylene	168	102	70.3	15	13.5
Anthracene	ND	17.9	13.8	4.06	19.1
Benzo (a) anthracene	ND	ND	**3.9**	**0.688**	**14.9**
Benzo (b) fluoranthene	ND	ND	**0.451**	ND	**8.21**
Benzo (k) fluoranthene	ND	ND	**0.59**	ND	**2.49**
Benzo (g,h,i) perylene	ND	ND	0.354	ND	2.21
Benzo (a) pyrene	ND	ND	**1.19**	ND	**9.43**
Chrysene	ND	ND	**2.61**	**0.648**	**13.6**
Dibenz (a,h) anthracene	ND	ND	ND	ND	**0.721**
Flouranthene	ND	12.0	9.18	3.84	28.4
Fluorene	39.7	46.7	32.7	9.7	15.4
Indeno (1,2,3-cd) pyrene	ND	ND	**0.316**	ND	**2.7**
2-Methylnaphthalene	482	NA	NA	NA	NA
Naphthalene	**2,050**	**545**	**254**	23.8	6.74
Phenanthrene	61.3	86.2	65.4	15.3	71.7
Pyrene	ND	16.4	15.4	8.03	47.3
TPH - GRO	NA	1,400	NA	NA	NA
TPH - DRO	NA	6,880	NA	NA	NA

MW-6	10/4/2010	11/30/2012	3/20/2013	6/13/2013	9/9/2013
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Benzene	0.71	ND	ND	ND	ND
Toluene	ND	ND	1.78	2.4	1.29
Ethylbenzene	30.0	8.8	22.4	29.7	18.7
Total Xylenes	21.6	9.9	21.6	30.9	15.95
Isopropylbenzene	NA	2.4	5.98	7.83	4.17
p-Isopropyltoluene	NA	1.7	ND	ND	ND
n-Propylbenzene	NA	1.1	2.54	ND	ND
1,3,5-Trimethylbenzene	NA	2.5	5.8	10.9	6.02
1,2,4-Trimethylbenzene	NA	4.2	9.2	38.8	20.9
Acenaphthene	48.9	52	58.7	52-DUP	74.3
Acenaphthylene	67.4	63.8	77.7	69.2-DUP	79.2
Anthracene	ND	12.1	12.2	18.9-DUP	33.8
Benzo (a) anthracene	ND	ND	**1.40**	**0.931-DUP**	**9.780**
Benzo (b) fluoranthene	ND	ND	**0.219**	**0.668-DUP**	**7.60**
Benzo (k) fluoranthene	ND	ND	**0.286**	**0.465-DUP**	**2.13**
Benzo (g,h,i) perylene	ND	ND	0.284	ND	2.86
Benzo (a) pyrene	ND	ND	**0.45**	**0.621-DUP**	**7.72**
Chrysene	ND	ND	**1.04**	**0.922-DUP**	**8.86**
Dibenz (a,h) anthracene	ND	ND	ND	ND	**0.746**
Flouranthene	ND	ND	6.04	7.19-DUP	36
Fluorene	28.6	42.7	40.8	42-DUP	69.5
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	**3.18**
2-Methylnaphthalene	114	NA	NA	NA	NA
Naphthalene	**371**	**184**	**324**	**373-DUP**	**622**
Phenanthrene	47.4	63.8	68.7	71.3-DUP	216
Pyrene	ND	ND	ND	10.8-DUP	41.8
TPH - GRO	NA	ND	NA	NA	NA
TPH - DRO	NA	ND	NA	NA	NA

No.	Date	Revisions	By	Ckd

Project Manager's name: CRAIG LUGOWSKI
Date: October 14, 2013
State: CO
Date Signed:
Project Mgr.:
Designed by: MM
Drawn by: ET
Checked by: CEL

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17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

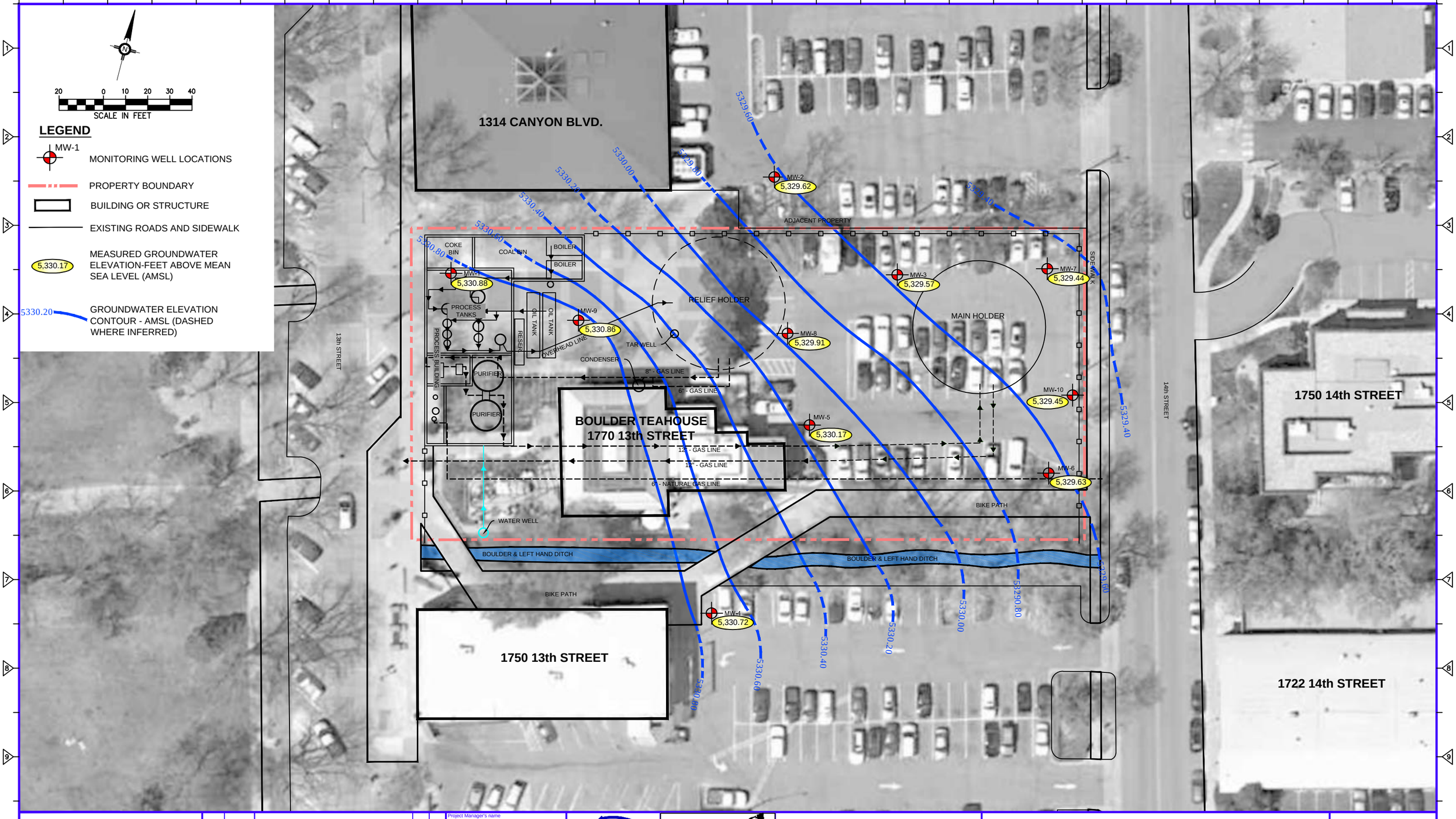
City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

VOC AND SVOC CONCENTRATIONS IN GROUNDWATER (2010 THRU 2013)

USA ENVIRONMENT Project No.: 5047
Drawing Name: Boulder Gas Plant_101413.dwg
FIGURE 7

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg



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Designed by	Drawn by	Checked by
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City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

GROUNDWATER ELEVATION CONTOUR MAP SEPTEMBER 9, 2013

USA ENVIRONMENT Project No .: 5047

Drawing Name: Boulder Gas Plant_101413.dwg

FIGURE 8

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg

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Project Manager's name: CRAIG LUGOWSKI

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CO		

Designed by	Drawn by	Checked by
MM	ET	

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SUITE 152 GOLDEN CO 80401

City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

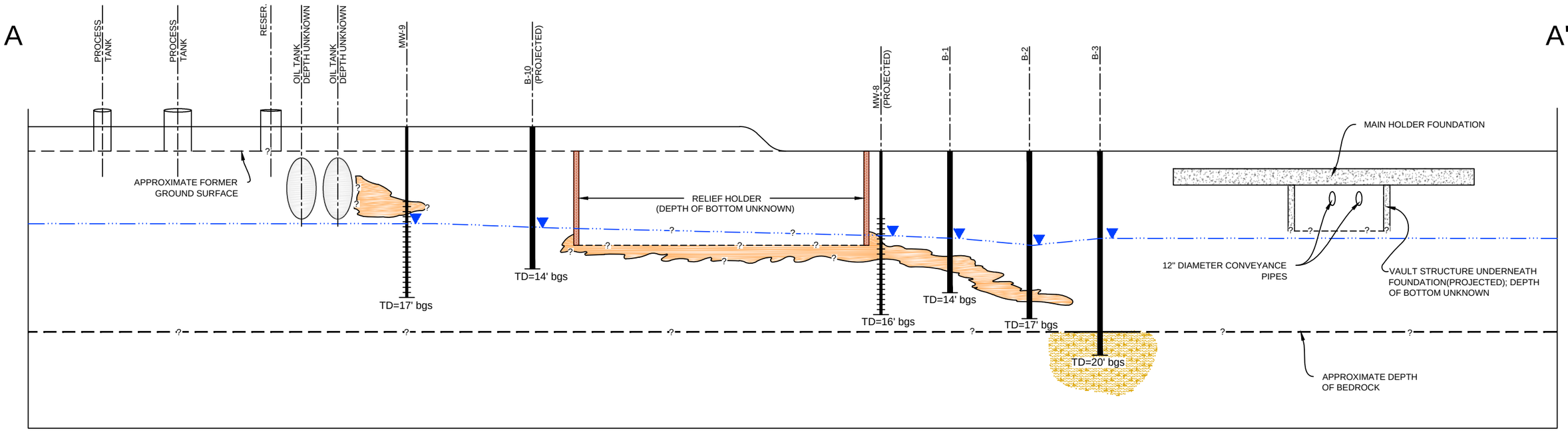
LINE OF GEOLOGIC CROSS-SECTIONS

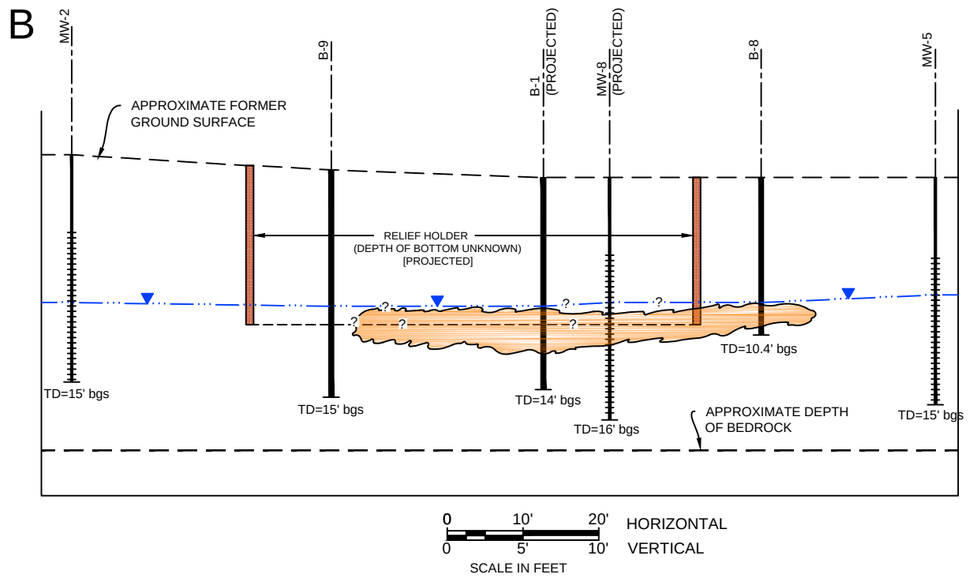
USA ENVIRONMENT Project No . 5047

Drawing Name: Boulder Gas Plant_101413.dwg

FIGURE 9

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg





0 10' 20' HORIZONTAL
0 5' 10' VERTICAL
SCALE IN FEET

0 10' 20' HORIZONTAL
0 5' 10' VERTICAL
SCALE IN FEET

LEGEND:

- SOIL BORING LOCATIONS — TD'=15' bgs
- MONITORING WELL LOCATIONS WITH SCREENED INTERVAL — TD'=15' bgs
- APPROXIMATE DEPTH TO WATER MEASURED IN MARCH 2013 (DASHED WHERE INFERRED)
- APPROXIMATE BOUNDARY OF NAPL
- APPROXIMATE DEPTH TO BEDROCK (DASHED WHERE INFERRED)

No.	Date	Revisions	By	Ckd

Project Manager's name: **CRAIG LUGOWSKI**
Date: October 14, 2013
State: CO | Date Signed | Project Mgr.
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17301 WEST COLFAX AVENUE
SUITE 152 GOLDEN CO 80401

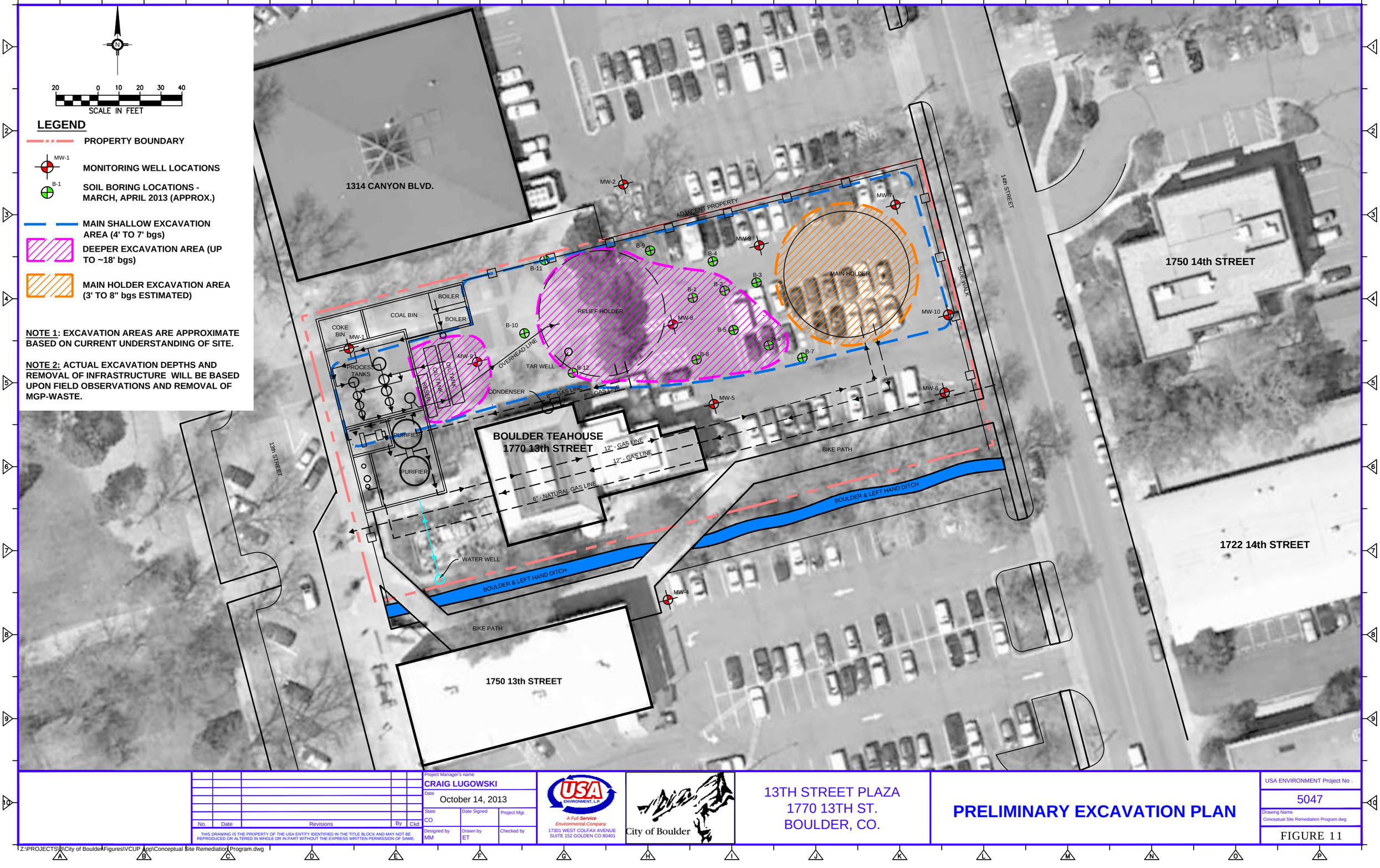
City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

GEOLOGIC CROSS-SECTIONS A-A'AND B-B' (2013)

USA ENVIRONMENT Project No . 5047
Drawing Name: Boulder Gas Plant_101413.dwg
FIGURE 10

Z:\PROJECTS\B\City of Boulder\Figures\VCUP App\Boulder Gas Plant_101413.dwg



				Project Manager's name	CRAIG LUGOWSKI
				Date	October 14, 2013
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City of Boulder

13TH STREET PLAZA
1770 13TH ST.
BOULDER, CO.

PRELIMINARY EXCAVATION PLAN

USA ENVIRONMENT Project No .
5047
Drawing Name
Conceptual Site Remediation Program.dwg
FIGURE 11

Z:\PROJECTS\City of Boulder\Figures\VCUP App\Conceptual Site Remediation Program.dwg

APPENDICES

APPENDIX A

2013 EDR Report
(Provided on CD ROM Disk)

APPENDIX B

Referenced Historical Documents
(Provided on CD ROM Disk)

APPENDIX C

Available Boring Logs and Monitoring Well Completion Diagrams

BOREHOLE NUMBER	BOREHOLE & WELL COMPLETION LOG	Environmental Resources Management 6455 South Yosemite St., Suite 900 Greenwood Village, CO 80111 303-741-5050
MW1		

PROJECT NUMBER:	0122609	DATE DRILLED:	9/30/2010
PROJECT NAME:	Project Chai	LOGGED BY:	Eric Moote
LOCATION:	Boulder, CO	BOREHOLE DIAMETER:	8"
DRILLER:	Tony Goutar	TOTAL DEPTH:	16'
DRILLING CO:	Site Services	SURFACE ELEV:	5341.507 MP ELEV: Top of Casing
DRILL METHOD:	Hollow Stem Auger	NORTHING:	3062301.321 EASTING: 1794900.918

DEPTH (BGS)	SAMPLE INTERVAL /RECOVERY	LAB SAMPLE ID	ORGANIC VAPOR (ppm)	DESCRIPTION Trace: <5%, Few: 5-10%, Little: 15-25%, lithologic modifier: >35%	GRAPHIC LOG	WELL CONSTRUCTION	WELL NOTES
0.0			0.0	(0.0 - 0.5) CONCRETE, 6" thick rebar supported concrete in Plaza area			Flush Mounted Surface Completion
1.0							
2.0			10.2	(0.5 - 3.5) SAND, fine to coarse, brown to dark brown, little fine to medium gravel, dry, no odors, no stains			Hydrated Bentonite Chips
3.0							
4.0		MW1:Soil:3-5 (0821)		(3.5 - 5.0) SAND and GRAVEL (60 - 40), fine to coarse sand, fine to medium gravel, dry, many wood chips present, slight odor to wood chips. Subrounded gravel, wood chips approximately 0.5" to 2" long, 0.5" wide, 0.25" thick, brick pieces			10-20 Sand to 2' above top of screen
5.0			0.0				
6.0	1.2/2.0						
7.0			0.7	(5.0 - 9.0) SAND, fine to coarse, brown, little fine gravel, dry, no odors, no stains, ¼" pieces of brick (5 each)			
8.0							0.010' Slotted screen with 10-20 sand
9.0	0.6/2.0		0.0	(9.0 - 16.0) SAND and GRAVEL (40 - 60), fine to coarse sand, fine to coarse gravel, dry, light gray gravel, no odors, no stains, sand is dark brown to brown			
10.0		MW1:Soil:9-10 (0858)					
11.0	0.2/2.0		7.8				Groundwater - 11' bgs
12.0							
13.0			4.1				
14.0							
15.0			0.0				
16.0							

BOREHOLE NUMBER	BOREHOLE & WELL COMPLETION LOG	Environmental Resources Management 6455 South Yosemite St., Suite 900 Greenwood Village, CO 80111 303-741-5050
MW2		

PROJECT NUMBER:	0122609	DATE DRILLED:	9/30/2010
PROJECT NAME:	Project Chai	LOGGED BY:	Eric Moote
LOCATION:	Boulder, CO	BOREHOLE DIAMETER:	8"
DRILLER:	Tony Goutar	TOTAL DEPTH:	15'
DRILLING CO:	Site Services	SURFACE ELEV:	5339.48 MP ELEV: Top of Casing
DRILL METHOD:	Hollow Stem Auger	NORTHING:	3062432.882 EASTING: 1794977.705

DEPTH (BGS)	SAMPLE INTERVAL /RECOVERY	LAB SAMPLE ID	ORGANIC VAPOR (ppm)	DESCRIPTION Trace: <5%, Few: 5-10%, Little: 15-25%, lithologic modifier: >35%	GRAPHIC LOG	WELL CONSTRUCTION	WELL NOTES
0.0				(0.0 - 0.5) Asphalt covered. Hand augered to 1' bgs; stopped by rocks			Flush Mounted Surface Completion
1.0			0.0	(0.5 - 7.0) SAND, fine to coarse grained, black, few gravel, dry, trace clay, no odors, no stains			Hydrated Bentonite Chips
2.0							
3.0			0.0				10-20 Sand to 2' above top of screen
4.0							
5.0			0.0				
6.0	1.0/2.0	MW2:Soil:5-7 (1048)					
7.0			0.0	(7.0 - 10.0) SAND, fine to coarse grained, black to brown, little gravel with trace clay and some rounded cobbles, dry, no odors, no stains			0.010' Slotted screen with 10-20 sand
8.0							
9.0	1.5/2.0	MW2:Soil:8-10 (1103)	0.0				
10.0				(10.0 - 15.0) SAND and GRAVEL, fine to coarse grained sand, fine to coarse grained gravel (50 - 50), dark brown to brown, wet, no odors, no stains, some rounded cobbles, gray, trace clay			Groundwater - 10' bgs
11.0	1.5/2.0		0.0				
12.0							
13.0			0.0				
14.0							
15.0							

BOREHOLE NUMBER	BOREHOLE & WELL COMPLETION LOG	Environmental Resources Management 6455 South Yosemite St., Suite 900 Greenwood Village, CO 80111 303-741-5050
MW3		ERM

PROJECT NUMBER:	0122609	DATE DRILLED:	9/28/2010
PROJECT NAME:	Project Chai	LOGGED BY:	Eric Moote
LOCATION:	Boulder, CO	BOREHOLE DIAMETER:	8"
DRILLER:	Tony Goutar	TOTAL DEPTH:	15'
DRILLING CO:	Site Services	SURFACE ELEV: 5338.042	MP ELEV: Top of Casing
DRILL METHOD:	Hollow Stem Auger	NORTHING: 3062497.286	EASTING: 1794947.954

DEPTH (BGS)	SAMPLE INTERVAL /RECOVERY	LAB SAMPLE ID	ORGANIC VAPOR (ppm)	DESCRIPTION Trace: <5%, Few: 5-10%, Little: 15-25%, lithologic modifier: >35%	GRAPHIC LOG	WELL CONSTRUCTION	WELL NOTES
0.0		MW3:Soil:0-1 (1249)	4.3	(0.0 - 0.5) Asphalt covered. Hand augered to 1' bgs; stopped by rocks			Flush Mounted Surface Completion
1.0				(0.5 - 2.0) SAND, fine grained to coarse, dark brown, few small gravel, dry, no odors, no staining			Hydrated Bentonite Chips
2.0			0.3	(2.0 - 5.0) SAND, fine to medium, dark brown to black, fine to coarse gravel (70 - 30 with sand), few cobbles, glass (1/2" square), dry, no odors, no staining			10-20 Sand to 2' above top of screen
3.0							
4.0			0.3				
5.0				(5.0 - 9.0) SAND, fine to coarse, brown, medium coarse gravel (60 - 40), little gravel, dry, piece of ¼" brick, no odors, no staining			
6.0	1.0/2.0	MW3:Soil:5-6 (1302)					
7.0			0.0				0.010' Slotted screen with 10-20 sand
8.0							
9.0			0.3	(9.0 - 12.0) SAND and GRAVEL (50 - 50), black, fine to coarse sand, fine to medium gravel, poorly sorted, loose, wet, no odors, no staining			
10.0	1.7/2.0	MW3:Soil:9-10 (1312)					Groundwater - 10' bgs
11.0			0.2				
12.0				(12.0 - 15.0) SAND and GRAVEL (50 - 50), black, fine to coarse sand, fine to medium gravel, fine rounded cobbles, poorly sorted, loose, wet, gray, no odors, no staining			
13.0			1.3				
14.0							
15.0							

BOREHOLE NUMBER	BOREHOLE & WELL COMPLETION LOG	Environmental Resources Management 6455 South Yosemite St., Suite 900 Greenwood Village, CO 80111 303-741-5050
MW4		

PROJECT NUMBER:	0122609	DATE DRILLED:	9/29/2010
PROJECT NAME:	Project Chai	LOGGED BY:	Eric Moote
LOCATION:	Boulder, CO	BOREHOLE DIAMETER:	8"
DRILLER:	Tony Goutar	TOTAL DEPTH:	14'
DRILLING CO:	Site Services	SURFACE ELEV: 5336.633	MP ELEV: Top of Casing
DRILL METHOD:	Hollow Stem Auger	NORTHING: 3062451.933	EASTING: 1794779.55

DEPTH (BGS)	SAMPLE INTERVAL /RECOVERY	LAB SAMPLE ID	ORGANIC VAPOR (ppm)	DESCRIPTION Trace: <5%, Few: 5-10%, Little: 15-25%, lithologic modifier: >35%	GRAPHIC LOG	WELL CONSTRUCTION	WELL NOTES
0.0				(0.0 - 0.5) Asphalt covered. Hand augered to 1' bgs; stopped by rocks			Flush Mounted Surface Completion
1.0			0.0	(0.5 - 5.0) SAND, fine to medium grained, dark brown, few to little clay, dry, no odors, no staining			Hydrated Bentonite Chips
2.0							
3.0			0.0				10-20 Sand to 2' above top of screen
4.0		MW4:Soil:3-5 (0721)					
5.0			0.0	(5.0 - 8.0) SAND, fine to coarse grained, dark brown, little fine to medium gravel, dry to moist, no odors, no staining			
6.0	1.5/2.0	MW4:Soil:5-7 (0728)					0.010' Slotted screen with 10-20 sand
7.0			0.0				
8.0				(8.0 - 11.0) SAND and GRAVEL, (50-50) fine to coarse sand, fine to medium gravel, dark brown, wet, no odors, no staining			Groundwater - 8' bgs
9.0			0.0				
10.0							
11.0	1.5/2.0		0.0	(11.0 - 12.0) SAND, fine to coarse, dark brown, few clay, wet, no odors, no staining			
12.0							
13.0			0.0	(12.0 - 14.0) SAND and GRAVEL, (50-50) fine to coarse sand, fine to medium gravel, dark brown, wet, no odors, no staining			
14.0							

BOREHOLE NUMBER	BOREHOLE & WELL COMPLETION LOG	Environmental Resources Management 6455 South Yosemite St., Suite 900 Greenwood Village, CO 80111 303-741-5050
MW5		

PROJECT NUMBER:	0122609	DATE DRILLED:	9/28/2010
PROJECT NAME:	Project Chai	LOGGED BY:	Eric Moote
LOCATION:	Boulder, CO	BOREHOLE DIAMETER:	8"
DRILLER:	Tony Goutar	TOTAL DEPTH:	15'
DRILLING CO:	Site Services	SURFACE ELEV: 5338.13	MP ELEV: Top of Casing
DRILL METHOD:	Hollow Stem Auger	NORTHING: 3062474.869	EASTING: 1794872.624

DEPTH (BGS)	SAMPLE INTERVAL /RECOVERY	LAB SAMPLE ID	ORGANIC VAPOR (ppm)	DESCRIPTION Trace: <5%, Few: 5-10%, Little: 15-25%, lithologic modifier: >35%	GRAPHIC LOG	WELL CONSTRUCTION	WELL NOTES
0.0	0.5/5.0 Center bit	MW5:Soil:2.5 (0913)	1.7	(0.0 - 0.5) Asphalt covered. Hand augered to 1' bgs; stopped by rocks			Flush Mounted Surface Completion
1.0				(0.5 - 2.0) SAND, fine to coarse grained, dark brown, dry, little gravel, no staining			Hydrated Bentonite Chips
2.0			10.1	(2.0 - 5.0) SANDY CLAY, light brown, slightly moist, fine to coarse grained sand, few gravel to cobbles, dry, very slight odor, no staining			10-20 Sand to 2' above top of screen
3.0							
4.0							
5.0	2.0/2.0	MW5:Soil:5-7 (0953)	454	(5.0 - 8.0) SAND, fine to coarse grained, dark brown, dry, little gravel, strong odor, black staining			
6.0							
7.0			67.7	(8.0 - 10.0) SAND and GRAVEL (60-40), black, fine to coarse sand, fine to medium grained gravel, poorly sorted, loose, dry, moderate odor, slight black staining			0.010' Slotted screen with 10-20 sand
8.0							
9.0		MW5:Soil:8-10 (1043)	295				
10.0	0.5/2.0		3.1	(10.0 - 11.0) SAND and GRAVEL (60 - 40), black, fine to coarse sand, fine to medium grained gravel, poorly sorted, loose, wet, moderate odor, slight black stain			Groundwater - 10' bgs
11.0							
12.0				(11.0 - 15.0) SAND and GRAVEL (60 - 40), black, fine to coarse sand, fine to medium grained gravel, some fine well rounded cobbles, very poorly sorted, loose, wet, moderate odor, slight black staining			
13.0							
14.0							
15.0							

BOREHOLE NUMBER	BOREHOLE & WELL COMPLETION LOG	Environmental Resources Management 6455 South Yosemite St., Suite 900 Greenwood Village, CO 80111 303-741-5050
MW6		ERM

PROJECT NUMBER:	0122609	DATE DRILLED:	9/29/2010
PROJECT NAME:	Project Chai	LOGGED BY:	Eric Moote
LOCATION:	Boulder, CO	BOREHOLE DIAMETER:	8"
DRILLER:	Tony Goutar	TOTAL DEPTH:	14'
DRILLING CO:	Site Services	SURFACE ELEV: 5337.509	MP ELEV: Top of Casing
DRILL METHOD:	Hollow Stem Auger	NORTHING: 3062584.88	EASTING: 1794877.036

DEPTH (BGS)	SAMPLE INTERVAL /RECOVERY	LAB SAMPLE ID	ORGANIC VAPOR (ppm)	DESCRIPTION Trace: <5%, Few: 5-10%, Little: 15-25%, lithologic modifier: >35%	GRAPHIC LOG	WELL CONSTRUCTION	WELL NOTES
0.0							
1.0			0.0	(0.0 - 0.5) Asphalt covered. Hand augered to 1.5' bgs; stopped by rocks			Flush Mounted Surface Completion
2.0			0.0	(0.5 - 4.0) SAND, fine to medium grained, dark brown to black, little to few clay, dry, few fine gravel, no odor, no staining			Hydrated Bentonite Chips
3.0							10-20 Sand to 2' above top of screen
4.0		MW6:Soil:2-3 (0856)					
5.0			0.0	(4.0 - 8.0) SAND, fine to coarse grained, brown, trace clay, little fine gravel, dry, no odor, no staining			
6.0	1.2/2.0	MW6:Soil:5-7 (0908)					
7.0			0.0				
8.0							Groundwater - 7.5' bgs
9.0	0.5/2.0		0.0	(8.0 - 10.0) SAND, fine to coarse grained, gray, little gravel, trace cobbles, wet, slight odor, gray staining			0.010' Slotted screen with 10-20 sand
10.0							
11.0			0.0	(10.0 - 14.0) SAND and GRAVEL, (50-50) fine to coarse sand, fine to coarse gravel, dark brown, wet, rounded cobbles, odor observed when bit was pulled out of boring, gray staining			
12.0							
13.0			62.7				
14.0							

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **MW-7** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **MW-7**
NORTHING (ft): **1248686.5**	EASTING (ft): **3062558.75**	WELL CONSTRUCTION DETAILS
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **8.43**	TOTAL DEPTH (ft bgs): **16**
DATE STARTED: **11/29/2012**	GROUND SURFACE ELEV. (ft MSL): **5338.15**	TOC ELEVATION (ft MSL): **5337.69**
DATE COMPLETED: **11/29/2012**	BORING DIAMETER (inches): **8**	CASING DIAMETER (inches): **2**

Total Casing Length (ft): 14.6 Slot Size (in): 0.01 Sand Size: 10/20

Surface Seal (ft bgs): 0 to 1 Type: concrete

Bentonite Seal (ft bgs): 1 to 3 Type: bentonite

Filter Pack Interval (ft bgs): 3 to 16

Screen Interval (ft bgs): 5.1 to 14.5

Notes:

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/6in.)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION	WELL DETAIL
0										Asphalt	
1								GP		Sandy Gravel with some fines: dark brown, dry to moist, hard, loose (some cobbles and boulders).	
2											
3											
4											
5	2	2	7, 7, 6, 24	2.6	SS			SM		Silty Sand: brown-orange, moist, firm, moderately dense, no petroleum odor, minor pebbles.	
6								GP		Sandy Gravel with cobbles and boulders: moist to wet, very hard, loose to mod dense, no petroleum odor.	
7											
8										Wet @ 8.5' bgs; likely in groundwater.	
9											
10	2	1.5	33, 29, 21, 20	1.6	SS						
11											
12										@ 12-15': abundant cobbles and boulders, very slow drilling.	
13											
14											
15	1	1	12, 25	3.1	SS			SP		Sand (coarse-grained): gray to brown, wet, firm, hard, loose, no petroleum odor.	
16											
17											
18											
19											
20											

NOTES: SS = Split Spoon Discrete Sample

DRILLING CONTRACTOR: Site Services Inc.

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

Privileged and Confidential Attorney-Client Communication

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **MW-8** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **MW-8**
NORTHING (ft): **1248629.21**	EASTING (ft): **3062452.37**	WELL CONSTRUCTION DETAILS
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **8.82**	TOTAL DEPTH (ft bgs): **16**
DATE STARTED: **11/29/2012**	GROUND SURFACE ELEV. (ft MSL): **5338.85**	TOC ELEVATION (ft MSL): **5338.44**
DATE COMPLETED: **11/29/2012**	BORING DIAMETER (inches): **8**	CASING DIAMETER (inches): **2**

Total Casing Length (ft): 14.8 Slot Size (in): 0.01 Sand Size: 10/20

Surface Seal (ft bgs): 0 to 1 Type: concrete

Bentonite Seal (ft bgs): 1 to 3.5 Type: bentonite

Filter Pack Interval (ft bgs): 3.5 to 16

Screen Interval (ft bgs): 5.2 to 14.7

Notes:

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION	WELL DETAIL
0										Asphalt	
1								GM		Silty Sand with minor gravel: brown, dry, loose, firm, no petroleum odor.	
2											
3								SP		Sand (medium- to coarse-grained): tan to yellow, dry, loose, firm, no petroleum odor.	
4											
5	2	2	3, 3, 7, 8	72.9	SS			ML		Silt: dark brown, moist, soft to firm, moderately dense, no petroleum odor.	
6										Silty Sandy Gravel: dark gray, moist, firm, loose, strong petroleum odor.	
7											
8											
9										Wet @ 9' bgs, likely in groundwater.	
10	2	1	6, 20, 16, 17	73.6	SS			GP		Silty Sandy Gravel with cobbles and boulders: gray to dark gray, wet, loose, firm to hard, very strong petroleum odor, subrounded cobbles 2-3" diameter, sheen visible on sample, possibly free product (product visible on auger).	
11											
12											
13											
14											
15	1	1	26, 50	2.5	SS			SP		Sand (medium- to coarse-grained sand): brown, saturated, hard, moderately dense, slight petroleum odor.	
16											
17											
18											
19											
20											

NOTES: SS = Split Spoon Discrete Sample

DRILLING CONTRACTOR: Site Services Inc. DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75 SAMPLING METHOD: 2.5" x 24" Split Spoon

Privileged and Confidential Attorney-Client Communication

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **MW-9** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **MW-9**
NORTHING (ft): **1248611.58**	EASTING (ft): **3062359.48**	WELL CONSTRUCTION DETAILS
LOGGED BY: **AHS**	DEPTH TO WATER (ft bgs): **10**	TOTAL DEPTH (ft bgs): **17**
DATE STARTED: **4/8/13**	GROUND SURFACE ELEV. (ft MSL): **5341.24**	TOC ELEVATION (ft MSL): **5340.77**
DATE COMPLETED: **4/8/13**	BORING DIAMETER (inches): **8**	CASING DIAMETER (inches): **2**

Total Casing Length (ft): 17 Slot Size (in): 0.01 Sand Size: 10/20

Surface Seal (ft bgs): 0 to 1 Type: concrete

Bentonite Seal (ft bgs): 1 to 5 Type: medium chips

Filter Pack Interval (ft bgs): 5 to 17

Screen Interval (ft bgs): 7 to 17

Notes: Well vault flush mounted at the ground surface

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0								C		Concrete
1	1.25	1.25	16	0	SS			SM		Fill: Silty Sand, orange-brown to gray, mostly fine- to medium-grained sand, ~25-30% non plastic fines, moist, ~10-15% gravel, up to 2 inches, bricks in sampler shoe.
			18	0						
2	0.5	0.2	16	0						
			50	0	SS					
3								C		Fill: Concrete (concrete fragments in cuttings, very difficult drilling).
4			1	1.9				CL		Sandy Clay: gray-brown, mostly med plastic fines, ~30% fine- to medium-grained sand, soft, moist, decreasing sand near 6 ft, slight petroleum odor.
5	2	1.6	1	26.3	SS					
			1	7.9						
6			1							
7	2	0.9	1	4.5	SS					
			1							
8			4							@ 8.0': Oily soils in sampler.
	1.5	0.7	50	303	SS			SM		Silty Sand with gravel: mostly fine- to medium-grained sand, ~30-40% low plastic fines, broken cobble in sampler shoe, ~5-15% fine to medium gravel.
9			48							
			50							
10	2	1.4	20	23.7	SS			GP		Gravel with sand (narrowly graded): gray-brown, mostly fine to medium gravel, angular to sub-angular; ~35-45% fine- to coarse-grained sand; gray-brown; wet; slight petroleum odor, 3-inch cobble in cuttings, difficult drilling.
11			26	2.9						
			31	1.6						@ 10': Slight sheen noted on sampler.
12			38							
	0.9	0	24		SS					
13			50							
14			4	1.4						
	2	1.2	21	0.9	SS					
15			20	0.3						
16			10							Free drill to 17.0'
17										
18										
19										
20										

WELL DETAIL

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services Inc.

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **MW-10** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **MW-10**
NORTHING (ft): **1248634.01**	EASTING (ft): **3062583.97**	WELL CONSTRUCTION DETAILS
LOGGED BY: **AHS**	DEPTH TO WATER (ft bgs): **8.5**	TOTAL DEPTH (ft bgs): **15**
DATE STARTED: **6/6/13**	GROUND SURFACE ELEV. (ft MSL): **5337.83**	TOC ELEVATION (ft MSL): **5337.47**
DATE COMPLETED: **6/6/13**	BORING DIAMETER (inches): **8**	CASING DIAMETER (inches): **2**

Total Casing Length (ft): 14.8 Slot Size (in): 0.01 Sand Size: 10/20
Surface Seal (ft bgs): 0 to 1 Type: concrete
Bentonite Seal (ft bgs): 1 to 3 Type: cetco crumbles #8
Filter Pack Interval (ft bgs): 3 to 15
Screen Interval (ft bgs): 5 to 14.5
Notes:

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION	WELL DETAIL
0										Asphalt	
1	2.5	1.7	3	0.1	SS	Moist		CL		Sandy Clay: brown, mostly fines, medium plasticity, ~15-25% sand, fine to med, ~5-10% fine gravel, moist.	
2			3	0.2							
3			3	0.3							
4	2	1.7	3	0.5	SS	Moist		SW		Widely Graded Sand: yellow brown, mostly fine to coarse sand, angular to subangular, <5% fines, clean, moist.	
5			2	0.7							
6	2	1.6	8	0	SS	Moist				@ 6 ft: Increasing gravel (~15%), max 1/2" diameter.	
7			8	0							
8	2	1.6	10	3.7	SS	Moist				@ 8.5 ft: Increasing coarse sand, reddish brown, wet (2" gravel in shoe).	
9			12	0.1							
10	1	0	15	0	SS	Wet		GP		Sandy Gravel with cobbles: wet. @ 9.0 ft: No sample recovery, cobble. @ 9-11.0 ft: Drill rig chatter.	
11			15	0.1							
12	1	1	17	0.2	SS	Wet		SW		Widely Graded Sand: gray, mostly fine to coarse sand, 2" gravel in shoe, wet, increasing gravels (1" diameter) from 14.0-15.0'.	
13			18	0							
14			20	0							
15	1	0.7	20	0	SS	Wet					
16			18	0							
17			19	0							
18			7	0							
19			11	0.1							
20			7	0	SS	Wet					
			14	0							

NOTES: SS = Split Spoon Discrete Sample
Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services Inc.
DRILLING METHOD: Hollow Stem Auger
DRILLING EQUIPMENT: CME 75
SAMPLING METHOD: 2.5" x 24" Split Spoon

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **B-1** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **NA**
NORTHING (ft):	EASTING (ft):	WELL CONSTRUCTION DETAILS
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **8.7**	TOTAL DEPTH (ft bgs): **14**
DATE STARTED: **3/21/2013**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **3/21/2013**	BORING DIAMETER (inches): **6 5/8"**	CASING DIAMETER (inches): **NA**

Total Casing Length (ft): NA Slot Size (in): ____ Sand Size: ____

Surface Seal (ft bgs): NA to ____ Type:

Bentonite Seal (ft bgs): NA to ____ Type:

Filter Pack Interval (ft bgs): NA to ____

Screen Interval (ft bgs): NA to ____

Notes: Borehole was backfilled with bentonite and capped with asphalt.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/6in.)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0	4	1		0.3	CC	Dry		GP		Asphalt Fill: Sandy Gravel with minor cobbles: brown, fine- to coarse-grained sand with subangular gravels and cobbles 0.5 to >3-inch diameter, dry, hard, loose, very slight petroleum odor. (Some thin fine- to coarse-grained sand zones up to 6-inches thick).
4	5	1.5		0.9	CC	Moist		ML		Silt: brown to dark gray, moist, soft to firm, loose to moderately dense, slight petroleum odor, some organics (<10%).
6								GP		Sandy Gravel: dark gray, medium- to coarse-grained sand with subrounded gravels and cobbles (2 to 3-inch diameter), moist, firm to hard, loose, strong petroleum odor. Wet at 8.5' bgs; likely in groundwater.
9	5	1		58.7	CC	Wet		SP		Sand (coarse-grained; 5-10% fines): gray to brown, wet, hard, loose to moderately dense, strong petroleum odor.
10								GW		Sandy Gravel: dark brown, wet, very hard, loose, strong petroleum odor. At 10 to 12 feet very difficult drilling conditions; abundant cobbles at least 3 to 4-inch diameter. Product noted on soil cuttings at 10 to 12 feet bgs.
14										
15										
16										
17										
18										
19										
20										

NOTES: CC = Continuos Core Sample

DRILLING CONTRACTOR: Site Services

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2"ID X 3"OD X 5'

Privileged and Confidential Attorney-Client Communication

USA ENVIRONMENT, L.P. A Full Service Environmental Company	PROJECT: **City of Boulder - 13th Street Plaza**	BORING ID: **B-2** 1 of 1
	LOCATION: **1770 13th Street, Boulder, Colorado**	WELL ID: **NA**
	NORTHING (ft):	EASTING (ft):
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **9.1**	TOTAL DEPTH (ft bgs): **17**
DATE STARTED: **3/21/2013**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **3/21/2013**	BORING DIAMETER (inches): **6 5/8"**	CASING DIAMETER (inches): **NA**

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): _____ Sand Size: _____

Surface Seal (ft bgs): NA to _____ Type:

Bentonite Seal (ft bgs): NA to _____ Type:

Filter Pack Interval (ft bgs): NA to _____

Screen Interval (ft bgs): NA to _____

Notes: Borehole was backfilled with bentonite and capped with asphalt.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1								SW		Fill: Sand (fine- to coarse-grained) with minor gravel, black, dry, loose, firm, no petroleum odor.
2	0.5			1	G					
3								ML		Silt with minor gravel (<10% gravel 0.5 to 1-inch diameter): dark brown, moist, soft, moderately dense, no petroleum odor.
4			1							
5	2	1.5	1	0.5	SS					
6			2							
7	2	2	16 35 26 30	1.6	SS			GW		Sandy Gravel (fine- to coarse-grained sand with up to 3-inch diameter subrounded gravels and cobbles): gray, slightly moist, hard, moderately dense, slight petroleum odor.
8										
9	2	1	13 21 20 20	1.1	SS					Wet at 9' bgs, likely in groundwater. @ 9' same as above, but moderate petroleum odor.
10										
11										@ 10 - 13': very difficult drilling conditions; likely abundant cobbles and boulders.
12										@11': black stained soil cuttings.
13										
14	2	1.5	7 25 27 19		SS					@14 - 15': possible free product; product visible in sample and on auger.
15										
16	2	1.5	9 16 20 26	115	SS			SP		Sand (coarse-grained sand): brown, wet, hard, moderately dense, strong petroleum odor, sheen noted on sample.
17										
18										
19										
20										

NOTES:SS = Split Spoon Discrete Sample G= Grab Sample From Cuttings DRILLING CONTRACTOR: Site Services DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75 SAMPLING METHOD: 2.5" x 24" Split Spoon

Privileged and Confidential Attorney-Client Communication

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**

BORING ID: **B-3**

LOCATION: **1770 13th Street, Boulder, Colorado**

WELL ID: **NA**

NORTHING (ft):

EASTING (ft):

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): Sand Size:

Surface Seal (ft bgs): NA to Type:

Bentonite Seal (ft bgs): NA to Type:

Filter Pack Interval (ft bgs): NA to

Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with asphalt.

LOGGED BY: **MPM**

DEPTH TO WATER (ft bgs): **8.4**

TOTAL DEPTH (ft bgs): **20.25**

DATE STARTED: **3/21/2013**

GROUND SURFACE ELEV. (ft MSL): **NA**

TOC ELEVATION (ft MSL): **NA**

DATE COMPLETED: **3/21/2013**

BORING DIAMETER (inches): **6 5/8"**

CASING DIAMETER (inches): **NA**

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1										Fill: Silty Sand with minor gravel, black, dry, loose, firm, no petroleum odor. (based on soil cuttings)
2								SM		
3										Increasing gravel and cobbles (10 to 15%) noted in soil cuttings at 3.5 feet bgs.
4	2	1.25	1 1 5 6	0	SS			SP		Sand (medium- to coarse-grained): tan to brown, dry, firm, loose, no petroleum odor.
5								ML		Silt: dark brown, moist, moderately dense, soft to firm, no petroleum odor.
6	2	1	32 16 22 26	0.1	SS			GP		Sandy Gravel (medium- to coarse-grained sand with subrounded to subangular gravel and cobbles up to 3-inch in diameter): light gray to brown, slightly moist, hard, loose, slight petroleum odor.
7										
8	2	1	10 18 10 8	0	SS					Wet at 9' bgs; likely in groundwater.
9										
10	2	1	10 12 20 16	0	SS					@ 11 to 13': same as above, but very difficult drilling conditions and increase in gravel and cobbles. (~50% Gravels)
11										
12										
13								SP		Sand (coarse-grained) with minor gravel: light gray, wet, hard, loose to moderately dense, no petroleum odor.
14										
15										
16	2	2	14 28 29 16	0	SS					
17										
18								BR		Bedrock; Shale: light gray, wet, soft rock (breaks apart easily), thinly laminated depositional features noted.
19										
20										

NOTES: SS = Split Spoon Discrete Sample

DRILLING CONTRACTOR: Site Services

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**

BORING ID: **B-3**

LOCATION: **1770 13th Street, Boulder, Colorado**

WELL ID: **NA**

NORTHING (ft):

EASTING (ft):

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): Sand Size:

Surface Seal (ft bgs): NA to Type:

Bentonite Seal (ft bgs): NA to Type:

Filter Pack Interval (ft bgs): NA to

Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with asphalt.

LOGGED BY: **MPM**

DEPTH TO WATER (ft bgs): **8.4**

TOTAL DEPTH (ft bgs): **20.25**

DATE STARTED: **3/21/2013**

GROUND SURFACE ELEV. (ft MSL): **NA**

TOC ELEVATION (ft MSL): **NA**

DATE COMPLETED: **3/21/2013**

BORING DIAMETER (inches): **6 5/8"**

CASING DIAMETER (inches): **NA**

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation: Dry	Saturation: Moist	Saturation: Wet	Bedrock Fracture Intensity: Massive (>3ft)	Slightly (1-3ft)	Moderately (.5-1ft)	Intensely (.1-.5ft)	Crushed (<0.1ft)	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
20	0.25	0.25	50		SS											Shale
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																
36																
37																
38																
39																
40																

NOTES: SS = Split Spoon Discrete Sample

DRILLING CONTRACTOR: Site Services

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

Privileged and Confidential Attorney-Client Communication

USA ENVIRONMENT, L.P. A Full Service Environmental Company	PROJECT: **City of Boulder - 13th Street Plaza**	BORING ID: **B-4** 1 of 1
	LOCATION: **1770 13th Street, Boulder, Colorado**	WELL ID: **NA**
	NORTHING (ft):	EASTING (ft):
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **9.2**	TOTAL DEPTH (ft bgs): **15**
DATE STARTED: **3/21/2013**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **3/21/2013**	BORING DIAMETER (inches): **6 5/8"**	CASING DIAMETER (inches): **NA**

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): _____ Sand Size: _____

Surface Seal (ft bgs): NA to _____ Type:

Bentonite Seal (ft bgs): NA to _____ Type:

Filter Pack Interval (ft bgs): NA to _____

Screen Interval (ft bgs): NA to _____

Notes: Borehole was backfilled with bentonite and capped with asphalt.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1								GP		Fill: Silty Sandy Gravel; dark brown to black, dry, soft to firm, loose, no petroleum odor. (based upon soil cuttings)
2										
3										
4										
5	2	1.5	4 4 4	0	SS					
6			3					ML		Silt: brown to orange, dry, soft to firm, moderately dense, no petroleum odor, 5 to 10% small roots and organics.
7	2	0.5	4	0	SS			GP		Sandy Gravel (coarse-grained sand with subrounded to subangular gravel and cobbles up to 3-inch in diameter): light gray, hard, loose, no petroleum odor.
8			4 10 18							
9	0.3	0	50		SS					
10	2	1.5	33 31 35	0.4	SS					Wet at 10' bgs; likely in groundwater, slight petroleum odor.
11			33							@ 10.5 - 13': abundant cobbles and boulders, difficult drilling conditions.
12										
13	2	2	7 10	9.4	SS			SP		Sand (coarse-grained sand with minor gravel): gray, wet, hard, moderately dense, no petroleum odor.
14			15 29	3.9						
15										
16										
17										
18										
19										
20										

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**

BORING ID: **B-5** 1 of 1

LOCATION: **1770 13th Street, Boulder, Colorado**

WELL ID: **NA**

NORTHING (ft):

EASTING (ft):

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): Sand Size:

Surface Seal (ft bgs): NA to Type:

Bentonite Seal (ft bgs): NA to Type:

Filter Pack Interval (ft bgs): NA to

Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with asphalt.

LOGGED BY: **MPM**

DEPTH TO WATER (ft bgs): **8.7**

TOTAL DEPTH (ft bgs): **15**

DATE STARTED: **3/21/2013**

GROUND SURFACE ELEV. (ft MSL): **NA**

TOC ELEVATION (ft MSL): **NA**

DATE COMPLETED: **3/21/2013**

BORING DIAMETER (inches): **6 5/8"**

CASING DIAMETER (inches): **NA**

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1										Fill: Silty Sand with minor gravel, light brown to orange, dry, firm, loose, no petroleum odor. (based upon soil cuttings)
2								SM		@ 2 - 4': same as above, but black.
3										
4	2	2	1	0	SS	Dry		CL		Clay: dark brown, moist, moderately dense to dense, soft, no petroleum odor.
5			1	0		Moist		ML		Silt with minor clay: dark gray, moist, moderately dense, soft to firm, no petroleum odor, 5 to 10 % roots and organics.
6			1	0						
7	2	1.5	2	2.1	SS			GW		Sandy Gravel (coarse-grained sand with subrounded gravels and cobbles up to 3-inches in diameter): light gray, moist, very hard, loose, no petroleum odor. Wet at 8.5' bgs; likely in groundwater.
8			10							
9			27							@ 10 - 13': abundant cobbles and boulders.
10			16							
11	2	1	15	0.4	SS	Wet				@ 12': Oily cuttings (possibly free product), PID= 136 ppm from cuttings. [Note: No measurable thickness of product, although interface probe observed to be coated with oily product following measurement.]
12			20							
13			30							
14	2	1.5	31		SS			SP		Sand (coarse-grained sand with minor gravel): gray, wet, hard, loose, moderate petroleum odor.
15			11	302						
16			14							
17			15							
18			18							
19										
20										

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: CME 75

DRILLING METHOD: Hollow Stem Auger

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **B-6** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **NA**
NORTHING (ft):	EASTING (ft):	WELL CONSTRUCTION DETAILS
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **9**	TOTAL DEPTH (ft bgs): **16**
DATE STARTED: **3/28/13**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **3/28/13**	BORING DIAMETER (inches): **6 5/8"**	CASING DIAMETER (inches): **NA**

Total Casing Length (ft): NA Slot Size (in): Sand Size:
Surface Seal (ft bgs): NA to Type:
Bentonite Seal (ft bgs): NA to Type:
Filter Pack Interval (ft bgs): NA to
Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with asphalt.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1								SM		Fill: Silty Sand with minor gravel, black, dry, soft to firm, loose, slight petroleum odor.
2	0.5	0.5		8.3	G					
3								GP		Sandy Gravel with cobbles (cobbles up to 2 to 3 inches in diameter): tan to brown, dry, firm, slight petroleum odor.
4										
5	2	2	2 2 3 3	5.8	SS			ML		Silt: brown, dry to moist, soft, moderately dense, slight petroleum odor.
6	1	0.75	30 34	8.7	SS					
7								GW		Sandy Gravel (50% fine to coarse-grained sand and 50% fine to coarse gravels): light gray, moist, hard, loose, moderate petroleum odor, 2 to 3 inch cobble in sampler.
8										
9	2	1	19 16 27 30	41.4	SS					Wet at 9' bgs; likely in groundwater.
10										
11	2	1	10 15 28 30	2.6	SS					@ 10 - 12': abundant cobbles and boulders.
12										
13	2	1.5	23 13 17 24	2.5	SS					@ 12': same as above, but sand content increases (70% sands and 30% gravels and cobbles).
14										
15	2	2	11 30 26 26	68.5	SS					@ 14 - 16': sheen and oily product noted in sample (possibly free product).
16										
17										
18										
19										
20										

NOTES: SS = Split Spoon Discrete Sample G = Grab Sample From Cuttings

DRILLING CONTRACTOR: Site Services DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75 SAMPLING METHOD: 2.5" x 24" Split Spoon

Privileged and Confidential Attorney-Client Communication

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **B-7** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **NA**
NORTHING (ft):	EASTING (ft):	WELL CONSTRUCTION DETAILS
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **9.5**	TOTAL DEPTH (ft bgs): **14.9**
DATE STARTED: **3/28/13**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **3/28/13**	BORING DIAMETER (inches): **6 5/8"**	CASING DIAMETER (inches): **NA**

Total Casing Length (ft): NA Slot Size (in): ____ Sand Size: ____
Surface Seal (ft bgs): NA to ____ Type:
Bentonite Seal (ft bgs): NA to ____ Type:
Filter Pack Interval (ft bgs): NA to ____
Screen Interval (ft bgs): NA to ____

Notes: Borehole was backfilled with bentonite and capped with asphalt.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity: Massive (>3ft)	Slightly (1-3ft)	Moderately (.5-1ft)	Intensely (.1-.5ft)	Crushed (<0.1ft)	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0														Asphalt
1												GM		Fill: Silty Gravel, dark brown, dry, firm, loose, slight petroleum odor.
2														
3														
4	2	1.5	3	2.6	SS									
5			3											
6			2									ML		Silt: brown, moist, soft, loose to moderately dense, no petroleum odor.
7	2	1.5	2											
8			12	0.5	SS									
9			30											Sandy Gravel (fine to coarse-grained sand and fine to coarse gravels): light gray, moist, hard, loose, no petroleum odor.
10			28											
11			26											@ 6.5 - 7': abundant cobbles.
12	2	0.3	40	0.1	SS									
13			14											Wet at 9.5' bgs; likely in groundwater.
14			15											
15			13											
16	2	0.5	40	0.5	SS							GW		@ 10 - 14': abundant cobbles and boulders.
17			28											
18			15											
19			16											
20	1.4	0.3	40	1.5	SS									@ 12': same as above, but slight petroleum odor.
			42											
			46											
	0.9	0	36		SS									
			50											

NOTES: SS = Split Spoon Discrete Sample
Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services
DRILLING EQUIPMENT: CME 75
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P. A Full Service Environmental Company	PROJECT: **City of Boulder - 13th Street Plaza**	BORING ID: **B-8** 1 of 1
	LOCATION: **1770 13th Street, Boulder, Colorado**	WELL ID: **NA**
	NORTHING (ft):	EASTING (ft):
LOGGED BY: **MPM**	DEPTH TO WATER (ft bgs): **8.6**	TOTAL DEPTH (ft bgs): **10.4**
DATE STARTED: **3/28/13**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **3/28/13**	BORING DIAMETER (inches): **6 5/8"**	CASING DIAMETER (inches): **NA**

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): _____ Sand Size: _____

Surface Seal (ft bgs): NA to _____ Type:

Bentonite Seal (ft bgs): NA to _____ Type:

Filter Pack Interval (ft bgs): NA to _____

Screen Interval (ft bgs): NA to _____

Notes: Borehole was backfilled with bentonite and capped with asphalt.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1								GP		Fill: Sandy Gravel with minor cobbles 2 inches in diameter (<10%), dark brown, dry, soft to firm, loose, slight petroleum odor. (based on soil cuttings)
2										
3								SW		Sand (fine- to coarse-grained sand), dry, firm, loose, slight petroleum odor. (based on soil cuttings)
4	2	1	1	243	SS			ML		Silt, brown to black, moist, soft, moderately dense, moderate petroleum odor, some fine organics (10 - 15%).
5			1							
6			2							
7	2	1.5	3	337	SS			GW		Sandy Gravel (fine- to coarse-grained with fine to coarse gravels): black, moist, hard, loose, strong petroleum odor.
8			15							@ 6.5': same as above, but light gray.
9	1.8	1	20	578	SS					@ 8.5 - 9': wet and oily (possible free product at groundwater table). Sheen also noted on sample.
10			32							
11			45							
12			34							
13			35							
14			45							
15			50							@ 9.5': abundant cobbles up to 4-inches in diameter.
16	0.4	0	50		SS					
17										
18										
19										
20										

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services

DRILLING EQUIPMENT: CME 75

DRILLING METHOD: Hollow Stem Auger

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**

BORING ID: **B-9** 1 of 1

LOCATION: **1770 13th Street, Boulder, Colorado**

WELL ID: **NA**

NORTHING (ft):

EASTING (ft):

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): Sand Size:

Surface Seal (ft bgs): NA to Type:

Bentonite Seal (ft bgs): NA to Type:

Filter Pack Interval (ft bgs): NA to

Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with asphalt.

LOGGED BY: **MPM**

DEPTH TO WATER (ft bgs): **9**

TOTAL DEPTH (ft bgs): **15**

DATE STARTED: **3/28/13**

GROUND SURFACE ELEV. (ft MSL): **NA**

TOC ELEVATION (ft MSL): **NA**

DATE COMPLETED: **3/28/13**

BORING DIAMETER (inches): **6 5/8"**

CASING DIAMETER (inches): **NA**

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0										Asphalt
1										Fill: Silty Sand with minor gravel (<10%), tan to yellow, dry, soft, loose, no petroleum odor. (based on soil cuttings)
2								SM		
3										
4										
5	2	1	3	0	SS					
6			3					ML		Silt with some fine organics (10 - 15%), dark brown, moist, soft, moderately dense, no petroleum odor.
7			4							
8	2	1	33	0.1	SS					Sandy Gravel (fine- to coarse-grained sand with fine to coarse gravels): light gray, dry, hard, loose, no petroleum odor.
9			35							Wet at 9' bgs, likely in groundwater.
10	2	1	42	6.3	SS					
11			36					GW		@ 11': same as above, with moderate petroleum odor.
12	2	1.25	25	27.3	SS					@ 12.25': clayey gravel one-inch thick noted in sample, no petroleum odor.
13			26							@ 13': slight petroleum odor.
14	2	0.75	20	13.7	SS					
15			20							
16			30							
17			27							
18			6							
19			10							
20			12							
			22							
			36							
			50							

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**

BORING ID: **B-10** 1 of 1

LOCATION: **1770 13th Street, Boulder, Colorado**

WELL ID: **NA**

NORTHING (ft):

EASTING (ft):

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): Sand Size:

Surface Seal (ft bgs): NA to Type:

Bentonite Seal (ft bgs): NA to Type:

Filter Pack Interval (ft bgs): NA to

Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with concrete.

LOGGED BY: **AHS**

DEPTH TO WATER (ft bgs): **10**

TOTAL DEPTH (ft bgs): **14**

DATE STARTED: **4/8/13**

GROUND SURFACE ELEV. (ft MSL): **NA**

TOC ELEVATION (ft MSL): **NA**

DATE COMPLETED: **4/8/13**

BORING DIAMETER (inches): **8**

CASING DIAMETER (inches): **NA**

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation: Dry / Moist / Wet	Bedrock Fracture Intensity: Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft)	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0								C		Concrete
1	1.25	1.25	27 47 17	0 0 0	SS			SM		Fill: Silty Sand with gravel, yellow-brown, mostly fine- to coarse-grained sand; ~20-30% low plastic fines; ~15-25% fine gravel; moist.
2	2	0.9	11 19 31 30	0 0 0 0	SS			CL		Fill: Sandy Clay, reddish brown, mostly medium plastic fines; ~35% fine- to medium-grained sand; ~5-10% medium gravel, moist.
4	2	1.7	4 6 5 4	0 0 0 0	SS			SP		Sand (narrowly graded): yellow-brown, mostly fine to medium-grained sand, ~5% fines, trace coarse sand; moist.
6	2	1.4	3 5 13 14	5.6 285 325	SS			ML		Silt: blackish-brown, mostly low-non plastic fines, slight petroleum odor, moist.
8	2	1	11 23 13 36	250 501	SS			SW		Sand (widely graded) with gravel: gray to black, fine- to coarse-grained sand, ~15% fines, ~30% fine to coarse gravel (max 2"), moist, petroleum odor.
10	2	1.2	22 45 27 25	1.1 0.8	SS			GP		Gravel (narrowly graded) with sand: gray-brown, medium to coarse gravel (max 2"), ~30% fine- to coarse-grained sand, slight petroleum odor.
12	2	2	21 18 20 25	0.5 0.2 0 0	SS			SW		Sand (widely graded): gray-brown, fine- to coarse-grained sand, 5-10% fines.
14										
15										
16										
17										
18										
19										
20										

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services Inc.

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

PROJECT: **City of Boulder - 13th Street Plaza**

BORING ID: **B-11** 1 of 1

LOCATION: **1770 13th Street, Boulder, Colorado**

WELL ID: **NA**

NORTHING (ft): **NA**

EASTING (ft): **NA**

WELL CONSTRUCTION DETAILS

Total Casing Length (ft): NA Slot Size (in): Sand Size:

Surface Seal (ft bgs): NA to Type:

Bentonite Seal (ft bgs): NA to Type:

Filter Pack Interval (ft bgs): NA to

Screen Interval (ft bgs): NA to

Notes: Borehole was backfilled with bentonite and capped with concrete.

LOGGED BY: **AHS**

DEPTH TO WATER (ft bgs): **9.5**

TOTAL DEPTH (ft bgs): **14**

DATE STARTED: **4/8/13**

GROUND SURFACE ELEV. (ft MSL): **NA**

TOC ELEVATION (ft MSL): **NA**

DATE COMPLETED: **4/8/13**

BORING DIAMETER (inches): **8**

CASING DIAMETER (inches): **NA**

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation (Dry / Moist / Wet)	Bedrock Fracture Intensity (Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft))	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0								C		Concrete
1	1.5	1.5	6 8 12	0 0 0	SS			SM		Fill: Silty Sand, yellow-brown to dark brown, fine- to coarse-grained sand, ~30-40% fines (low plastic), trace gravel (fine to coarse), moist.
2	2	2	15 8 7 10	0 0 0 0	SS			SW		Sand (widely graded): yellow-brown, fine- to coarse-grained sand, ~5% fines, trace gravel (2" max), moist.
4	2	1.5	4 4 3 3	0 0 0 0	SS			SP		Sand (narrowly graded): yellow-brown, fine to medium-grained sand, trace coarse, loose, moist.
6	2	1.1	3 10 11 10	29.4 0	SS			ML		Silt with organics: wet, black. (Note: cut 3 cables @ 7.0 ft)
8	2	1.2	10 3 9 10	0 0 0 0	SS			SW		Sand (widely graded) with gravel: yellow-brown, fine- to coarse-grained sand, 20% fine to medium gravel, moist, some woody organics.
10	2	2	19 40 63 23	0.5 0.2 0 0	SS			GW		Gravel and Cobbles with sand: blue-green and gray, increasing coarse sand to 14.0'.
12	2	1	10 12 27 16	0 0 0	SS					
14										
15										
16										
17										
18										
19										
20										

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services Inc.

DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75

SAMPLING METHOD: 2.5" x 24" Split Spoon

USA ENVIRONMENT, L.P.
A Full Service Environmental Company

PROJECT: **City of Boulder - 13th Street Plaza**		BORING ID: **B-12** 1 of 1
LOCATION: **1770 13th Street, Boulder, Colorado**		WELL ID: **NA**
NORTHING (ft): **NA**	EASTING (ft): **NA**	WELL CONSTRUCTION DETAILS
LOGGED BY: **AHS**	DEPTH TO WATER (ft bgs): **NA**	TOTAL DEPTH (ft bgs): **4**
DATE STARTED: **4/8/13**	GROUND SURFACE ELEV. (ft MSL): **NA**	TOC ELEVATION (ft MSL): **NA**
DATE COMPLETED: **4/8/13**	BORING DIAMETER (inches): **8**	CASING DIAMETER (inches): **NA**

Total Casing Length (ft): NA Slot Size (in): ____ Sand Size: ____

Surface Seal (ft bgs): NA to ____ Type:

Bentonite Seal (ft bgs): NA to ____ Type:

Filter Pack Interval (ft bgs): NA to ____

Screen Interval (ft bgs): NA to ____

Notes: Borehole was backfilled with bentonite and capped with concrete.

Depth (feet)	Sample Run (ft)	Sample Recovery (ft)	Density (blows/ft)	PID (ppm)	Sample Type	Saturation: Dry / Moist / Wet	Bedrock Fracture Intensity: Massive (>3ft) / Slightly (1-3ft) / Moderately (.5-1ft) / Intensely (.1-.5ft) / Crushed (<0.1ft)	USCS Symbol	Lithographic Column	SOIL/ROCK DESCRIPTION
0								C		Concrete
1	1.5	1.5	4	0.2	SS	Moist		SM		Fill: Silty Sand with gravel, yellow-brown, fine- to coarse-grained sand, ~30-40% low plastic fines, ~15-25% fine gravel, moist.
			5	5.5						
2			4	0						
	2	1.5	6		SS					
3			12							Piece of conduit @ 3 ft in sampler. Abandon boring.
			13							
4			15							
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

NOTES: SS = Split Spoon Discrete Sample

Privileged and Confidential Attorney-Client Communication

DRILLING CONTRACTOR: Site Services Inc. DRILLING METHOD: Hollow Stem Auger

DRILLING EQUIPMENT: CME 75 SAMPLING METHOD: 2.5" x 24" Split Spoon

APPENDIX D

Available Laboratory Data Reports
(Provided on CD ROM Disk)