# Groundwater Investigation Report
# Site #1291 – Burton Parcel
# Burton, Michigan

**Revitalizing Auto Communities Environmental Response Trust**
**Washington, DC**

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O'BRIEN & GERE
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# Site #1291 – Burton Parcel

**3289 South Saginaw Street**
**Burton, Michigan**

Prepared for: Revitalizing Auto Communities
Environmental Response Trust

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## 1 INTRODUCTION

In 2010, Motors Liquidation Company (MLC) contracted O'Brien & Gere Engineers, Inc. (O'Brien & Gere) to prepare and implement a Work Plan for a groundwater investigation at the Burton Parcel. The Burton Parcel property ownership was transferred to the current property owner, Revitalizing Auto Communities Environmental Response Trust (RACER Trust), on March 31, 2011.

The Burton Parcel (located at the west side of the Hemphill Landfill), is located at 3289 South Saginaw Street on the corner of South Saginaw Street and Hemphill Road in Burton, Michigan as depicted on **Figure 1** (Site Location Map). The Burton Parcel Site is depicted on the Site Layout included as **Figure 2**.

A Groundwater Investigation Work Plan describing the proposed groundwater investigation at the Burton Parcel portion of the Hemphill Landfill was sent to the Michigan Department of Natural Resources and Environment (MDNRE), now the Michigan Department of Environmental Quality (MDEQ), on September 9, 2010. The MDNRE approved the Work Plan in a letter dated October 18, 2010. This Report describes the results of implementing the approved Groundwater Investigation Work Plan at the Burton Parcel Site.

# 2 SITE BACKGROUND AND SETTING

## 2.1 SITE DESCRIPTION

The Burton Parcel is located at the southeast corner of the South Saginaw Street and Hemphill Road intersection in Genesee County, Burton, Michigan. The Burton Parcel is located within Section 29 and 30 of Township 7 North, Range 7 East. A Site Location Map is included as **Figure 1** and a figure depicting the layout of the Burton Parcel Site is included as **Figure 2**. The Burton Parcel contains the 10 acre western portion of the Hemphill Landfill and is presently an unused lot with portions covered with asphalt or gravel. The Burton Parcel is bounded to the north by Hemphill Road, on the west by an active service station and South Saginaw Street, on the east by an open field (privately owned), and on the south by Westgate Plaza (commercial property).

Prior to 1941 the Burton Parcel property was used for agricultural purposes. As part of the municipal Hemphill Landfill, the Burton Parcel was filled with industrial and municipal wastes from sometime after 1941 to approximately 1958. Filling activities continued east of the Burton Parcel until 1978. The Burton Parcel property was used for commercial development beginning in 1955 with the construction of a building occupied by Kroger on the northern portion of the site. A second building occupied by Taystee Bread was formerly located in the central portion of the Site, and a discount department store was added to the building in 1959.

General Motors Corporation (GMC) purchased the property in 1978. Prior to GMC purchasing the property it was owned by the City of Burton. Remediation & Liability Management Company, Inc. (REALM), a wholly owned subsidiary of GMC, managed the Site from 2001 until 2009, when MLC assumed management of the property as part of the GMC bankruptcy process. The property was transferred to the current owner, RACER Trust, on March 31, 2011.

Previous investigations into the potential environmental impacts of the Burton Parcel property have been performed. A summary of these investigations is included in Section 2.2.

## 2.2 PREVIOUS SITE INVESTIGATIONS

Phase I, II, III, and IV investigations were performed at the Burton Parcel by Goldberg, Zoino & Associates (GZA) from September 1987 through May 1988. The Phase I & II investigations were performed from September 1987 through November 1987 and the Phase III and IV investigations were performed from February 1988 through May 1988. The Phase I Investigation included sampling the vadose zone and installing a deep soil boring and monitoring well. Based on the results of the Phase I Investigation, Phase II activities consisting of additional vadose zone sampling and soil boring/monitoring well installations performed in November 1987. The Phase III & IV investigations were performed at the Burton Parcel to further assess the results of the Phase I & II Investigations.

A geophysical survey was completed by WW Engineering & Science (WWES) and documented in a report dated January 1991.

The Michigan Department of Natural Resources (MDNR) collected soil and groundwater samples from the Burton Parcel in 1992 as part of a larger investigation associated with the Hemphill Landfill and Windiate Park investigations.

In November 1994 a Work Plan was prepared and submitted to the Michigan Department of Environmental Quality (MDEQ). The Work Plan presented quarterly groundwater sampling results and methods for assessing whether conditions at the Hemphill landfill could impact the nearby drainage ditch.

In November 1997, the results of an investigation at the Burton Parcel were documented and submitted to the MDEQ. The report summarized the investigation to assess the presence of subsurface waste fill at the Burton Parcel.

Based upon the results of the waste fill investigation, an additional investigation was performed to assess the extent of subsurface waste fill and assess potential reuse of the property. The results of this investigation were reported in March 2001.

Insight Environmental Services, Inc. (Insight) was retained by Genesee County to perform Phase I and Phase II Environmental Site Assessments (ESAs) to assess a smaller portion of the Burton Parcel property for the potential construction of a medical facility.

## 2.3 GEOLOGIC SETTING

### 2.3.1 Regional Geology

Glacial till deposits in Genesee County are approximately 100 to 200 ft thick in the eastern section of the county and 50 to 100 ft thick in the western section. The drift is predominantly clay/till with isolated lenses of sand and/or gravel.

A confining unit exists in the area based on review of water well records. A review of water well records indicates the confining unit is a blue/grey clay and generally exists at 12 to 135 feet below grade (fbg) with thicknesses ranging from 30 to 150 ft.

Stratigraphically the area is part of the Michigan Basin, which is a relatively shallow, intracratonic structure that includes the Lower Peninsula, part of the Upper Peninsula, and parts of Wisconsin, Illinois, Indiana, Ohio, and Ontario. The topography of the bedrock surface in Genesee County ranges from 600 to 700 ft above mean sea level (MSL).

The predominant underlying bedrock in Genesee County is the Saginaw Formation. The Saginaw Formation has a maximum thickness of 765 ft, as reported from well logs collected in the Michigan Basin (MDEQ, 1978). In Genesee County the Saginaw Formation is thickest (100 to 200 ft) in the Northwestern part of the county. The formation thins and finally pinches out in the east and southeastern parts of the county. The Saginaw Formation is generally composed of interbedded sandstones, shales, limestone, and coal.

Underlying the Saginaw are the Michigan Formation and the Marshall Sandstone. The Michigan Formation is the underlying bedrock in eastern Genesee County in areas where the Saginaw Formation has thinned out. The Michigan Formation is composed of beds of anhydride and gypsum, gray to dark gray and greenish-gray shale, limestone, dolomite, and sandstone. A sand unit of the Michigan Formation, called the Michigan "Stray Sandstone" is reported to be a potential source for large quantities of natural gas. The Michigan Formation is approximately 50 to 200 ft thick in Genesee County. The Marshall Sandstone underlies the Michigan Formation and consists of sandstone and siltstone with some zones exhibiting red coloration. The Michigan Formation thins out south of Genesee County and is replaced by Marshall Sandstone as the uppermost bedrock formation underlying the glacial drift. The Marshall Sandstone is the major regional water-bearing unit.

### 2.3.2 Regional Hydrogeology

Genesee County is located on the border of usable groundwater from Mississippian formations (Marshall Sandstone) and Pennsylvanian (Saginaw) formations. At the western edge of Genesee County, well sampling efforts have documented that the total dissolved solid (TDS) levels in these formations are as high as 100,000 mg/l. The glacial drift also has been shown to have elevated levels of TDS. The brine content of these formations diminishes to the east, away from the center of the Michigan Basin. The regional groundwater flow in the Saginaw Formation and Mississippian formations is to the northwest. Well logs east of the Site provided by the Genesee County Health Department indicate that usable groundwater is encountered in the area at approximately 200 ft below land surface.

A small portion of the domestic wells in Genesee County are installed in discontinuous sand and gravel beds within the glacial drift. A larger portion of the wells are installed in bedrock formations, typically the Marshall Sandstone.

# 3 FIELD SAMPLING METHODS

This section provides field sampling procedures employed during implementation of the groundwater investigation.

## 3.1 UTILITY CLEARANCE

Prior to performing the investigation, an underground utility survey of the Burton Parcel was performed to assist in placing sample locations. This survey included review of existing files, gathering information from public utility companies, and reviewing the City of Burton records.

A underground utility clearance was performed in advance of subsurface work. Prior to marking the proposed groundwater monitoring well locations, information regarding underground utilities and structures was obtained and reviewed. Using this information, the site was visually inspected for physical evidence of buried lines or structures, including pavement cuts and patches, variation in or lack of vegetation, variations in grading, *etc.* The public underground locating service (MISS DIG) was contacted to request underground utility marking around the Burton Parcel three days prior to commencing drilling work.

## 3.2 GROUNDWATER MONITORING WELL INSTALLATION AND DEVELOPMENT

Soil borings were installed in accordance with the MDEQ-approved Work Plan and the O'Brien & Gere Protocol**,** using a Rotosonic® drill rig. A Rotosonic® drill rig operates similar to a conventional top-drive rotary or auger rig. This drilling system employs simultaneous high frequency vibration and low speed rotational motion along with down pressure to advance the cutting shoes of the drill string. This technique provides a continuous soil core and generates minimal cuttings. The soil core will start from the ground surface and continue to the bottom of the boring.

Drilling operations take place from the drill platform, which is about four ft above ground. Steel drill casing and core barrel are connected to the head from the work platform/support truck and are then hoisted to vertical in the derrick. Tool joints are connected and disconnected by a hydraulic vise/wrench that is in the base of the derrick. The Rotosonic® head is able to pivot 90 degrees making connection of the rods easier and safer.

The Rotosonic® drilling system uses an override core barrel system. A 4-in or 6-in diameter, 10-ft long core barrel is first advanced 10 ft into the ground. This is followed by the override casing drilled to the same depth as the core barrel cutting shoe. The core barrel is then removed and two 5 ft soil samples are extruded into plastic sleeves. The core barrel is sent back down the hole where it is advanced another 10 ft followed again by the override casing. The outer casing minimizes cross contamination and formation mixing and allows for a controlled placement of wells.

The approved Work Plan proposed the installation of up to five shallow and six deep monitoring wells; however, based on subsurface conditions observed in the field, six shallow (less than 20 fbg) and four deep (25 to 45 fbg) monitoring wells were installed. Location OBG MW-1 was proposed in the Work Plan to be a deep well, however, clay soils were observed from 24 fbg to the bottom of the soil boring (45 fbg); therefore, a shallow well was set from approximately 19 to 24 fbg. At well location OBG MW-4S, soil conditions indicated clayey soil to an approximate depth of 22 fbg, with sand and gravel observed beneath the clay; therefore, the well was set from 20 -25 fbg. At well location OBG MW-3, it is not clear whether the well screen installed at this location is set at the same elevation as the shallow or deep water bearing unit at the Site. This well may straddle the two water bearing units. The locations of the monitoring wells are shown on **Figure 3**.

An O'Brien & Gere geologist was on-site during boring advancement to describe the subsurface soil samples observed during soil boring installation. Additionally, soils were screened using a photoionization detector (PID). The geologist placed one representative sample from each soil core section into a resealable plastic bag for PID headspace screening. Monitoring well boring logs and construction details are included in **Appendix A**.

Due to the continuous sampling of the drilling system, accurate depictions of the stratigraphy and lithology of the overburden are obtained (minimal sloughing). Therefore, at the locations (depicted on **Figure 3**) where a shallow and deep well location were installed, the deep soil boring was installed first and that subsurface

information was used to install the adjacent shallow well. Soil cuttings were contained in 55-gal Department of Transportation (DOT)-approved drums and staged on site pending final disposal.

Subsequent to soil sampling, monitoring wells were installed through the override casing that extends to the bottom of the boring. The monitoring wells were constructed of 2-in diameter flush-joint PVC casing and a 5-ft length of 0.010-in slot PVC well screen. The well screen and riser assembly were placed into the casing to the desired depth and a washed graded silica sand pack was placed around the well screen and extended a minimum of one ft above the top of the screen. Coarse granular bentonite was then added to the annular space to approximately two ft above the sand pack. The override casing was retracted as appropriate during sand pack and bentonite placement. A cement/bentonite grout was then added during the extraction of the remaining override casings to just below grade where the monitoring wells were completed. A standup protective casing was installed over the monitoring wells. A weep hole was drilled in the bottom of the standup protective casing to allow any accumulated water to drain. Monitoring well construction information is summarized on **Table 1**.

The newly installed monitoring wells were developed to remove fine-grained materials that may have entered the well or sand pack during construction. The monitoring wells were pumped until the water was relatively silt-free or no further change was noted; and the temperature, pH, turbidity, and specific electrical conductance readings stabilized to within 10 percent or until the well produced relatively clear, sediment-free water. Groundwater was collected in a glass jar to evaluate relative turbidity and to measure and record temperature, pH, turbidity, and specific electrical conductance.

Prior to well development, the equipment that entered the monitoring well was cleaned using a laboratory grade detergent and tap water rinse, or steam cleaned. Well development water was discharged to the ground surface near the well.

Subsequent to monitoring well installation, a location and elevation survey was performed to establish top-of-casing and grade elevations for the newly installed wells and existing wells MW-401 and MW-403. Horizontal locations were also surveyed and referenced to State Plane Coordinates.

### 3.3 GROUNDWATER SAMPLING – LOW FLOW PURGING

Subsequent to installation, O'Brien & Gere collected groundwater samples from the nine newly installed monitoring wells (**Figure 3**). A groundwater sample was not collected from well OBG MW-4 based on the presence of free product in the well. Groundwater sampling was performed using low-flow sampling techniques. Groundwater samples were analyzed for the presence of volatile organic compounds (VOCs), total arsenic, total barium, total lead, and total zinc. Existing monitoring wells MW-401 and MW-403 were not sampled because they were constructed with screen lengths of 20 ft and 30 ft, respectively.

Groundwater samples were collected using the low flow/low stress sampling technique as described in the O'Brien & Gere protocol included in the MDEQ-approved Work Plan. Low flow/low stress sampling techniques minimize the presence of fine grain materials in the groundwater samples. Since some constituents are known to have an affinity for fine-grained particulates (*i.e.,* inorganic constituents), samples collected using low flow/low stress techniques are typically more representative of the groundwater quality in the aquifer than samples collected using a hand bailer.

Prior to set up, the well identification and location were verified using location layout drawings and the condition of the well was noted in the field logbook.

Prior to purging, a water level and total well depth was measured and recorded. To purge the monitoring well using low flow/low stress techniques, a peristaltic pump was used for the shallow wells and a submersible pump was used for the deep wells. The polyethylene tubing was lowered into the well with the intake at the well screen midpoint. Before starting the pump, the water level was measured with the tubing in the well and the measuring device was left in the well after completing the measurement.

The well was then purged at 100 to a maximum of 500 milliliters per minute (mL/min). During purging, the water level was monitored every 5 minutes, or as necessary to maintain a steady flow rate that resulted in drawdown less than 0.3 ft. Field indicator parameters (pH, temperature, conductivity, oxidation-reduction

potential (ORP), dissolved oxygen (DO), and turbidity) were also monitored. Water level and field indicator parameter measurements were documented on groundwater field sampling forms.

The well was considered stabilized when the physical parameters were within 10% for three consecutive readings for each parameter. Turbidity readings did not stabilize below readings of 20 NTUs at wells OBG MW-5 and OBG MW-6S; therefore, a dissolved metals sample was collected using a 0.45 micron field filter.

Samples were collected directly from the pump with the groundwater discharged directly into the appropriate sample container. Samples were collected at a flow rate between 100 to 250 mL/min and such that drawdown of the water level in the well did not exceed the maximum allowable drawdown of 0.3 feet.

Samples were collected in the following order: VOCs, dissolved metals, total metals.

The pumping rate used to collect VOC samples did not exceed 100 mL/min. VOC samples were discharged directly to 40 mL glass vials with no headspace and topped with a teflon cap. Following sample collection, samples were placed in a cooler with ice and delivered via courier to Merit Laboratories of East Lansing, Michigan.

## 3.4 INVESTIGATION-DERIVED WASTES

Investigation-derived waste (IDW) consisted of soil cuttings from monitoring well installation; groundwater from well development, purging and sampling activities; personal protective equipment (PPE) (*i.e.,* spent gloves, personal protection equipment); decontamination water/fluids; and disposable sampling equipment.

Soil cuttings were contained in 55-gallon DOT-approved steel drums and staged onsite. Drums were labeled with the date of generation, the source of the soils (*i.e.,* the well identification number), and other information as required by the disposal facility/waste hauler. A composite soil characterization sample was collected from the drums. Analyses of the soil characterization sample was based on previous soil and groundwater analytical sample results and the requirements of the offsite disposal facility. The soil cuttings were profiled, manifested and transported by a licensed waste hauler from the Site on December 13, 2010. The waste was disposed of at the Waste Management Venice Park Recycling & Disposal facility in Venice Township, Michigan.

Liquids (*i.e.,* groundwater, decontamination fluids, and development fluids) were discharged to the ground surface.

PPE and disposable sampling equipment was containerized and labeled. Following review of the environmental sample results, PPE and disposable sampling equipment were disposed of as municipal trash.

## 3.5 EQUIPMENT DECONTAMINATION

Field equipment was properly decontaminated as described in the Work Plan.

### 3.5.1 Drill Rig and Heavy Equipment

Equipment and materials associated with sampling were cleaned before and after use at the site and between discrete investigation locations. The drill rig, drill rods, and miscellaneous heavy equipment were cleaned using high-pressure steam cleaning methods.

### 3.5.2 Decontamination of Sampling Equipment

Decontamination procedures are designed to remove particles and compounds that could affect the integrity of samples, and thus, the interpretation of environmental sampling data. The following decontamination procedures were followed for sampling equipment:

- Brush loose soil off equipment
- Wash equipment with laboratory grade detergent (*i.e.,* Alconox or equivalent)
- Rinse with potable water
- Allow water to evaporate before reusing equipment.

# 4 GROUNDWATER INVESTIGATION RESULTS

## 4.1 SITE GEOLOGY

Site geology consists of overburden materials that consist of intermixed soils and waste fill material located primarily on the east side of the Site. In general, the Site is covered by asphalt and gravel areas. Subsurface materials encountered during drilling activities include silt, sand, clay, and waste fill material in various amounts across the Site. The fill materials observed consist of sandy or clayey soils with varying amounts of waste fill (metal, glass rubber, plastic, wood, fabric, concrete, asphalt) extending to a depth of up to 31 fbg observed at OBG MW-4S.

A north-south (A-A') geologic cross section that depicts the relationship of subsurface materials along the east side of the Burton Parcel is included as **Figure 4**. Review of this figure shows fill materials observed at the northern (OBG MW-7S/D) and southern portions (OBG MW-MW1D and OBG MW-5S) of the Site with sand and clay observed in the central portion of the Site (OBG MW-6S/D). Previous investigations support these findings.

Two additional cross sections (**Figure 5** and **Figure 6**) depict the site geology at the southern and northern portions of the Site, respectively. **Figure 5** (Geologic Cross section B-B') and **Figure 6** (Geologic Cross section C-C') depict the waste fill observed at the eastern portion of the Site pinching out to the west where a sand unit was observed.

## 4.2 SITE HYDROGEOLOGY

Groundwater data from previous investigations at the Site indicate a northern groundwater gradient. Previously, O'Brien & Gere completed a freedom of information request to the MDNR in order to obtain information on a former Marathon service station (known to have been a petroleum leak site - site ID # 250469) located at the intersection of South Saginaw and Atherton Streets. Groundwater monitoring information provided for this site by the MDNR confirmed a northern groundwater gradient for shallow groundwater in the area.

Previous investigations performed at the Burton Parcel indicate shallow groundwater observed at depths from approximately 10 to 15 fbg located at the northern and western portions of the property in sand seams and a shallow sand unit. Deeper groundwater was observed at an approximate depth of 25 fbg in the two deep soil borings (OBG SB-1D and OBG SB-2D) installed at the Site.

This groundwater investigation included the installation of six shallow monitoring wells and four deep monitoring wells. Groundwater elevation data was collected for two gauging events (**Table 2**). Based on the distance between wells and the Site geology, it is not apparent if the geologic units observed at the Site are continuous across the Site or are even connected. Therefore, there is not conclusive data available to assess a groundwater flow direction.

## 4.3 GROUNDWATER QUALITY

Groundwater samples were collected from the newly installed wells except for well OBG MW-4 (free product was observed in this well). Groundwater samples were analyzed in accordance with the Quality Control Document (QCD) for the presence of VOCs and metals. Data quality and usability were evaluated through a Level II partial validation which indicated the data is usable for quantitative and qualitative purposes.

Analytical results (summarized on **Table 3**) indicate no detections of VOCs above method detection limits except in wells OBG MW-5S and OBG MW-6S where the detections are slightly above method detection limits. Concentrations of metals were detected in the wells with total arsenic concentrations detected in wells OBG MW-2S, OBG MW-2D, OBG MW-6D and OBG MW-7D above MDEQ Nonresidential Drinking Water Protection criteria. Concentrations of barium, lead and zinc were either below method detection limits or the MDEQ Nonresidential Drinking Water Protection criteria.

On two separate events, attempts were made to measure the thickness of free product observed in well OBG MW-4S. Due to the highly viscous free product heavily coating the interface probe of the measuring instrument,

it was difficult to acquire accurate measurements of the free product thickness. It is estimated that the free product thickness is approximately 4 ft. Monthly free product removal is scheduled to be performed for 4 consecutive months. Free product will be handled by a licensed waste hauler and will be manifested and disposed of in accordance with applicable local, state and federal regulations.

## 5 CONCLUSIONS

Based on the implementation of the MDEQ-approved Groundwater Investigation Work Plan, six shallow and four deep monitoring wells were installed at the Site. Site geology consists of overburden materials of intermixed soils and waste fill material, which are located primarily on the east side of the Site. Based on the Site geology and distance between well locations, it appears additional data is required to better assess groundwater flow conditions at the Burton Parcel Site.

To further characterize the Site hydrogeologic and groundwater flow conditions, it is recommended that additional nested wells (shallow and deep, if deep water bearing unit is observed) be installed at the Site to assess the continuity of the water bearing units which were observed at the perimeter of the Site. The proposed additional nested well approximate locations are shown on **Figure 7**. Initial groundwater monitoring and well installations would be performed in accordance with the MDEQ-approved September 2010 Work Plan. Based on the information obtained during installation of the proposed wells, an assessment will be made of the appropriate next step, including the possibility of routine groundwater monitoring.

## REFERENCES

Goldberg, Zoino & Associates (GZA). April 1988. *General Motors Corporation Environmental Site Assessment; Buick – Oldsmobile – Cadillac, Flint Body Assembly Plant; Argonaut AEC Project No. 6736*. Flint, Michigan.

Goldberg, Zoino & Associates (GZA). January 1989. *General Motors Corporation Environmental Site Assessment; Additional Studies; Volume I; Buick – Oldsmobile – Cadillac, Flint Body Assembly Plant; Argonaut AEC Project No. 6736*. Flint, Michigan.

General Motors Corporation. March 2, 2001. *Burton Parcel Additional Investigation Report Transmittal*.

Insight Environmental Services, Inc. June 11, 1999. *Phase I Environmental Site Assessment; Burton Parcel, Burton, Michigan.*

Insight Environmental Services, Inc. June 11, 1999. *Phase II Environmental Site Assessment; Burton Parcel, Burton, Michigan.*

Michigan Department of Environmental Quality. March 24, 2003. Correspondence to Mr. Robert Metcalf with General Motors Corporation.

Michigan Department of Environmental Quality. November 17, 1999. *Letter Denying Facility Redesignation.*

Michigan Department of Environmental Quality. March 6, 2000. *Proposed Health Center Associated with Hemphill Landfill Letter.*

Michigan Department of Environmental Quality. December 19, 2000. *Burton Parcel B2 Facility Redesignation Approval.*

Michigan Department of Environmental Quality. April 20, 2001. *Burton Parcel Additional Investigation Report Response Letter.*

Michigan Department of Environmental Quality. August 27, 2001. *Burton Parcel Response to Additional Investigation Report Letter.*

Michigan Department of Environmental Quality. November 29, 2005. *Hemphill Landfill, a.k.a., Burton Parcel 2005 Groundwater Monitoring Reports Response Letter.*

Michigan Department of Environmental Quality. September 18, 2006. *Hemphill Landfill, a.k.a., Burton Parcel Response to REALM August 16, 2006 Letter.*

Michigan Department of Natural Resources and Environment, October 18, 2010. *Groundwater Investigation Work Plan review letter.*

O'Brien & Gere Engineers, Inc. November 1994. *Work Pan Hemphill Landfill Investigation, Burton, Michigan.*

O'Brien & Gere Engineers, Inc. November 1997. *Burton Parcel Investigation, Burton, Michigan*.

O'Brien & Gere Engineers, Inc. August 16, 1999. *Burton Parcel Property Request for Facility Redesignation Letter.*

O'Brien & Gere Engineers, Inc. March 2001. *REALM Burton Parcel Additional Investigation, Burton, Michigan*.

O'Brien & Gere Engineers, Inc. September 9, 2010. *Groundwater Investigation Work Plan, Burton Parcel, Burton, Michigan.*

REALM. August 16, 2006. *Hemphill Landfill Response Activities Letter*.

WW Engineering & Science. January 1991. *Geophysical Investigation of the North Atherton Area and Burton Parcel*. United States Environmental Protection Agency (USEPA). 2001. *Requirements for Quality Assurance Project Plans for Environmental Data Operations, Final, EPA QA/R-5*. Washington, D.C.

# *Tables*

# Table 1
# Burton Parcel - Flint, Michigan
# Monitoring Well Construction Details

| Well | Completion Date | Installed By: Consultant/ Driller | Total Well Depth * | Surface Elevation (ft amsl) | Top of Casing Elevation (ft amsl) | Casing Diameter (inches) | Screened Interval Elevations | Estimated Sand/Gravel Pack Elevations |
|---|---|---|---|---|---|---|---|---|
| OBG MW-1S | 29-Nov-10 | O'Brien & Gere / Boart Longyear | 27.2 | 774.9 | 777.64 | 2 | 755.44-750.44 | 757.44-749.44 |
| OBG MW-2S | 30-Nov-10 | O'Brien & Gere / Boart Longyear | 20.3 | 772.9 | 775.33 | 2 | 760.03-755.03 | 762.03-754.03 |
| OBG MW-2D | 30-Nov-10 | O'Brien & Gere / Boart Longyear | 38.5 | 772.8 | 775.19 | 2 | 741.69-736.69 | 743.69-735.69 |
| OBG MW-3 | 30-Nov-10 | O'Brien & Gere / Boart Longyear | 27.7 | 774.3 | 777.24 | 2 | 754.54-749.54 | 756.54-748.54 |
| OBG MW-4S | 30-Nov-10 | O'Brien & Gere / Boart Longyear | 27.7 | 766.3 | 769.15 | 2 | 746.45-741.45 | 748.45-740.45 |
| OBG MW-5S | 1-Dec-10 | O'Brien & Gere / Boart Longyear | 20.3 | 768.5 | 771.00 | 2 | 755.7-750.7 | 757.7-749.7 |
| OBG MW-6S | 1-Dec-10 | O'Brien & Gere / Boart Longyear | 19.1 | 769.7 | 772.70 | 2 | 758.6-753.6 | 760.6-752.6 |
| OBG MW-6D | 1-Dec-10 | O'Brien & Gere / Boart Longyear | 44.4 | 769.7 | 772.69 | 2 | 733.29-728.29 | 735.29-727.29 |
| OBG MW-7S | 2-Dec-10 | O'Brien & Gere / Boart Longyear | 17.7 | 763.6 | 766.30 | 2 | 753.6-748.6 | 755.6-747.6 |
| OBG MW-7D | 2-Dec-10 | O'Brien & Gere / Boart Longyear | 47.8 | 763.6 | 766.36 | 2 | 723.56-718.56 | 725.56-717.56 |

Notes:

| | |
|---|---|
| ft amsl | feet above mean sea level (NGVD 1929) |
| ft TOC | feet below Top of Casing |
| PVC | Polyvinyl chloride, schedule 40, screen slot size 0.010 inch. |
| * | Total well depth as measured from TOC |
| | Elevation referenced to NGVD 1929 |

# Table 2
# Burton Parcel - Flint, Michigan
# Groundwater Elevation Data

| Well | Top of Casing Elevation (ft amsl) | 12/20/2010 Depth To Water (ft btoc) | 12/20/2010 Static Water Elev. (ft amsl) | 2/25/2011 Depth To Water (ft btoc) | 2/25/2011 Static Water Elev. (ft amsl) |
|---|---|---|---|---|---|
| OBG MW-1S | 777.64 | 13.80 | 763.84 | 13.50 | 764.14 |
| OBG MW-2S | 775.33 | 11.59 | 763.74 | 11.02 | 764.31 |
| OBG MW-2D | 775.19 | 22.02 | 753.17 | 21.80 | 753.39 |
| OBG MW-3 | 777.24 | 23.00 | 754.24 | 22.95 | 754.29 |
| OBG MW-4S | 769.15 | -- | -- | -- | -- |
| OBG MW-5S | 771.00 | 15.97 | 755.03 | 15.80 | 755.20 |
| OBG MW-6S | 772.70 | 14.72 | 757.98 | 14.18 | 758.52 |
| OBG MW-6D | 772.69 | 19.61 | 753.08 | 19.46 | 753.23 |
| OBG MW-7S | 766.30 | 8.68 | 757.62 | 8.10 | 758.20 |
| OBG MW-7D | 766.36 | 14.40 | 751.96 | 14.23 | 752.13 |

Notes:

Waterlevels collected on 12/20/2010 and 2/25/2011.

| | |
|---|---|
| ft btoc | feet below top-of-casing |
| ft amsl | feet above mean sea level (NGVD 1929) |
| ft bgs | feet below ground surface |
| -- | Not applicable |

# Table 3
## Burton Parcel - Flint, Michigan
## Groundwater Analytical Results - December 2010
## Volatile Organic Compounds (ug/L) Method 8260

| Sample Tag | OBG-MW1S | OBG-MW2D | OBG-MW2S | OBG-MW3 | OBG-MW5S | OBG-MW6S | OBG-MW6D | OBG-MW7S | OBG-MW7D | MDEQ Part 201 Nonresidential Drinking Water Protection Criteria |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 12/20/2010 | 12/21/2010 | 12/20/2010 | 12/20/2010 | 12/21/2010 | 12/20/2010 | 12/21/2010 | 12/20/2010 | 12/21/2010 | |
| Diethyl ether | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | 10 (E) |
| Acetone | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | 2,100 |
| Methyl iodide | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | NC |
| Carbon disulfide | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 2,300 |
| tert-Methyl butyl ether (MTBE) | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 40 (E) |
| Acrylonitrile | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | 11 |
| 2-Butanone | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | 38,000 |
| Dichlorodifluoromethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 4,800 |
| Chloromethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 1,100 |
| Vinyl Chloride | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 2 (A) |
| Bromomethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 29 |
| Chloroethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 1,700 |
| Trichlorofluoromethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 7,300 |
| 1,1-Dichlorethene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 7 (A) |
| Methylene chloride | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 5 (A) |
| trans-1,2-Dichloroethene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 100 (A) |
| 1,1-Dichloroethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 2,500 |
| cis-1,2-Dichloroethene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 70 (A) |
| Tetrahydrofuran | <90 | <90 | <90 | <90 | <90 | <90 | <90 | <90 | <90 | 270 |
| Chloroform | <1 | <1 | <1 | <1 | <1 | 1 | <1 | <1 | <1 | 80 (A,W) |
| Bromochloromethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | NC |
| 1,1,1-Trichloroethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 200 (A) |
| 4-Methyl-2-pentanone | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | 5,200 |
| 2-Hexanone | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | <50 | 2,900 |
| Carbon tetrachloride | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 5 (A) |
| Benzene | <1 | <1 | <1 | <1 | 3 | <1 | <1 | <1 | <1 | 5 (A) |
| 1,2-Dichloroethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 5 (A) |
| Trichloroethene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 5 (A) |
| 1,2-Dichloropropane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 5 (A) |
| Bromodichloromethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 80 (A,W) |
| Dibromomethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 230 |
| cis-1,3-Dichloropropene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | NC |
| Toluene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 790 (E) |
| trans-1,3-Dichloropropene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | NC |
| 1,1,2-Trichloroethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 5 (A) |
| Tetrachloroethene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 5 (A) |
| trans-1,4-Dichloro-2-butene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | NC |
| Dibromochloromethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 80 (A,W) |
| 1,2-Dibromoethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | NC |
| Chlorobenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 100 (A) |
| 1,1,1,2-Tetrachloroethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 320 |
| Ethylbenzene | <1 | <1 | <1 | <1 | 1 | <1 | <1 | <1 | <1 | 74 (E) |
| p,m-Xylene | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | 280 (E) |
| o-Xylene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 280 (E) |
| Styrene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 100 (A) |
| Isopropylbenzene | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 2,300 |
| Bromoform | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 80 (A,W) |
| 1,1,2,2-Tetrachloroethane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 35 |
| 1,2,3-Trichloropropane | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 120 |
| n-Propylbenzene | <1 | <1 | <1 | <1 | 1 | <1 | <1 | <1 | <1 | 230 |
| Bromobenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 50 |
| 1,3,5-Trimethylbenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 72 (E) |
| tert-Butylbenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 230 |
| 1,2,4-Trimethylbenzene | <1 | <1 | <1 | <1 | 5 | <1 | <1 | <1 | <1 | 63 (E) |
| sec-Butylbenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 230 |
| p-Isopropyltoluene | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | NC |
| 1,3-Dichlorobenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 19 |
| 1,4-Dichlorobenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 75 (A) |
| 1,2-Dichlorobenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 600 (A) |
| 1,2,3-Trimethylbenzene | <1 | <1 | <1 | <1 | 5 | <1 | <1 | <1 | <1 | NC |
| n-Butylbenzene | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | 230 |
| Hexachloroethane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 21 |
| 1,2-Dibromo-3-chloropropane | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | NC |
| 1,2,4-Trichlorobenzene | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 70 (A) |
| 1,2,3-Trichlorobenzene | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | NC |
| Napthalene | <5 | <5 | <5 | <5 | 8 | <5 | <5 | <5 | <5 | 1,500 |
| 2-Methylnaphthalene | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 750 |

Notes:

1) Sample results reported in parts per billion (µg/L).

2) "<" indicates not detected at the indicated detection limit.

3) MDEQ Generic criteria as listed in MDEQ Operational Memorandum No. 1, Attachment 1 dated January 23, 2006.

4) "NC" denotes no criteria established.

5) W denotes concentrations of trihalomethanes in ground water must be added together to determine compliance with the State of Michigan Drinking Water Standard of 100 ppb. Concentrations of trihalomethanes in soil must be added together to determine compliance with the drinking water protection criterion 2,000 ppb.

6) E denotes criteria is the aesthetic drinking water value, as required by Sec. 20120(1)(5).

7) A denotes criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, 1976 PA 399.

8) Samples analyzed by Merit Laboratories, Inc. of East Lansing, Michigan.

9) Well OBG-MW4 was not sampled due to the presence of free product

# Table 3
# Burton Parcel - Flint, Michigan
# Groundwater Analytical Results - December 2010
# Metals (ug/L) Method 200.8

| Sample Tag | OBG-MW1S | OBG-MW2S | OBG-MW2D | OBG-MW3 | OBG-MW5S* | MDEQ Part 201 Nonresidential Drinking Water Protection Criteria |
|---|---|---|---|---|---|---|
| Sample Date | 12/20/2010 | 12/20/2010 | 12/21/2010 | 12/20/2010 | 12/21/2010 | |
| Arsenic | 3 | **11** | **17** | <2 | 3 | 10 (A) |
| Barium | 140 | 107 | 262 | 191 | 952 | 2,000 (A) |
| Lead | <3 | <3 | <3 | <3 | <3 | 4 (L) |
| Zinc | 33 | <5 | <5 | <5 | <5 | 5,000 (E) |

| Sample Tag | OBG-MW6S* | OBG-MW6D | OBG-MW7S | OBG-MW7D | MDEQ Part 201 Nonresidential Drinking Water Protection Criteria |
|---|---|---|---|---|---|
| Sample Date | 12/20/2010 | 12/21/2010 | 12/20/2010 | 12/21/2010 | |
| Arsenic | 10 | **15** | 7 | **28** | 10 (A) |
| Barium | 193 | 90 | 325 | 91 | 2,000 (A) |
| Lead | <3 | <3 | 3 | <3 | 4 (L) |
| Zinc | <5 | 6 | <5 | <5 | 5,000 (E) |

Notes:

1) Sample results reported in parts per million (µg/L).
2) "<" indicates not detected at the indicated detection limit.
3) Bold-type indicates concentration is above the MDEQ Industrial Drinking Water Criteria.
4) E denotes criteria is the aesthetic drinking water value, as required by Sec. 20120(1)(5).
5) A denotes criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, 1976 PA 399.
6) L denotes criteria for lead are derivd using a biologically based model, as allowed for under Section 20120a(10) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specified rules.
7) Samples analyzed by Merit Laboratories, Inc. of East Lansing, Michigan.
8) Well OBG-MW4 was not sampled due to the presence of free product.
9) "*" Samples for OBG-MW6S and OBG-MW5 were field filtered, concentrations shown are dissolved metals.

# *Figures*

FIGURE 1

I:/14774/46306/REP/GWI WP/MXDS/001.MXD

Flint River
Flint River
Gilkey Creek
Thread Creek
Swartz Creek
69
16
17
18
19
20
21
Thread Creek
24
Carman Drain
ATHERTON
S. SAGINAW ST.
CITY OF FLINT
BURTON
28
Pierson Branch
30
HEMPHILL
29
25
475
Site
DORT HWY
BRISTOL
Carman Drain
31
32
33
36
BURTON
Sherwood Drain
GRAND BLANC
Gibson Drain
Meyers Drain
06
05
04
01

PLOT DATE: 6-21-2010 AJF

**LEGEND**

BURTON PARCEL

30 SECTION LINE & NUMBER

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

# SITE LOCATION MAP

N

O'BRIEN & GERE ENGINEERS, INC.

JUNE 2010

14774/46306/REP/GWI WP/001/MXD/001

0 1,500 3,000 4,500 6,000

Feet

FIGURE 2

I:/14774/46306/REP/GWI WP/MXDS/002.MXD


PLOT DATE: 10-21-2010 AJF

**LEGEND**

- BURTON PARCEL
- FENCE LINE
- FORMER BUILDINGS
- APPROXIMATE EXTENT OF WASTE FILL

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

# SITE LAYOUT

N

0 75 150 225 300
Feet

O'BRIEN & GERE ENGINEERS, INC.

JUNE 2010
14774/46306/REP/GWI WP/001/MXD/002

FIGURE 3

I:/14774/46306/REP/GWI REP/FIG.S/003.MXD


PLOT DATE: 3-7-2011 AJF

**LEGEND**

- BURTON PARCEL
- FENCE LINE
- EXISTING MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

# MONITORING WELL LOCATIONS

0 50 100 150 200
Feet

N

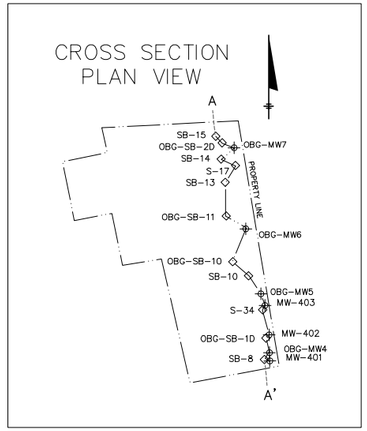
O'BRIEN & GERE ENGINEERS, INC.

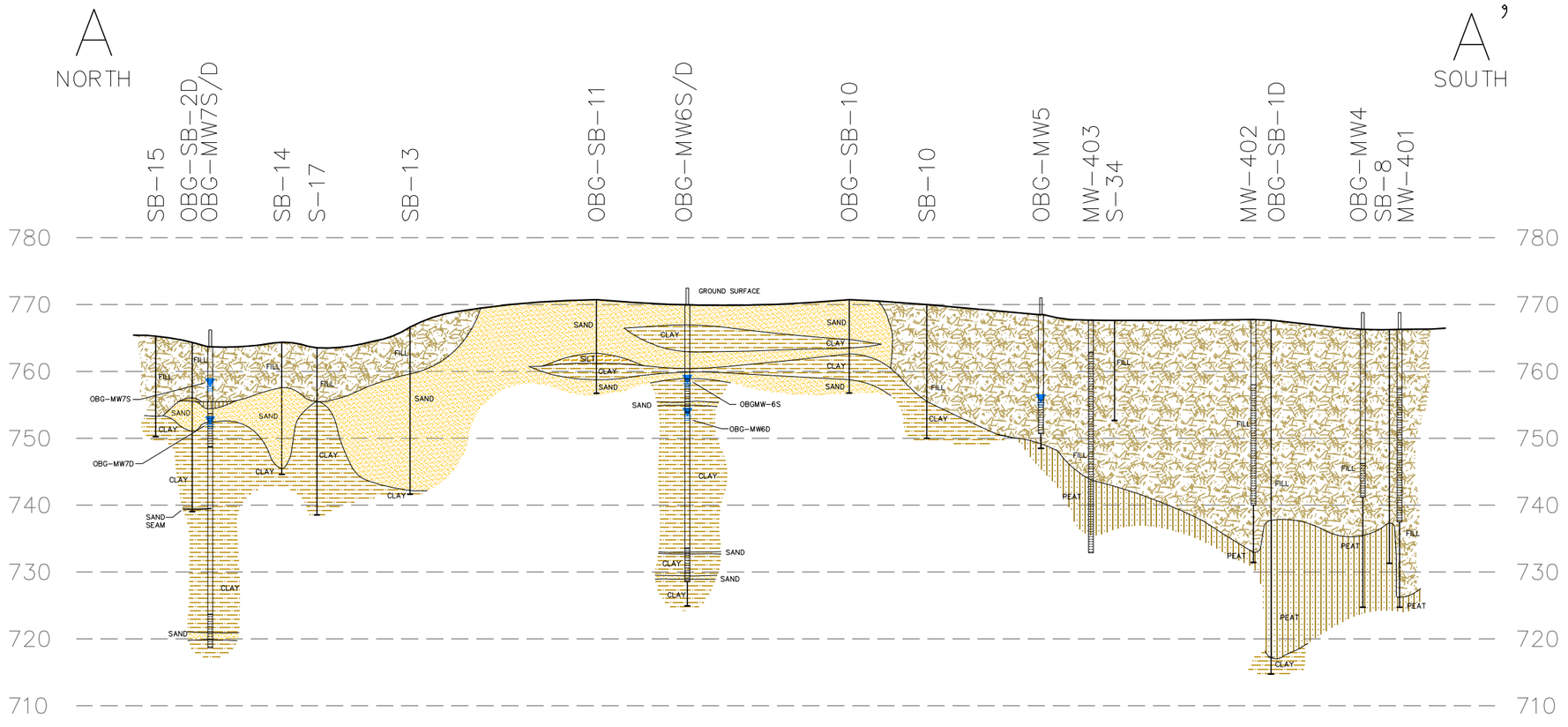
MARCH 2011
14774/46306/REP/GWI REP/FIG/003

I:PROJECTS/14774/46306/DOCS/DWG/002.DWG

NOTES: FILL MATERIAL IS PRIMARILY A SILTY SAND AND GRAVEL MATRIX. WASTE MATERIALS ARE RANDOMLY INTERMIXED WITH THE PRIMARY MATRIX.

STATIC WATER ELEVATIONS WERE RECORDED ON 12/20/2010.




VERTICAL SCALE 1"=20' (20 0 20)

HORIZONTAL SCALE 1"=80' (80 0 80)

FIGURE 4

LEGEND

- SOIL BORING
- MONITORING WELL
- FILL
- SAND
- SILT
- CLAY
- PEAT
- STATIC WATER ELEVATION

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

GEOLOGIC
CROSS SECTION
A – A'

14774/46306/002
JUNE 2010

O'BRIEN & GERE



3-31-2011 jmo

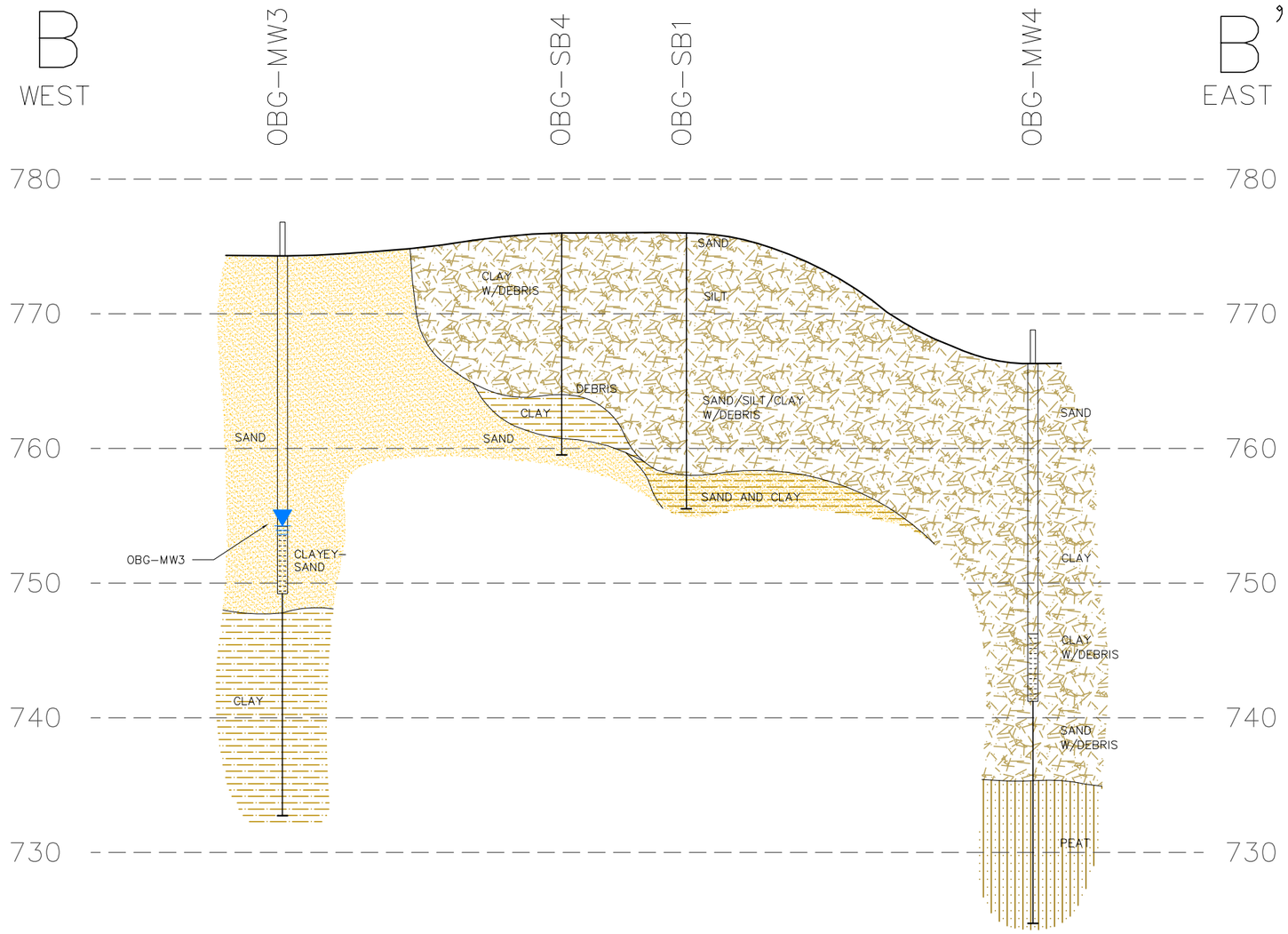
I:PROJECTS/14774/46306/DOCS/DWG/002.DWG

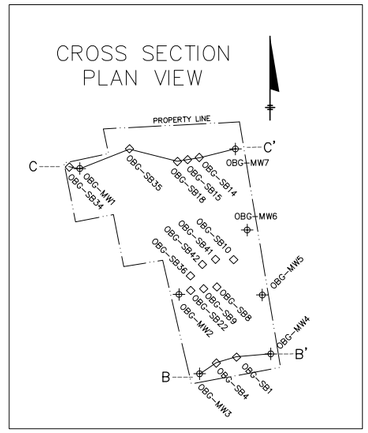
FIGURE 5

NOTES:

FILL MATERIAL IS PRIMARILY A SILTY SAND AND GRAVEL MATRIX. WASTE MATERIALS ARE RANDOMLY INTERMIXED WITH THE PRIMARY MATRIX.

STATIC WATER ELEVATIONS WERE RECORDED ON 12/20/2010.




10 0 10
VERTICAL SCALE 1"=10'

40 0 40
HORIZONTAL SCALE 1"=40'

## LEGEND

- SOIL BORING
- MONITORING WELL
- FILL
- SAND
- SILT
- CLAY
- PEAT
- STATIC WATER ELEVATION

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

GEOLOGIC CROSS SECTION
B – B'

14774/46306/002
JUNE 2010

OBRIEN & GERE

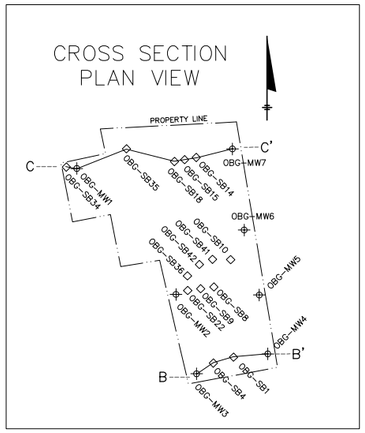
3-31-2011 jmo

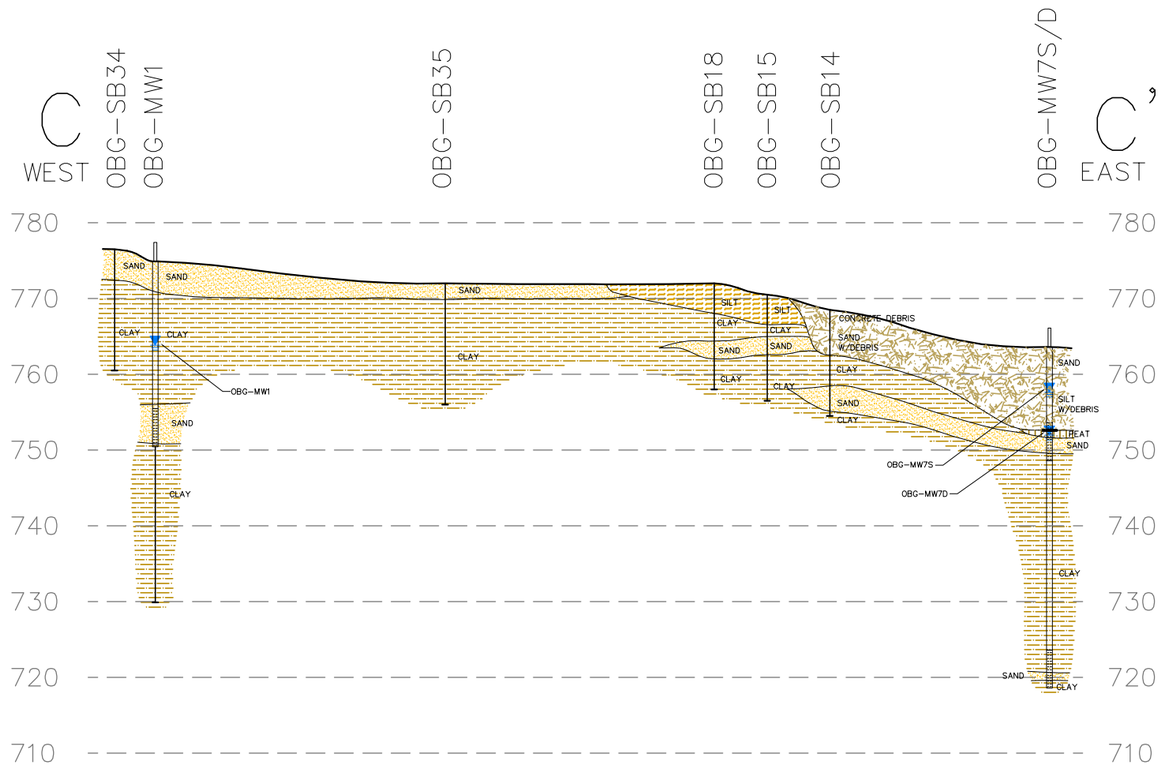
I:PROJECTS/14774/46306/DOCS/DWG/002.DWG

FIGURE 6

NOTES: FILL MATERIAL IS PRIMARILY A SILTY SAND AND GRAVEL MATRIX. WASTE MATERIALS ARE RANDOMLY INTERMIXED WITH THE PRIMARY MATRIX.

STATIC WATER ELEVATIONS WERE RECORDED ON 12/20/2010.




VERTICAL SCALE 1"=20' (20 0 20)

HORIZONTAL SCALE 1"=80' (80 0 80)

## LEGEND

- SOIL BORING
- MONITORING WELL
- FILL
- SAND
- SILT
- CLAY
- PEAT
- STATIC WATER ELEVATION

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

# GEOLOGIC CROSS SECTION C – C'

14774/46306/002
JUNE 2010

O'BRIEN & GERE

3-31-2011 jmo

I:/14774/46306/REP/GWI REP/FIG.7/004.MXD

OBG MW-7D
OBG MW-7S
OBG MW-1S
OBG MW-6S
OBG MW-6D
OBG MW-2D
OBG MW-2S
OBG MW-5S
MW-403
OBG MW-4S
MW-401
OBG MW-3

PLOT DATE: 5-11-2011 AJF

**LEGEND**

- BURTON PARCEL
- FENCE LINE
- EXISTING MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- PROPOSED MONITORING WELL NESTS

RACER TRUST
BURTON PARCEL
BURTON, MICHIGAN

# PROPOSED MONITORING WELL LOCATIONS

0 50 100 150 200
Feet

N

O'BRIEN & GERE ENGINEERS, INC.

MARCH 2011
14774/46306/REP/GWI REP/FIG/004

# *Appendices*

# *Appendix A*

# *Soil Boring Logs and Well Construction Details*

O'BRIEN & GERE

# BORING LOG

## WELL NO. OBG-MW1S

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 2
JOB NO. 46306
GROUND ELEV. 774.9
DATUM
DATE STARTED 11/29/2010
DATE FINISHED 11/29/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 774.5 asphalt 0.4 | | | | 0 | | |
| | | SS-1 | | 2.0'/ 2.0' | 773.9 moderate yellowish brown, damp, silty SAND and GRAVEL 1.0 | | SM | | | | |
| 2 | | | | | yellowish orange, damp, fine SAND, fill | | SP | | 0 | | |
| | | | | | 771.9 3.0 | | | | | | |
| | | | | | moderate yellowish brown, damp, silty SAND, | | SM | | | | |
| 4 | | | | | 770.9 trace small gravel 4.0 | | | | | | |
| | | | | | moderate yellowish brown, moist, sandy CLAY, little small gravel | | | | 0 | | |
| 6 | | SS-2 | | 8.0'/ 8.0' | medium gray, moist, sandy CLAY | | | | 0 | | |
| 8 | | | | | | | CL | | 0 | | |
| | | | | | medium gray, wet, silty CLAY, trace small gravel | | | | | | |
| 10 | | | | | | | | | 0 | | |
| | | | | | same as above, moist, silty CLAY | | | | | | |
| 12 | | | | | | | CL | | 0 | | |
| | | | | | same as above, damp, little fine sand | | | | | | |
| 14 | | | | | | | | | 0 | | |
| | | SS-3 | | 10.0'/ 10.0' | | | | | | | |
| 16 | | | | | | | | | 0 | | |
| 18 | | | | | | | | | 0 | | |
| | | | | | 755.9 19.0 | | | | | | |
| | | | | | medium gray, wet, fine SAND | | SM | | | | |
| 20 | | | | | medium gray, wet, fine to medium, silty SAND, little 2" gravel | | SM | | 0 | | |
| 22 | | | | | 752.9 22.0 | | | | | | |
| | | | | | medium gray, wet, clayey SAND | | SC | | 0 | | |
| 24 | | | | | 750.9 24.0 | | | | | | |
| | | SS- | | | medium gray, damp, silty CLAY, trace fine sand | | | | 0 | | |

**Notes:** Monitoring well is constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 19'-24' below grade (completed as stick-up with protective casing)

*(Continued Next Page)*

O'BRIEN & GERE

# BORING LOG

WELL NO. **OBG-MW1S**

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 2 OF 2

JOB NO. 46306

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | 4 | | 10.0'/ 10.0' | medium gray, damp, stiff CLAY, medium plasticity | | | | 0 | | |
| 28 | | | | | | | | | 0 | | |
| 30 | | | | | | | CL | | 0 | | |
| 32 | | | | | | | | | 0 | | |
| 34 | | | | | medium gray, moist, medium stiff | | | | 0 | | |
| 36 | | SS-5 | | 10.0'/ 10.0' | medium gray, moist, soft, silty CLAY, little gravel | | CL | | 0 | | |
| 38 | | | | | medium gray, damp, stiff, silty CLAY, trace small gravel | | | | 0 | | |
| 40 | | | | | | | | | 0 | | |
| 42 | | SS-6 | | 5.0'/ 5.0' | | | CL | | 0 | | |
| 44 | | | | | 729.9 45.0 End of Borehole at 45.0'. | | | | 0 | | |
| 46 | | | | | | | | | | | |
| 48 | | | | | | | | | | | |
| 50 | | | | | | | | | | | |
| 52 | | | | | | | | | | | |
| 54 | | | | | | | | | | | |
| 56 | | | | | | | | | | | |

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

# BORING LOG

# WELL NO. OBG-MW2D

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 2
JOB NO. 46306
GROUND ELEV. 772.9
DATUM
DATE STARTED 11/30/2010
DATE FINISHED 11/30/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 772.4 asphalt/concrete mix 0.5 | | | | 0 | | |
| 2 | | SS-1 | | 5.0'/ 5.0' | moderate yellowish brown, damp, silty SAND, little small gravel | | SM | | 0 | | |
| 4 | | | | | 768.9 4.0 | | | | | | |
| | | | | | 767.9 moderate yellowish brown, damp, silty CLAY, little sand and small gravel 5.0 | | CL | | 0 | | |
| 6 | | | | | moderate yellowish brown, damp, fine to medium, SAND, little silt | | SM | | 0 | | |
| 8 | | SS-2 | | 5.0'/ 5.0' | | | | | 0 | | |
| | | | | | 763.9 9.0 | | | | | | |
| 10 | | | | | medium gray, damp, stiff CLAY, trace small gravel | | | | 0 | | |
| 12 | | | | | medium gray, damp, sandy CLAY, trace small gravel | | CL | | 0 | | |
| 14 | | | | | same as above, wet, little small gravel | | | | 0 | | |
| | | SS-3 | | 10.0'/ 10.0' | medium gray, moist, soft CLAY, little small gravel | | | | | | |
| 16 | | | | | | | | | 0 | | |
| | | | | | 755.4 17.5 | | | | | | |
| 18 | | | | | 754.9 medium gray, wet, clayey SAND, little small gravel 18.0 | | SC | | 0 | | |
| | | | | | medium gray, damp, silty CLAY, little small gravel | | | | | | |
| 20 | | | | | medium gray, damp, silty CLAY, little small gravel | | | | 0 | | |
| 22 | | | | | | | | | 0 | | |
| 24 | | | | | same as above, stiff CLAY, trace small gravel | | CL | | 0 | | |
| | | SS- | | | | | | | | | |

**Notes:** Two monitoring wells approximately 5' apart are constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 13'-18' and 31'-36' below grade (completed as stick-up with protective casing).

*(Continued Next Page)*

O'BRIEN & GERE

# BORING LOG

WELL NO. **OBG-MW2D**

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 2 OF 2

JOB NO. 46306

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | | | 10.0'/ 10.0' | same as above, stiff CLAY, trace small gravel *(continued)* | | CL | | 0 | | |
| | | | | | medium gray, damp, stiff CLAY, medium plasticity | | | | | | |
| 28 | | | | | | | | | 0 | | |
| 30 | | | | | | | | | 0 | | |
| | | | | | medium gray, moist to wet, soft sandy CLAY, little small gravel | | | | | | |
| 32 | | | | | 740.9 32.0 | | | | 0 | | |
| | | | | | same as above, wet, clayey SAND | | SC | | | | |
| | | | | | 739.9 33.0 | | | | | | |
| 34 | | | | | medium gray, moist, sandy CLAY, trace small gravel | | | | 0 | | |
| | | SS-5 | | 10.0'/ 10.0' | | | CL | | | | |
| 36 | | | | | | | | | 0 | | |
| | | | | | medium gray, damp, hard silty CLAY, brittle, trace small gravel | | | | | | |
| 38 | | | | | | | | | 0 | | |
| 40 | | | | | | | | | 0 | | |
| 42 | | SS-6 | | 5.0'/ 5.0' | same as above, little medium gravel, 2" diameter | | | | 0 | | |
| | | | | | | | CL | | | | |
| 44 | | | | | | | | | 0 | | |
| | | | | | 727.9 45.0 | | | | | | |
| | | | | | End of Borehole at 45.0'. | | | | 0 | | |
| 46 | | | | | | | | | | | |
| 48 | | | | | | | | | | | |
| 50 | | | | | | | | | | | |
| 52 | | | | | | | | | | | |
| 54 | | | | | | | | | | | |
| 56 | | | | | | | | | | | |

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

# BORING LOG

# WELL NO. OBG-MW3

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 2
JOB NO. 46306
GROUND ELEV. 774.3
DATUM
DATE STARTED 11/30/2010
DATE FINISHED 11/30/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 773.9 asphalt 0.4 | | | | 0 | | |
| 2 | SS-1 | | 5.0'/ 5.0' | moderate yellowish brown, damp, fine to medium, SAND, little silt and small gravel<br>moderate yellowish brown, damp, fine to medium, SAND, trace silt | | SM | | 0 | | |
| 4 | | | | | | | | 0 | | |
| 6 | | | | same as above | | | | 0 | | |
| 8 | SS-2 | | 5.0'/ 5.0' | | | SM | | 0 | | |
| 10 | | | | same as above | | | | 0 | | |
| 12 | | | | | | | | 0 | | |
| 14 | SS-3 | | 10.0'/ 10.0' | | | | | 0 | | |
| 16 | | | | | | | | 0 | | |
| 18 | | | | 755.3 19.0 | | | | 0 | | |
| 20 | | | | medium gray, damp, clayey SAND<br>medium gray to moderate yellowish brown, moist clayey SAND | | SC | | 0 | | |
| 22 | | | | same as above, wet | | | | 0 | | |
| 24 | SS- | | | | | SC | | 0 | | |

**Notes:** Monitoring well is constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 20'-25' below grade (completed as stick-up with protective casing)

*(Continued Next Page)*

O'BRIEN & GERE

# BORING LOG

**WELL NO. OBG-MW3**

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 2 OF 2

JOB NO. 46306

| DEPTH (ft) | Sample Type Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 4 | | 10.0'/ 10.0' | same as above, wet *(continued)* | | SC | | 0 | | |
| | | | | 747.8 same as above, moist 26.5 | | | | | | |
| 28 | | | | medium gray, damp, silty CLAY, little small gravel | | | | 0 | | |
| | | | | same as above, stiff | | | | | | |
| 30 | | | | | | CL | | 0 | | |
| 32 | | | | same as above, medium stiff, medium plasticity | | | | 0 | | |
| 34 | SS-5 | | 10.0'/ 10.0' | | | | | 0 | | |
| 36 | | | | | | | | 0 | | |
| 38 | | | | | | | | 0 | | |
| 40 | | | | medium gray, moist, sandy CLAY, little medium gravel | | | | 0 | | |
| | | | | same as above, moist, silty CLAY | | | | | | |
| 42 | SS-6 | | 5.0'/ 5.0' | | | CL | | 0 | | |
| 44 | | | | same as above, damp, gravel 3" diameter | | | | | | |
| | | | | 729.3 45.0 | | | | | | |
| | | | | End of Borehole at 45.0'. | | | | 0 | | |
| 46 | | | | | | | | | | |
| 48 | | | | | | | | | | |
| 50 | | | | | | | | | | |
| 52 | | | | | | | | | | |
| 54 | | | | | | | | | | |
| 56 | | | | | | | | | | |

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

# BORING LOG

## WELL NO. OBG-MW4S

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 2
JOB NO. 46306
GROUND ELEV. 766.3
DATUM
DATE STARTED 11/30/2010
DATE FINISHED 11/30/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 765.9 asphalt 0.4 | | | | 0 | | |
| 2 | | SS-1 | | 5.0'/ 5.0' | dark gray, damp, silty SAND, little clay and small gravel | | | | 0 | | |
| 4 | | | | | | | SM | | 0 | | |
| 6 | | | | | 759.3 7.0 | | | | 0 | | |
| | | SS-2 | | 5.0'/ 5.0' | olive gray, damp, silty CLAY, little sand and small gravel | | | | 0 | | |
| 8 | | | | | | | | | 0 | | |
| 10 | | | | | | | | | 0 | | |
| 12 | | | | | medium gray, moist, silty CLAY, some sand and small gravel | | | | 0 | | |
| | | | | | same as above, wet, soft | | | | 0 | | |
| 14 | | SS-3 | | 10.0'/ 10.0' | | | CL | | 0 | | |
| 16 | | | | | same as above, moist, silty CLAY | | | | 0 | | |
| | | | | | medium gray, damp, silty CLAY, little sand and small gravel | | | | 0 | | |
| 18 | | | | | same as above, moderate yellowish brown mottling | | | | 0 | | |
| | | | | | | | CL | | | | |
| 20 | | | | | metal pieces, black staining, solvent odor, wet (fill) | | | | 23.1 | | |
| 22 | | | | | 744.3 22.0 | | | | 0 | | |
| | | | | | gray to black, wet, silty SAND and GRAVEL, little clay, odor, metal pieces, glass (fill) | | | | 0 | | |
| 24 | | | | | | | SM | | | | |
| | | SS- | | | 741.3 25.0 | | | | 0 | | |

**Notes:** Monitoring well is constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 20'-25' below grade (completed as stick-up with protective casing)

*(Continued Next Page)*

O'BRIEN & GERE

# BORING LOG

**WELL NO. OBG-MW4S**

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 2 OF 2

JOB NO. 46306

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | 4 | | 10.0'/ 10.0' | same as above, sandy SILT, rubber hose, plastic, wood block, solvent odor (fill) | | | | 25.1 | | |
| 28 | | | | | olive gray, moist, SILT, little small gravel, wood block (fill) | | ML | | 9.1 | | |
| 30 | | | | | | | | | 1.1 | | |
| | | | | | 735.3 31.0 | | | | | | |
| 32 | | | | | dark brown, moist, organic PEAT | | | | 1.2 | | |
| 34 | | | | | same as above, wood block pieces, no odor (fill) | | PT | | 0.4 | | |
| 36 | | SS-5 | | 10.0'/ 10.0' | no wood pieces | | | | 0 | | |
| 38 | | | | | | | | | 0 | | |
| 40 | | | | | same as above, damp | | | | 0 | | |
| 42 | | SS-6 | | 5.0'/ 5.0' | | | PT | | 0 | | |
| 44 | | | | | 721.3 45.0 | | | | | | |
| | | | | | End of Borehole at 45.0'. | | | | 0 | | |
| 46 | | | | | | | | | | | |
| 48 | | | | | | | | | | | |
| 50 | | | | | | | | | | | |
| 52 | | | | | | | | | | | |
| 54 | | | | | | | | | | | |
| 56 | | | | | | | | | | | |

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

# BORING LOG

## WELL NO. OBG-MW5S

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 1
JOB NO. 46306
GROUND ELEV. 768.5
DATUM
DATE STARTED 12/1/2010
DATE FINISHED 12/1/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | | | | 768.0 asphalt/concrete mix 0.5 | | | | 0 | | |
| | | | | dark brown, damp, silty SAND, little clay and small gravel | | | | | | |
| 2 | | | | 766.5 2.0 | | | | | | |
| | SS-1 | | 5.0'/ 5.0' | 766.0 6" concrete with rebar 2.5 | | SM | | 0 | | |
| | | | | olive gray, damp, silty SAND, little clay, few glass pieces (fill) | | | | | | |
| 4 | | | | | | | | 0 | | |
| | | | | | | | | 0 | | |
| 6 | | | | | | | | 0 | | |
| | SS-2 | | 5.0'/ 5.0' | | | | | | | |
| 8 | | | | | | | | 0 | | |
| | | | | 758.5 10.0 | | | | | | |
| 10 | | | | olive gray, moist, clayey SAND, little silt and small gravel | | | | 0.8 | | |
| | | | | | | | | | | |
| 12 | | | | | | SC | | 0 | | |
| | | | | | | | | | | |
| 14 | | | | 754.0 same as above, wet 14.5 | | | | 0 | | |
| | SS-3 | | 10.0'/ 10.0' | grayish black, wet, SILT, sand and gravel, plastic and rubber pieces (fill) | | | | | | |
| 16 | | | | | | SM | | 1.1 | | |
| | | | | | | | | | | |
| 18 | | | | same as above, fabric pieces (fill) | | | | | | |
| | | | | 750.5 18.0 | | | | 1.4 | | |
| | | | | medium gray, wet, clayey SAND, fabric (fill) | | SC | | | | |
| | | | | 749.5 19.0 | | | | | | |
| 20 | | | | dark brown, moist, organic PEAT | | PT | | | | |
| | | | | 748.5 20.0 | | | | 0 | | |
| | | | | End of Borehole at 20.0'. | | | | | | |
| 22 | | | | | | | | | | |
| 24 | | | | | | | | | | |

**Notes:** Monitoring well is constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 13'-18' below grade (completed as stick-up with protective casing)

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

# BORING LOG

**WELL NO. OBG-MW6D**

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 2
JOB NO. 46306
GROUND ELEV. 769.7
DATUM
DATE STARTED 12/1/2010
DATE FINISHED 12/1/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 769.1 concrete with rebar 0.6 | | | | 0 | | |
| 2 | | SS-1 | | 5.0'/ 5.0' | moderate yellowish brown, damp, fine to medium, SAND, little silt | | SP | | 0 | | |
| | | | | | 766.7 3.0 | | | | | | |
| 4 | | | | | moderate yellowish brown, damp, silty CLAY, little small gravel | | CL | | 0 | | |
| 6 | | | | | | | | | 0 | | |
| | | | | | 762.7 7.0 | | | | | | |
| 8 | | SS-2 | | 5.0'/ 5.0' | moderate yellowish brown, damp, fine to medium, SAND, little silt and small gravel | | SP | | 0 | | |
| | | | | | 760.2 9.5 | | | | | | |
| 10 | | | | | 759.7 moderate yellowish brown, damp, silty CLAY, stiff, trace small gravel 10.0 | | | | 0 | | |
| | | | | | 758.7 brownish gray, damp, silty SAND 11.0 | | SM | | | | |
| 12 | | | | | gray with brown mottling, damp, silty CLAY | | | | 0 | | |
| | | | | | medium gray, moist, soft CLAY, trace small gravel | | | | | | |
| 14 | | | | | 755.2 14.5 | | | | 0 | | |
| | | SS-3 | | 10.0'/ 10.0' | 754.7 medium gray, wet, clayey SAND 15.0 | | SC | | | | |
| 16 | | | | | medium gray, moist, silty CLAY, trace small gravel | | | | 0 | | |
| 18 | | | | | | | | | 0 | | |
| | | | | | medium gray, damp, stiff silty CLAY, trace small gravel | | | | | | |
| 20 | | | | | | | | | 0 | | |
| 22 | | | | | | | | | 0 | | |
| 24 | | SS- | | | | | | | 0 | | |

**Notes:** Two monitoring wells approximately 5' apart are constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 11'-16' and 37'-42' below grade (completed as stick-up with protective casing).

*(Continued Next Page)*

OBRIEN & GERE

# BORING LOG

## WELL NO. OBG-MW6D

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 2 OF 2

JOB NO. 46306

| DEPTH (ft) | Sample Type & Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | | 10.0'/ 10.0' | medium gray, damp, CLAY, medium plasticity | | CL | | 0 | | |
| 28 | | | | | | | | 0 | | |
| 30 | | | | | | | | 0 | | |
| 32 | | | | same as above, wet, soft, CLAY | | | | 0 | | |
| 34 | SS-5 | | 10.0'/ 10.0' | same as above, medium stiff | | | | 0 | | |
| 36 | | | | | | | | 0 | | |
| | | | | 732.7 37.0 | | | | | | |
| 38 | | | | 732.5 2" wet, fine to medium, SAND seam 37.2 | | SP | | 0 | | |
| 40 | | | | | | | | 0 | | |
| | | | | 728.2 41.5 | | | | | | |
| 42 | SS-6 | | 5.0'/ 5.0' | 727.9 3" wet, fine to medium, SAND, seam 41.8 | | SP | | 0 | | |
| | | | | medium gray, damp, stiff, silty CLAY, trace medium gravel | | CL | | | | |
| 44 | | | | 724.7 45.0 | | | | 0 | | |
| | | | | End of Borehole at 45.0'. | | | | | | |
| 46 | | | | | | | | | | |
| 48 | | | | | | | | | | |
| 50 | | | | | | | | | | |
| 52 | | | | | | | | | | |
| 54 | | | | | | | | | | |
| 56 | | | | | | | | | | |

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

# BORING LOG

# WELL NO. OBG-MW7D

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

SHEET 1 OF 2
JOB NO. 46306
GROUND ELEV. 763.6
DATUM
DATE STARTED 12/1/2010
DATE FINISHED 12/2/2010

**DRILLING CONTRACTOR:** Boart Longyear
**DRILLER:** Jason Greer
**PURPOSE:** Groundwater Investigation
**DRILLING METHOD:** Rotosonic
**DRILL RIG TYPE:** Track-Mounted Sonic ATV

| | SAMPLE | CORE | CASING |
|---|---|---|---|
| TYPE | SS | SS | SS |
| DIA. | 4" | 4" | 6" |

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 763.2 asphalt 0.4 | | | | 0 | | |
| 2 | | | | | dark brown to gray, damp, silty SAND and GRAVEL | | | | 0 | | |
| | SS | SS-1 | | 5.0'/ 5.0' | | | SM | | | | |
| 4 | | | | | | | | | 0 | | |
| | | | | | 758.6 5.0 | | | | 0 | | |
| 6 | | | | | dark gray, damp, SILT, some sand and gravel | | | | 0 | | |
| | SS | SS-2 | | 5.0'/ 5.0' | | | | | | | |
| 8 | | | | | | | | | 0.9 | | |
| | | | | | same as above, fabric, wood block and metal pieces (fill) | | ML | | | | |
| 10 | | | | | | | | | 0 | | |
| | | | | | brownish gray, moist, sandy SILT, thin roots, odor, organic sheen | | | | | | |
| | | | | | 752.6 11.0 | | | | | | |
| 12 | | | | | same as above, organic peat | | | | 0.8 | | |
| | | | | | 751.6 12.0 | | | | | | |
| | | | | | medium gray to olive brown, wet, fine SAND, some silt | | SP | | | | |
| 14 | | | | | 749.6 14.0 | | | | 0 | | |
| | | | | | medium gray, moist, soft, silty CLAY | | | | | | |
| | SS | SS-3 | | 10.0'/ 10.0' | | | | | | | |
| 16 | | | | | | | | | 0 | | |
| 18 | | | | | same as above, trace sand and small gravel | | | | 0 | | |
| 20 | | | | | | | | | 0 | | |
| 22 | | | | | | | | | 0 | | |
| | | | | | medium gray, damp, silty CLAY, little small gravel | | | | | | |
| 24 | | | | | | | CL | | 0 | | |
| | SS | SS- | | | | | | | | | |

**Notes:** Two monitoring wells approximately 5' apart are constructed of 2" diameter schedule 40 PVC riser with 5' of 0.010-inch slot screen extending from 10'-15' and 40'-45' below grade (completed as stick-up with protective casing).

*(Continued Next Page)*

O'BRIEN & GERE

# BORING LOG

# WELL NO. OBG-MW7D

**PROJECT:** Burton Parcel Groundwater Investigation
**CLIENT:** MLC
**INSPECTOR:** Mike Robison

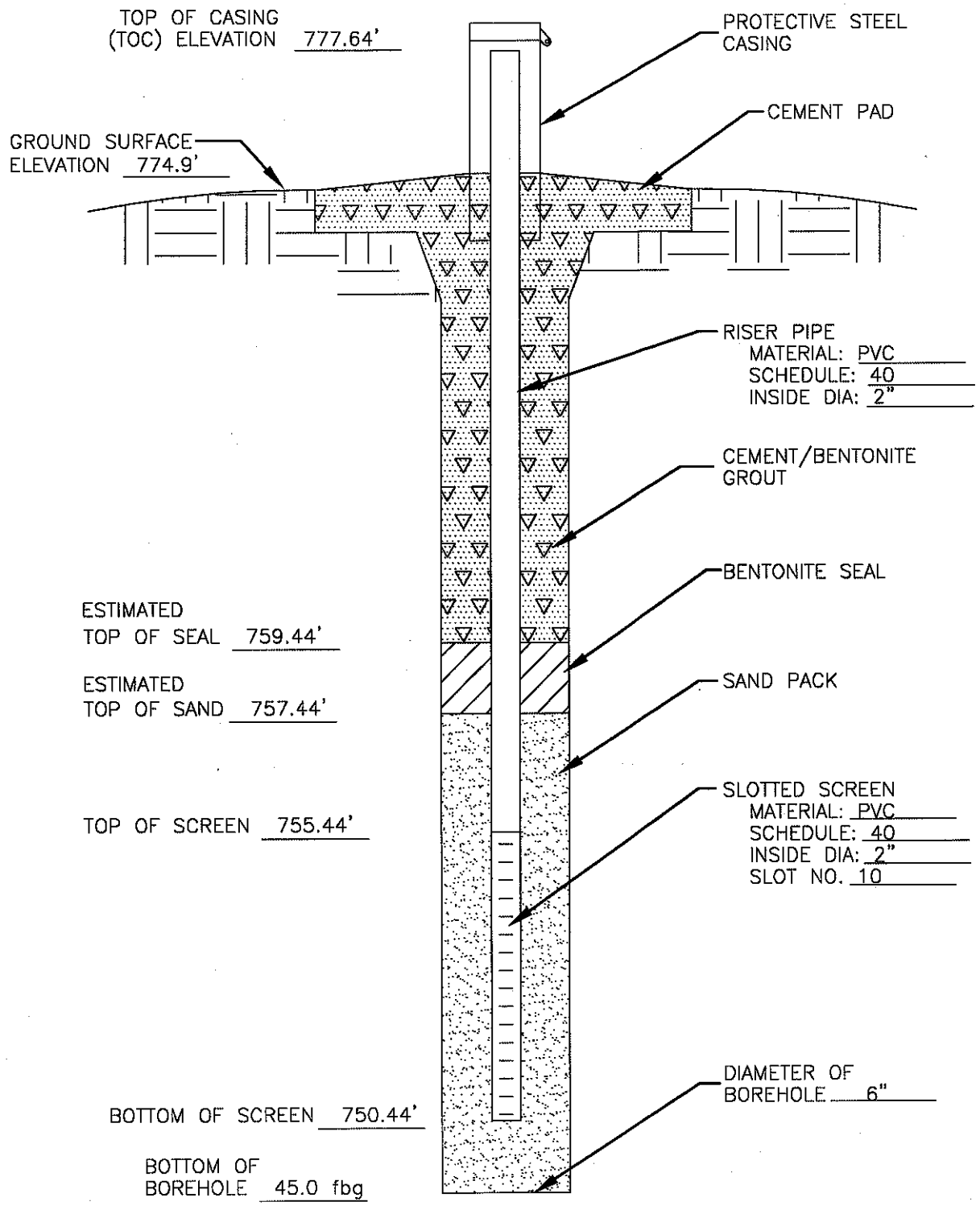
SHEET 2 OF 2

JOB NO. 46306

| DEPTH (ft) | Sample Type | Number | Blows/6" (N Value) | Penetration/ Recovery | MATERIAL DESCRIPTION | Graphic Log | USCS Symbol | Stratum Change | Field Testing PID (ppm) | Well Graphic | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | 4 | | 10.0'/ 10.0' | medium gray, damp, silty CLAY, little small gravel *(continued)* | | CL | | 0 | | |
| 28 | | | | | same as above, stiff | | | | 0 | | |
| 30 | | | | | same as above, moist, soft | | | | 0 | | |
| 32 | | | | | | | | | 0 | | |
| 34 | | SS-5 | | 10.0'/ 10.0' | | | CL | | 0 | | |
| 36 | | | | | medium gray, damp, stiff, silty CLAY, trace small gravel | | | | 0 | | |
| 38 | | | | | same as above, soft, moist | | | | 0 | | |
| 40 | | | | | | | | | 0 | | |
| 42 | | SS-6 | | 5.0'/ 5.0' | same as above, wet<br>medium gray, wet, sandy CLAY | | CL | | 0 | | |
| | | | | | 720.6 — 43.0 | | | | | | |
| 44 | | | | | medium gray, fine to coarse, SAND, little silt and gravel<br>719.6 — 44.0 | | SP | | | | |
| | | | | | medium gray, damp, very stiff, silty CLAY, trace small gravel<br>718.6 — 45.0 | | CL | | | | |
| 46 | | | | | End of Borehole at 45.0'. | | | | 0 | | |
| 48 | | | | | | | | | | | |
| 50 | | | | | | | | | | | |
| 52 | | | | | | | | | | | |
| 54 | | | | | | | | | | | |
| 56 | | | | | | | | | | | |

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-1S

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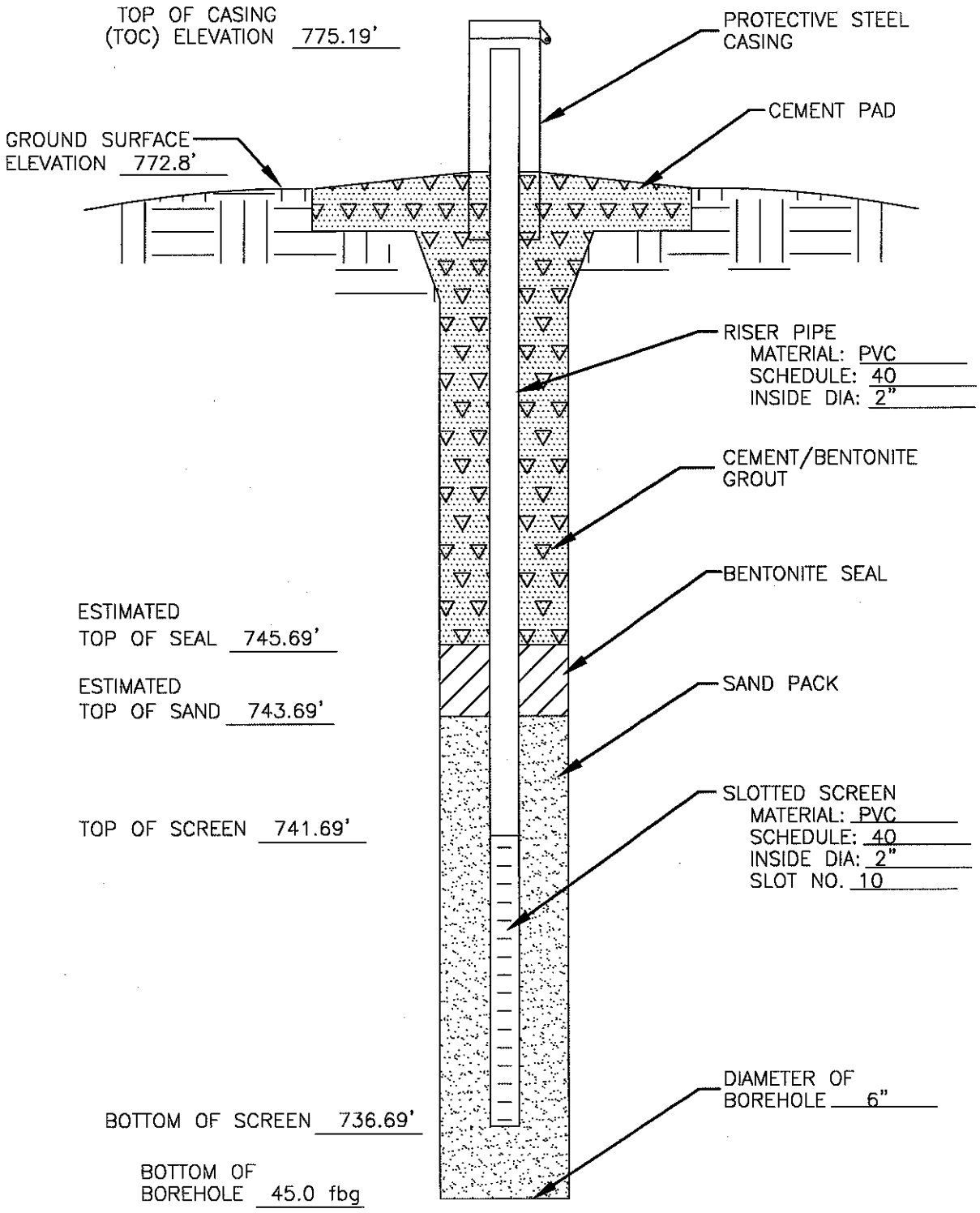
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-2D

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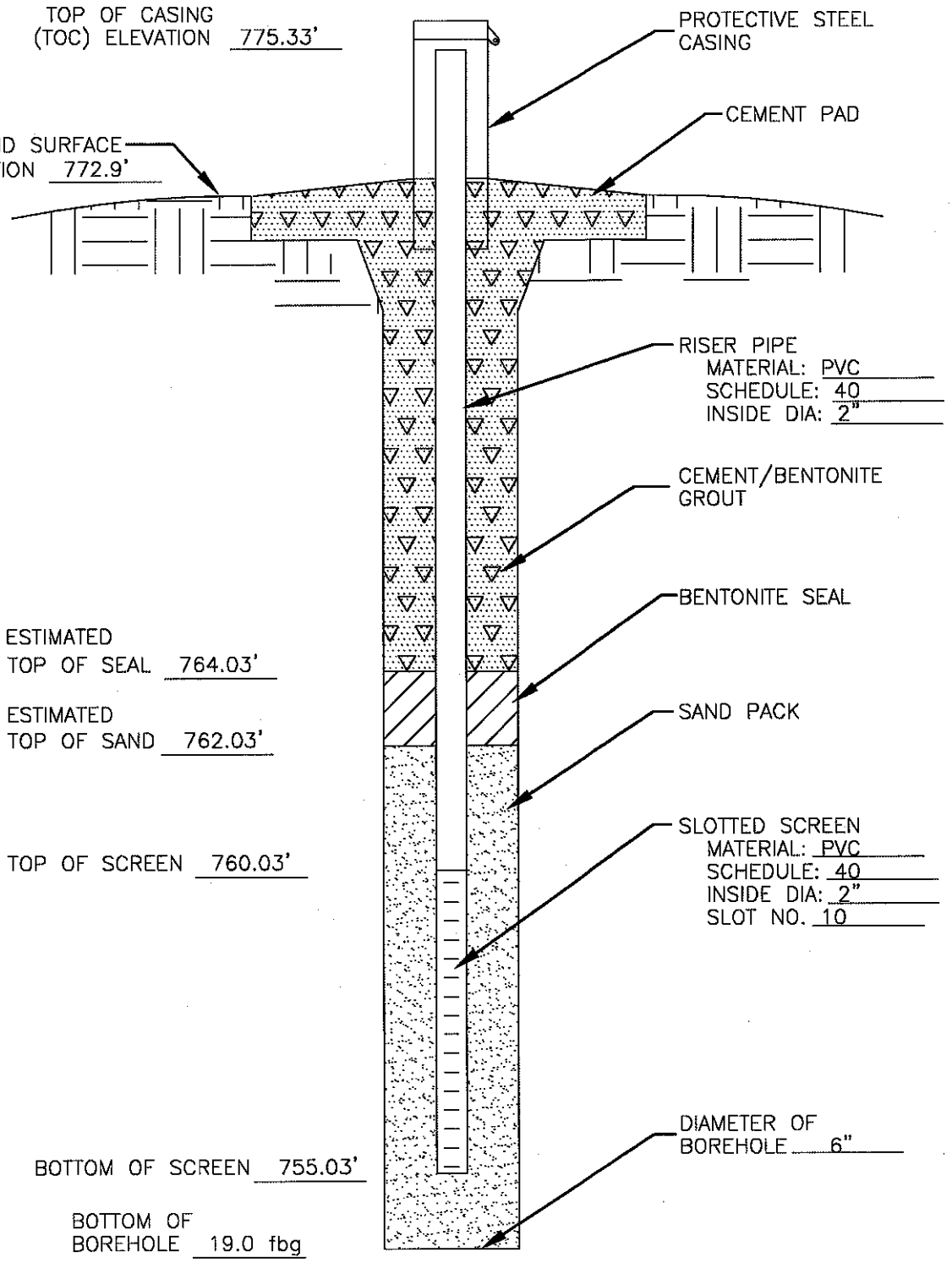
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-2S

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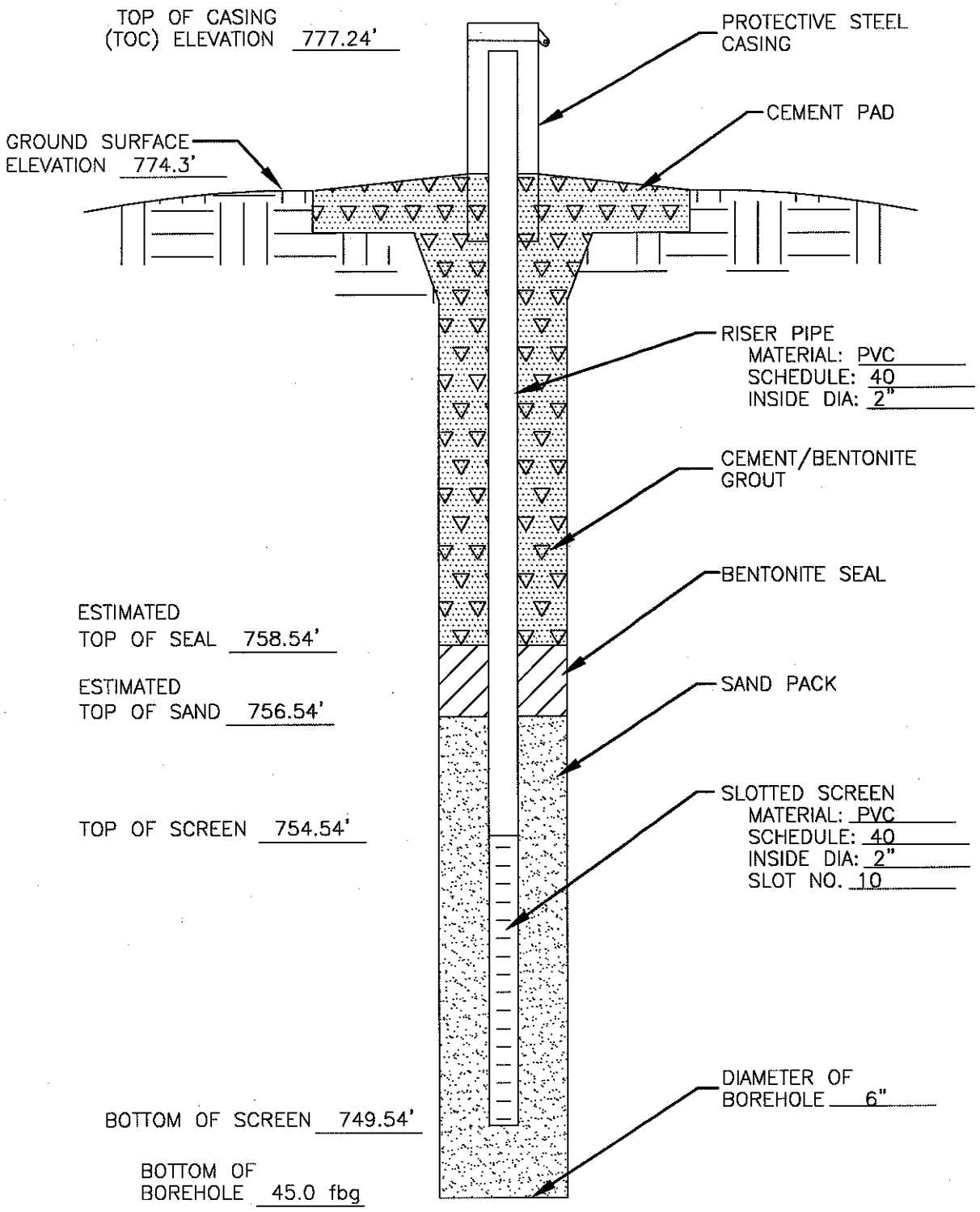
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-3

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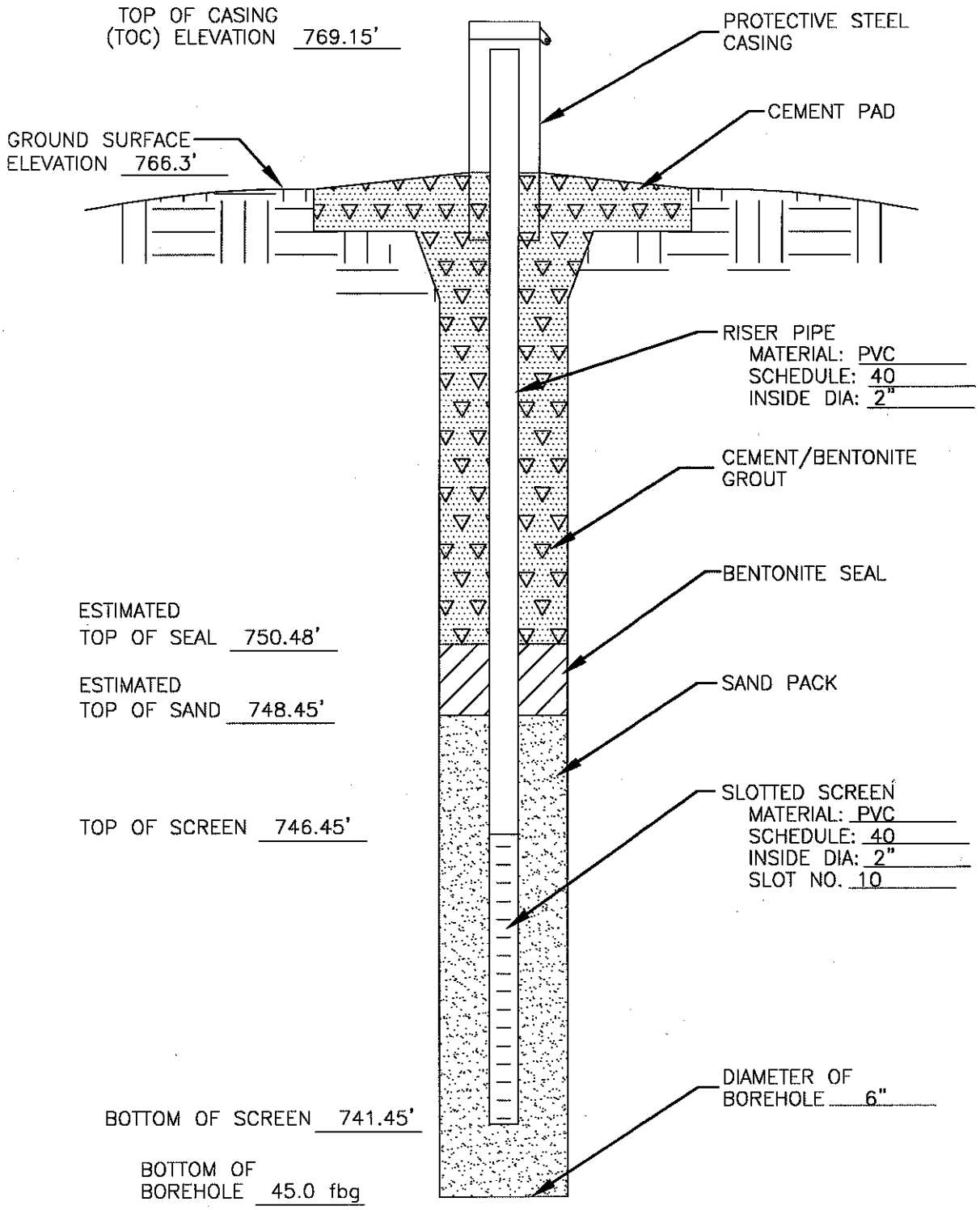
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-4

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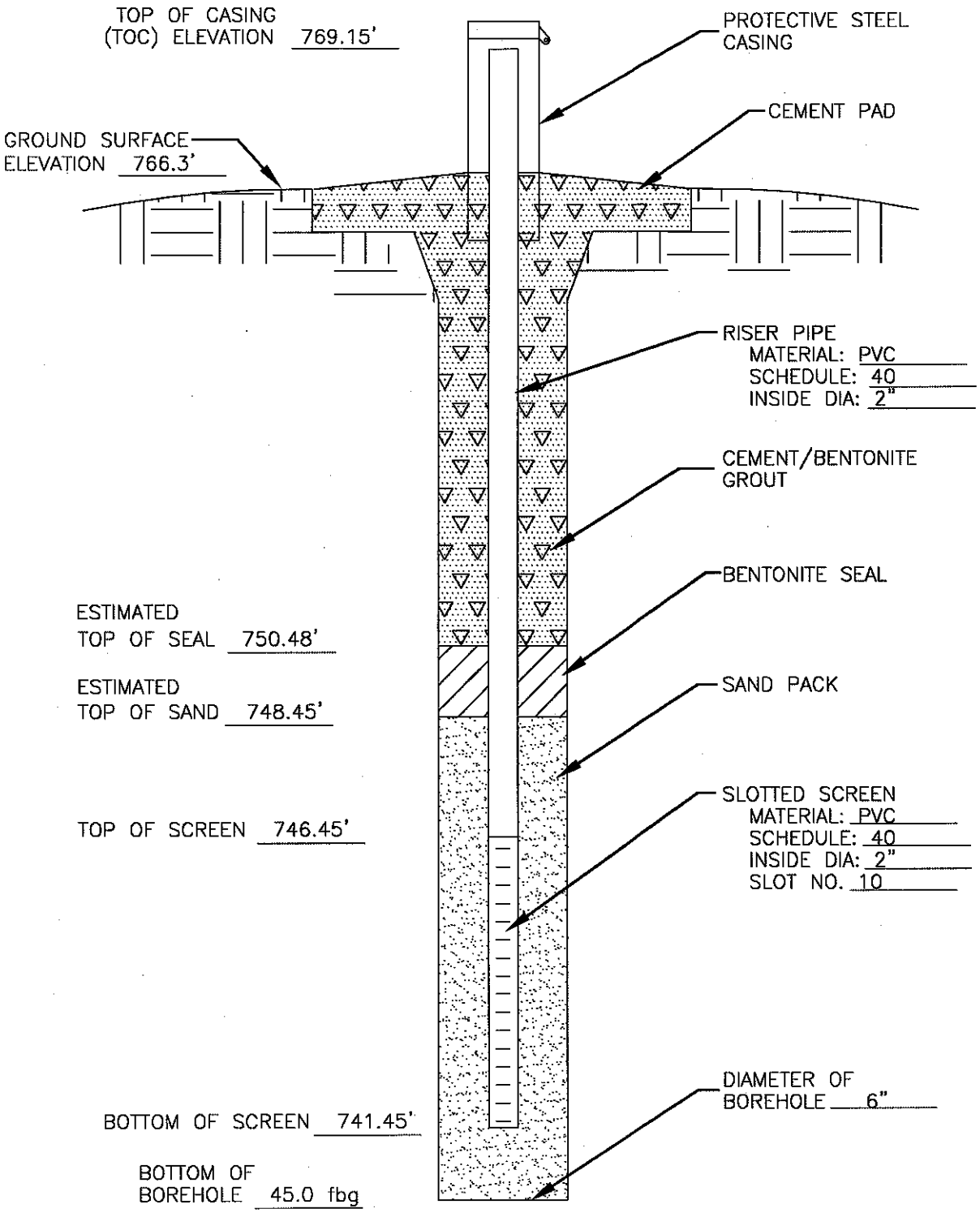
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-4S

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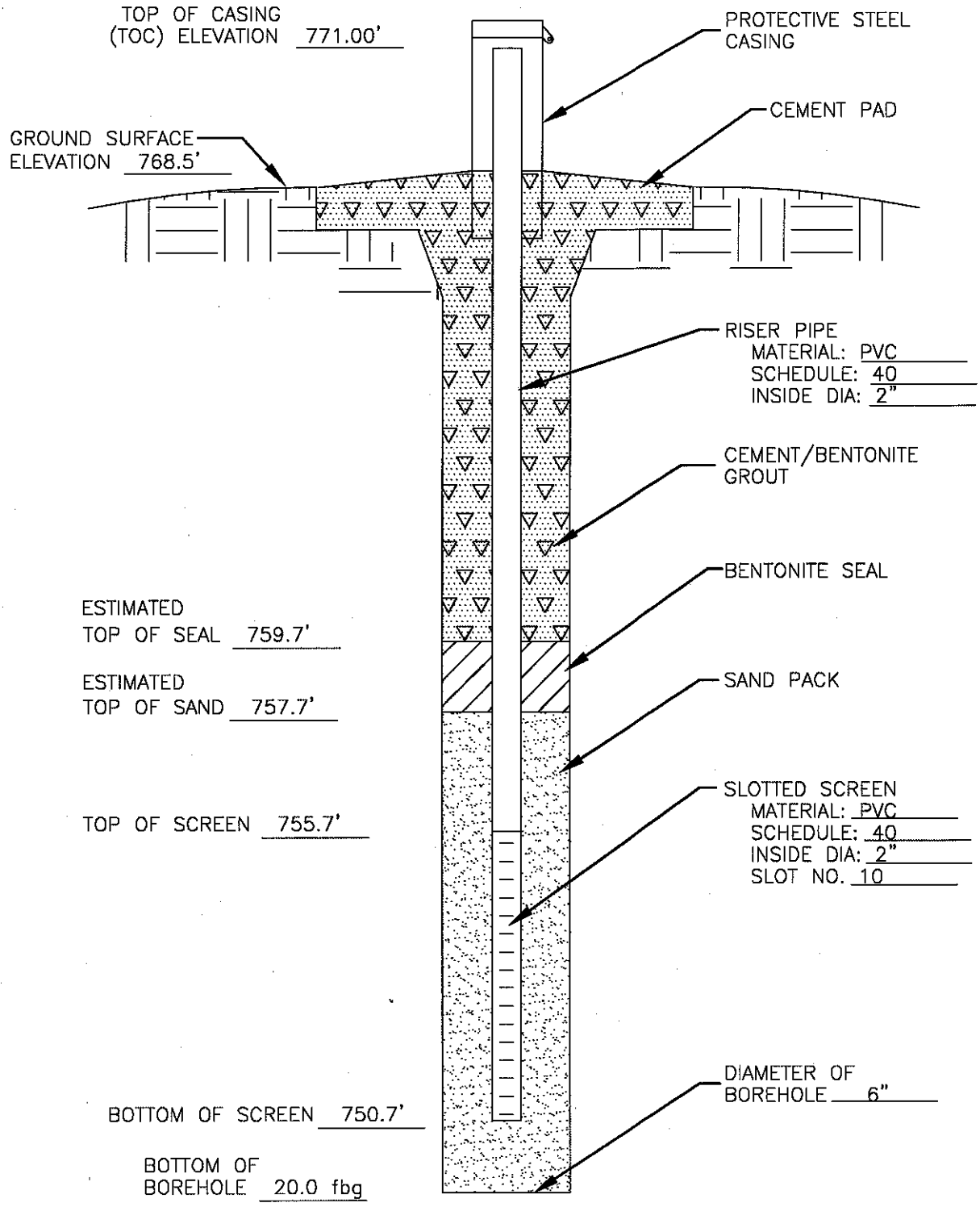
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-5

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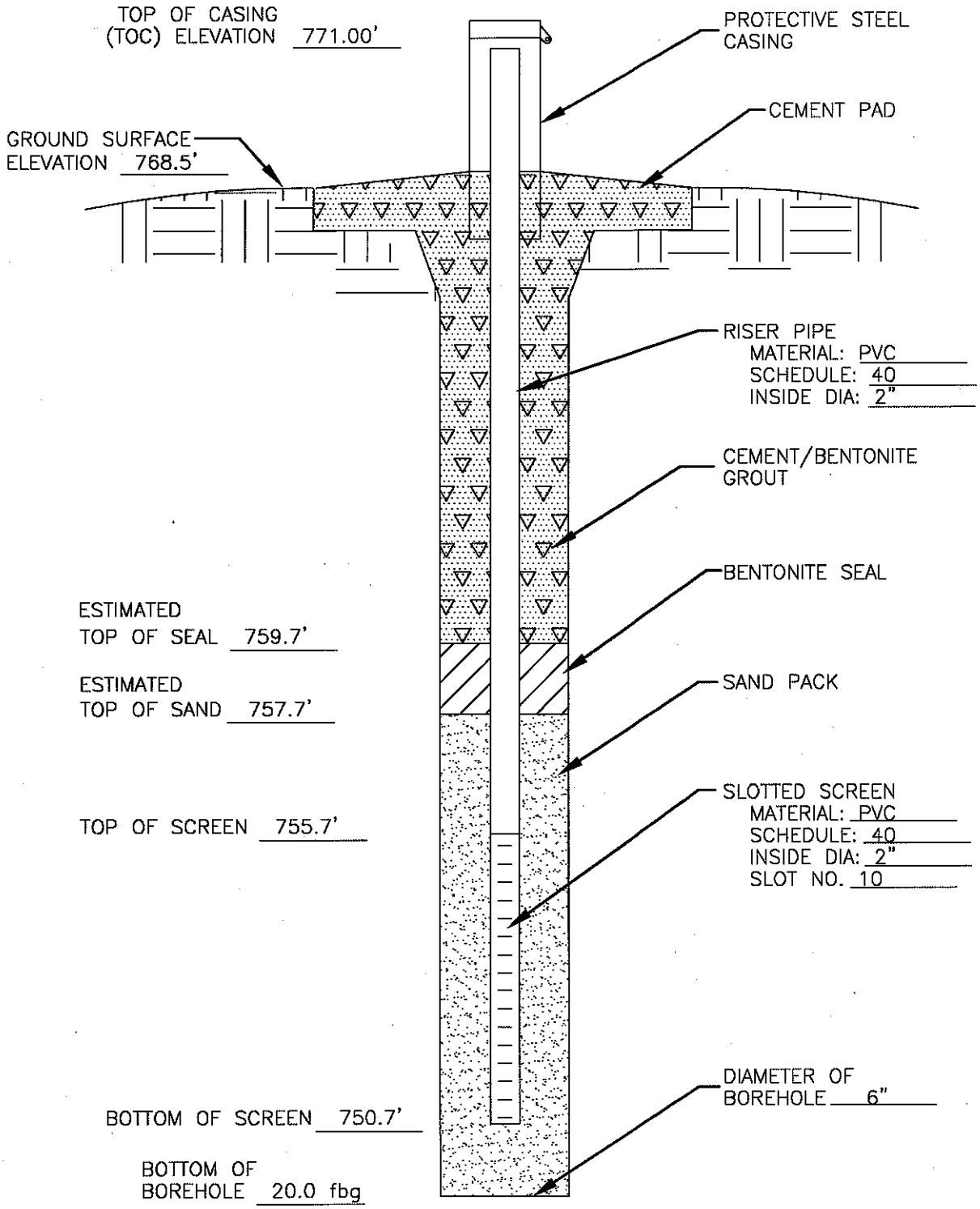
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-5S

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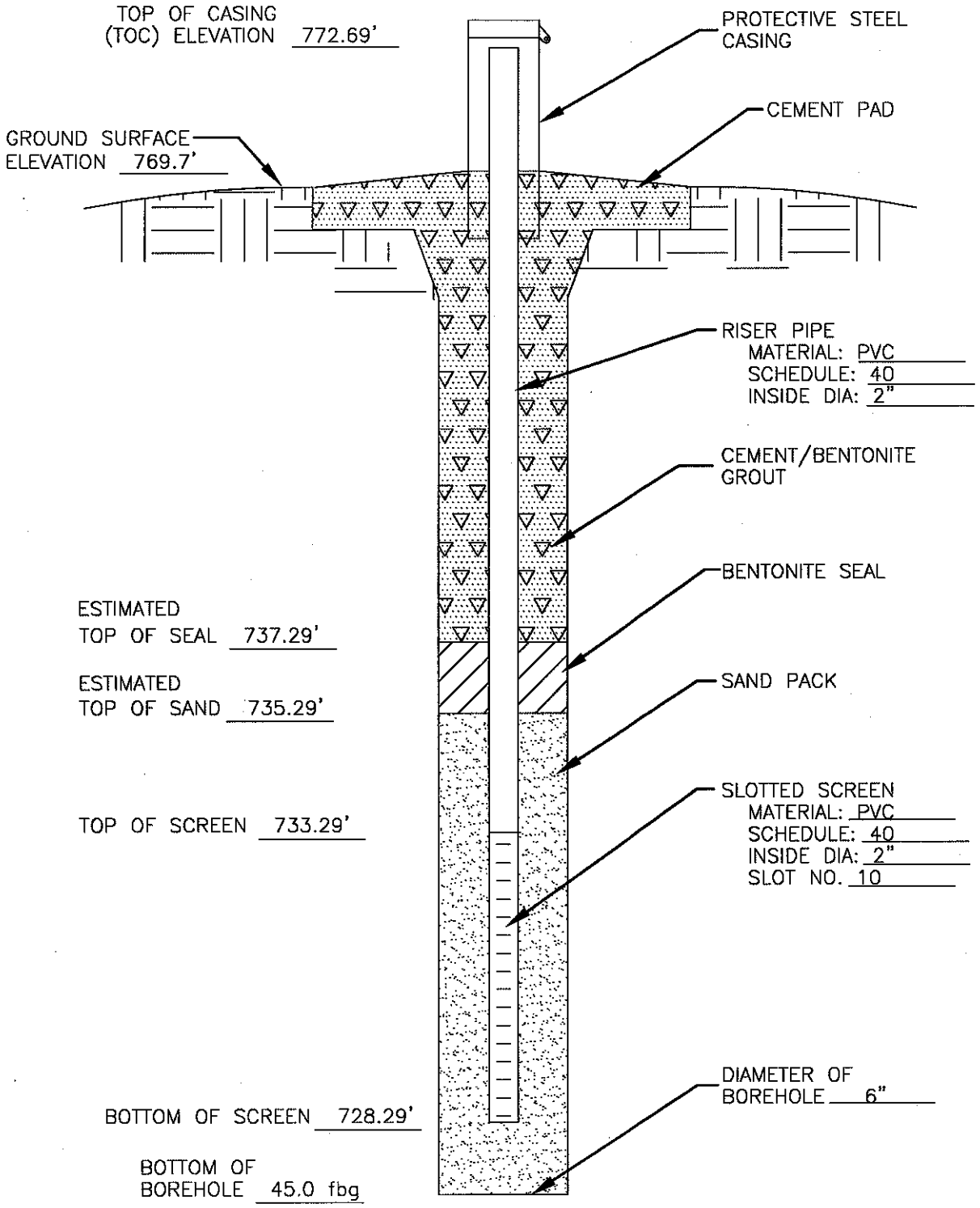
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-6D

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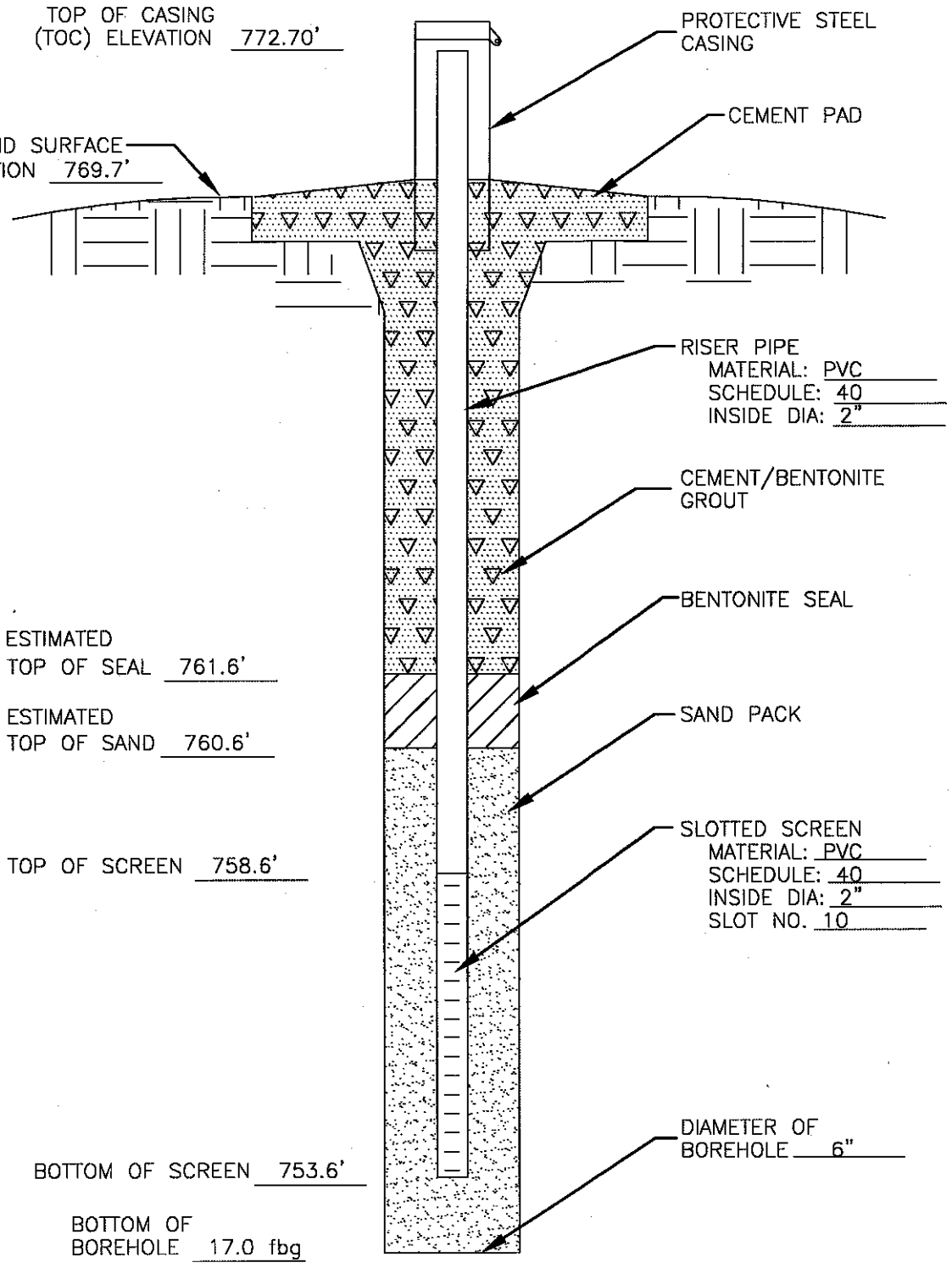
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-6S

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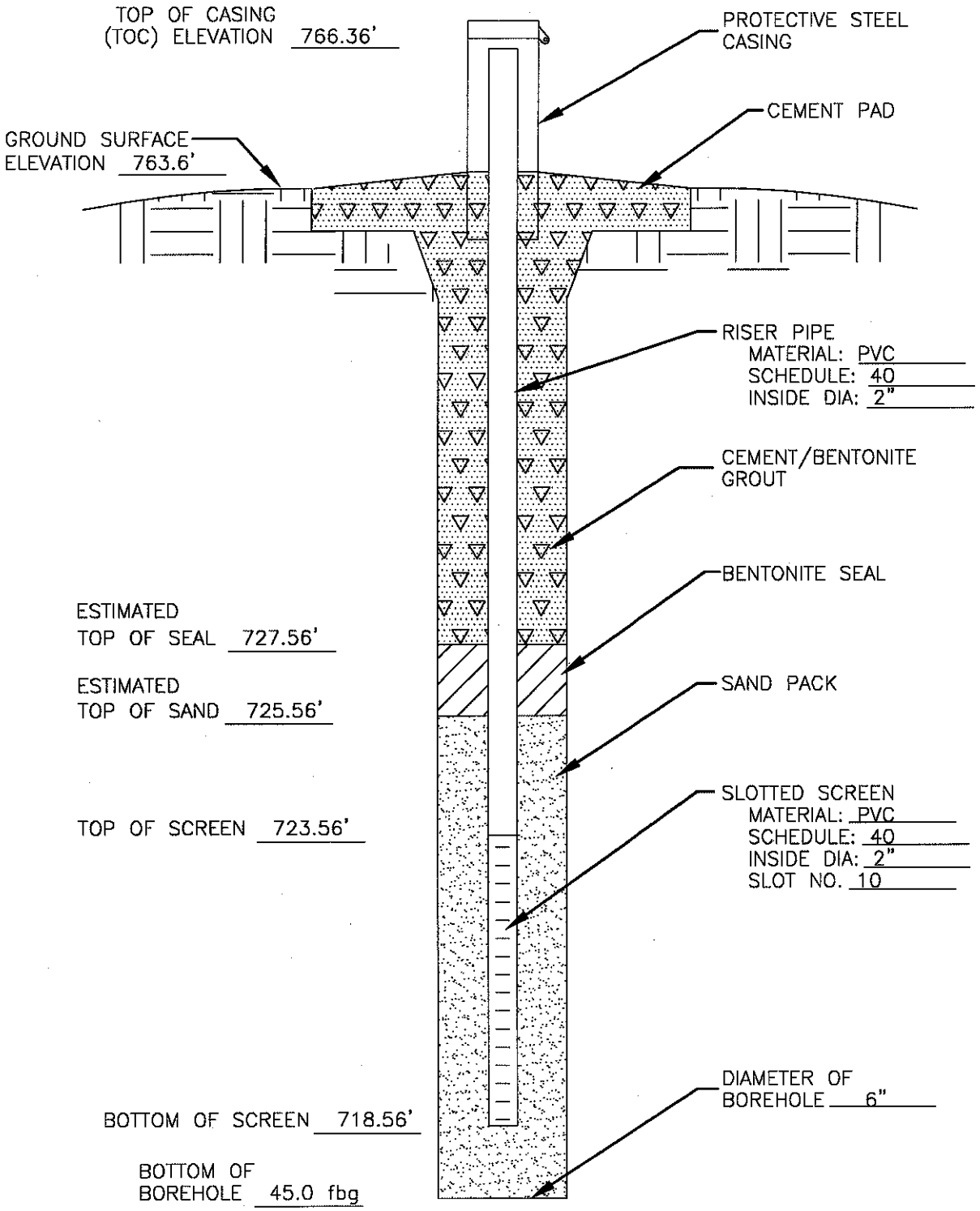
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-7D

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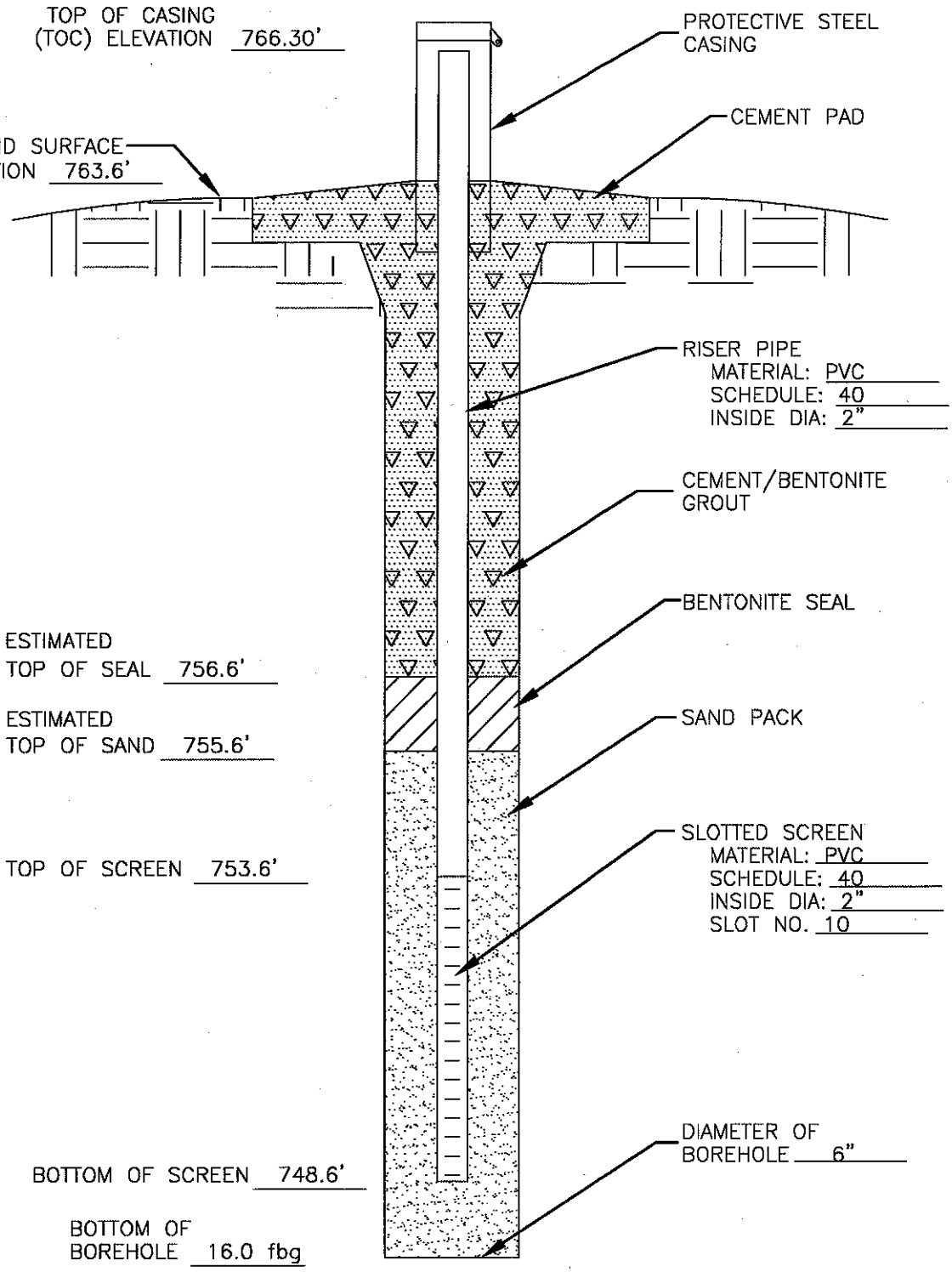
O'BRIEN & GERE
ENGINEERS INC.




Burton Parcel
Burton, Michigan
MONITORING WELL OBG MW-7S

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# *Appendix B*

# *Groundwater Sampling Logs*

File: 14774/46306 NOTES

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/20/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M. ROBISON

Weather: 30°, SUN
Well #: OBG-MW1
Evacuation Method: Peristaltic Pump
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 27.2 | ft. |
| Depth to Water * | 13.80 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:** Calibrated within range

| | |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 13.80 | 13.49 | 1050 | 4.78 | 5.91 | 135 | 29 |
| 5 min | 14.61 | 13.60 | 1060 | 3.61 | 6.08 | 113.5 | 19 |
| 10 min | 15.70 | 13.85 | 1061 | 2.43 | 6.45 | 41.2 | 13 |
| 15 min | 15.75 | 13.76 | 1056 | 2.16 | 6.58 | -22.1 | 11 |
| 20 min | 15.81 | 13.76 | 1051 | 2.00 | 6.61 | -66.1 | 9 |
| 25 min | 15.80 | 13.56 | 1037 | 1.68 | 6.70 | -93 | 6 |
| 30 min | 15.80 | 13.54 | 1033 | 1.64 | 6.73 | -95.2 | 5 |
| 35 min | 15.79 | 13.52 | 1031 | 1.62 | 6.71 | -96.1 | 4 |
| 40 min | 15.78 | 13.52 | 1033 | 1.64 | 6.71 | -97.2 | 3 |
| 45 min | | | | | | | |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 10:05

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | clear | Color | clear |
| Odor | NO | Odor | NO |
| Turbidity (> 100 NTU) | LOW | Turbidity (> 100 NTU) | LOW |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 4 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 2 | 250 ml plastic | $HNO_3$ | NO |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:
DUPOL ALSO COLLECTED @ OBG-MW1

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/20/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M. Morrison
Weather: 30°, SUN
Well #: OBG-MW25
Evacuation Method: Peristaltic Pump
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 20.3 | ft. |
| Depth to Water * | 11.59 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 11.59 | 10.71 | 1061 | 13.99 | 6.87 | 4.9 | 3 |
| 5 min | 12.63 | 10.87 | 1086 | 6.31 | 6.90 | 2.1 | 2 |
| 10 min | 13.60 | 10.70 | 1089 | 3.71 | 6.95 | -8.1 | 1 |
| 15 min | 13.98 | 10.35 | 1083 | 3.23 | 6.93 | -16.1 | 1 |
| 20 min | 13.78 | 10.59 | 1086 | 2.88 | 6.88 | -24.3 | 1 |
| 25 min | 13.93 | 10.66 | 1099 | 2.71 | 6.92 | -33.3 | 1 |
| 30 min | 14.11 | 10.70 | 1107 | 2.70 | 6.91 | -34.2 | 1 |
| 35 min | 14.61 | 10.71 | 1103 | 2.70 | 6.91 | -35.6 | 1 |
| 40 min | | | | | | | |
| 45 min | | | | | | | |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 11:15

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | Clear | Color | Clear |
| Odor | No | Odor | NO |
| Turbidity (> 100 NTU) | Low | Turbidity (> 100 NTU) | Low |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 2 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | NO |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/20/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M. MORRISON

Weather: 30°, SUN
Well #: OBG-MW3
Evacuation Method: peristaltic Pump
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 27.7 | ft. |
| Depth to Water * | 23.00 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 23.00 | 10.75 | 2601 | 13.10 | 6.71 | 10.1 | 15 |
| 5 min | 23.04 | 11.95 | 2761 | 2.62 | 6.78 | -36.4 | 4 |
| 10 min | 23.09 | 12.29 | 2744 | 1.91 | 6.78 | -49.3 | 3 |
| 15 min | 23.10 | 12.47 | 2734 | 1.21 | 6.79 | -62.1 | 3 |
| 20 min | 23.12 | 12.55 | 2715 | 1.12 | 6.77 | -63.4 | 3 |
| 25 min | 23.19 | 12.51 | 2714 | 1.09 | 6.78 | -63.3 | 3 |
| 30 min | 23.20 | 12.50 | 2713 | 1.16 | 6.78 | -63.9 | 3 |
| 35 min | 23.26 | 12.50 | 2713 | 1.16 | 6.79 | -63.9 | 3 |
| 40 min | 23.33 | 12.49 | 2712 | 1.12 | 6.78 | -64.1 | 3 |
| 45 min | | | | | | | |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 12:40

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | Clear | Color | clear |
| Odor | No | Odor | No |
| Turbidity (> 100 NTU) | LOW | Turbidity (> 100 NTU) | LOW |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 6 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 3 | 250 ml plastic | $HNO_3$ | NO |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:

MS/MSD COLLECTED

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/20/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M. ROBISON

Weather: 35°, SUN
Well #: OBG-MW165
Evacuation Method: peristaltic pump
Sampling Method: Ultra Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 19.1 | ft. |
| Depth to Water * | 14.72 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 15 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 14.72 | 9.25 | 678 | 9.90 | 7.25 | 10.3 | 110 |
| 5 min | 15.10 | 9.44 | 662 | 5.75 | 7.08 | -13.8 | 91 |
| 10 min | 15.29 | 9.78 | 667 | 4.75 | 7.00 | -10.5 | 84 |
| 15 min | 15.71 | 9.82 | 670 | 4.19 | 6.96 | -33.3 | 72 |
| 20 min | 16.10 | 9.80 | 688 | 3.71 | 6.96 | -43.7 | 68 |
| 25 min | 16.30 | 9.74 | 694 | 3.41 | 6.95 | -47.7 | 93 |
| 30 min | 16.85 | 9.73 | 695 | 3.40 | 6.94 | -48.3 | 98 |
| 35 min | 16.93 | 9.72 | 696 | 3.38 | 6.94 | -48.9 | 96 |
| 40 min | 16.95 | 9.71 | 697 | 3.36 | 6.93 | -50.0 | 102 |
| 45 min | | | | | | | |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 14:50

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | LT BROWN/GRAY | Color | LT. BROWN/GRAY |
| Odor | NO | Odor | NO |
| Turbidity (> 100 NTU) | MEDIUM | Turbidity (> 100 NTU) | MEDIUM |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 2 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | YES |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes: ULTRA LOW-FLOW
FIELD FILTERED METALS

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/20/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M. NORTON

Weather: 35°/SUN
Well #: OBG-15
Evacuation Method: peristaltic pump
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 17.75 | ft. |
| Depth to Water * | 8.68 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 1.5 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | Y |
| ORP | Y |
| Conductivity | Y |
| DO | Y |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 8.68 | 9.10 | 807 | 9.10 | 6.73 | -10.3 | 52 |
| 5 min | 10.01 | 8.85 | 815 | 2.64 | 6.95 | -99.6 | 31 |
| 10 min | 11.83 | 8.45 | 805 | 1.91 | 6.86 | -101.3 | 30 |
| 15 min | 12.71 | 8.40 | 800 | 2.01 | 6.86 | -100.1 | 27 |
| 20 min | | 8.59 | 827 | 1.96 | 6.84 | -99.7 | 25 |
| 25 min | | 8.69 | 831 | 1.85 | 6.84 | -99.2 | 19 |
| 30 min | | 9.10 | 839 | 1.81 | 6.83 | -99.1 | 13 |
| 35 min | | 9.28 | 842 | 1.79 | 6.83 | -99.1 | 12 |
| 40 min | | 9.39 | 844 | 1.71 | 6.82 | -99.9 | 11 |
| 45 min | | 9.50 | 846 | 1.69 | 6.81 | 100.3 | 10 |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 16:15

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | LT. GREY | Color | clear |
| Odor | NO | Odor | NO |
| Turbidity (> 100 NTU) | MEDIUM | Turbidity (> 100 NTU) | LOW |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 2 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | NO |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/21/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: MIKE ROBISON

Weather: 30°, CLOUDY
Well #: OBG-MW5
Evacuation Method: PERISTALTIC PUMP
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 20.3 | ft. |
| Depth to Water * | 15.97 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 16.21 | 10.48 | 2673 | 10.90 | 5.90 | -25.1 | 138 |
| 5 min | 16.65 | 10.88 | 2828 | 3.24 | 6.24 | -109.1 | 91 |
| 10 min | 16.77 | 10.62 | 2840 | 2.45 | 6.33 | -110.8 | 74 |
| 15 min | 16.91 | 10.39 | 2892 | 1.83 | 6.39 | -105.2 | 68 |
| 20 min | 16.98 | 10.07 | 2945 | 1.62 | 6.41 | -101.3 | 54 |
| 25 min | 17.02 | 9.98 | 2989 | 1.47 | 6.42 | -99.4 | 50 |
| 30 min | 17.04 | 10.00 | 3024 | 1.38 | 6.41 | -98.2 | 45 |
| 35 min | 17.06 | 10.01 | 3030 | 1.39 | 6.41 | -97.4 | 31 |
| 40 min | 17.10 | 10.03 | 3031 | 1.41 | 6.42 | -97.1 | 39 |
| 45 min | 17.12 | 10.10 | 3033 | 1.41 | 6.42 | -97.0 | 43 |
| 50 min | 17.14 | 10.10 | 3034 | 1.40 | 6.43 | -97.2 | 40 |
| 55 min | 17.16 | 10.06 | 3036 | 1.39 | 6.43 | -97.1 | 41 |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 0930

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | BROWN/GRAY/YELLOW | Color | SLIGHT YELLOW/BROWN |
| Odor | OILY ODOR | Odor | OILY ODOR |
| Turbidity (> 100 NTU) | HIGH | Turbidity (> 100 NTU) | MED - LOW |
| Sheen/Free Product | SLIGHT SHEEN | Sheen/Free Product | SLIGHT SHEEN |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 2 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | YES |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes: FIELD FILTERED FOR DISSOLVED ANALYSIS

MW-403 STATIC = 12.87' BTOC.

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/21/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M ROBISON

Weather: 30°, CLOUDY
Well #: OBG-MW2D
Evacuation Method: SUBMERSIBLE PUMP
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 38.5 | ft. |
| Depth to Water * | 22.02 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
X 2" Diameter Well = 0.163 X LWC
4" Diameter Well = 0.653 X LWC
6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 22.02 | 10.18 | 957 | 13.10 | 7.64 | -60.1 | 31 |
| 5 min | 22.65 | 10.19 | 934 | 4.69 | 7.60 | -82.4 | 16 |
| 10 min | 22.90 | 10.25 | 918 | 1.99 | 7.42 | -89.0 | 38 |
| 15 min | 22.91 | 9.78 | 928 | 1.60 | 7.31 | -118.4 | 17 |
| 20 min | 22.90 | 9.69 | 929 | 1.53 | 7.30 | -119.6 | 15 |
| 25 min | 22.93 | 9.51 | 928 | 1.48 | 7.29 | -120.4 | 11 |
| 30 min | 22.95 | 9.48 | 928 | 1.46 | 7.29 | -121.6 | 9 |
| 35 min | 22.96 | 9.49 | 928 | 1.47 | 7.29 | -121.9 | 8 |
| 40 min | 22.99 | 9.50 | 927 | 1.48 | 7.28 | -122.3 | 8 |
| 45 min | | | | | | | |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 10:50

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | LT. BROWN | Color | CLEAR |
| Odor | NO | Odor | NO |
| Turbidity (> 100 NTU) | LOW | Turbidity (> 100 NTU) | LOW |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 3 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:
CO-LOCATED SAMPLE COLLECTED

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/21/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M ROBISON

Weather: 30°, CLOUDY
Well #: ORB-7D
Evacuation Method: SUBMERSIBLE pump
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 47.8 | ft. |
| Depth to Water * | 14.40 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 5 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 14.40 | 11.77 | 418 | 7.61 | 7.62 | -90.1 | 1100 |
| 5 min | 14.48 | 11.86 | 414 | 2.61 | 7.72 | -137.4 | 1100 |
| 10 min | 14.51 | 11.97 | 416 | 1.17 | 7.66 | -154.3 | 760 |
| 15 min | 14.55 | 11.95 | 417 | 0.88 | 7.65 | -159.0 | 710 |
| 20 min | 14.56 | 12.12 | 420 | 0.69 | 7.60 | -153.1 | 680 |
| 25 min | 14.58 | 12.17 | 422 | 0.55 | 7.58 | -154.3 | 308 |
| 30 min | 14.58 | 12.20 | 422 | 0.50 | 7.55 | -155.0 | 232 |
| 35 min | 14.59 | 12.22 | 422 | 0.49 | 7.54 | -153.6 | 151 |
| 40 min | 14.60 | 12.21 | 422 | 0.50 | 7.55 | -153.6 | 120 |
| 45 min | 14.60 | 12.22 | 423 | 0.50 | 7.54 | -153.5 | 92 |
| 50 min | 14.60 | 12.23 | 423 | 0.51 | 7.53 | -153.1 | 30 |
| 55 min | 14.60 | 12.24 | 422 | 0.52 | 7.53 | -153.6 | 22 |
| 60 min | 14.60 | 12.21 | 421 | 0.51 | 7.53 | -152.6 | 20 |

**Water Sample:**
Time Collected: 12:30

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | BROWN/GREY | Color | CLEAR |
| Odor | NO | Odor | NO |
| Turbidity (> 100 NTU) | HIGH | Turbidity (> 100 NTU) | LOW |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 4 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | NO |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:

DUP02 COLLECTED

**O'Brien & Gere Engineers, Inc.** — **Standard Groundwater Sampling Log**

Date: 12/21/10
Site Name: MLC Site #1291 - Burton Parcel
Location: Burton, MI
Project No.: 46306
Personnel: M. NOBISON

Weather: 30°, CLOUDY
Well #: OBG-MW6D
Evacuation Method: SUBMERSIBLE PUMP
Sampling Method: Low-flow

**Well Information:**

| | | |
|---|---|---|
| Depth of Well * | 44.4 | ft. |
| Depth to Water * | 19.61 | ft. |
| Length of Water Column | | ft. |
| Volume of Water in Well | | gal.(s) |
| 3X Volume of Water in Well | | gal.(s) |

Water Volume /ft. for:
- X 2" Diameter Well = 0.163 X LWC
- 4" Diameter Well = 0.653 X LWC
- 6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 4 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

**Instrument Calibration:**

| | Calibrated within range |
|---|---|
| pH | ✓ |
| ORP | ✓ |
| Conductivity | ✓ |
| DO | ✓ |

**Water parameters:**

| | Drawdown measured | Temperature Celsius | Conductivity uS/cm | Dissolved Oxygen mg/L | pH | ORP mV | Turbidity NTUs |
|---|---|---|---|---|---|---|---|
| Initial | 19.61 | 10.93 | 632 | 11.10 | 7.36 | 3.9 | 170 |
| 5 min | 21.01 | 11.37 | 633 | 4.26 | 7.49 | -35.4 | 140 |
| 10 min | 22.10 | 11.02 | 631 | 3.35 | 7.47 | -48.1 | 133 |
| 15 min | 23.35 | 10.88 | 629 | 1.65 | 7.46 | -53.1 | 88 |
| 20 min | 24.90 | 11.05 | 630 | 1.20 | 7.46 | -61.9 | 57 |
| 25 min | 24.95 | 10.96 | 631 | 1.14 | 7.46 | -64.2 | 47 |
| 30 min | 24.99 | 11.02 | 638 | 1.10 | 7.45 | -68.4 | 28 |
| 35 min | 25.01 | 11.06 | 640 | 1.08 | 7.44 | -69.6 | 22 |
| 40 min | 25.06 | 11.08 | 641 | 1.07 | 7.43 | -69.8 | 20 |
| 45 min | 25.10 | 11.07 | 640 | 1.09 | 7.43 | -69.1 | 18 |
| 50 min | | | | | | | |
| 55 min | | | | | | | |
| 60 min | | | | | | | |

**Water Sample:**
Time Collected: 14:00

| Physical Appearance at Start | | Physical Appearance at Sampling | |
|---|---|---|---|
| Color | LT. BROWN | Color | CLEAR |
| Odor | NO | Odor | NO |
| Turbidity (> 100 NTU) | MEDIUM | Turbidity (> 100 NTU) | LOW |
| Sheen/Free Product | NO | Sheen/Free Product | NO |

**Samples collected:**

| Analyses | # Bottles | Bottle size/type | Preservative | Field Filtered |
|---|---|---|---|---|
| VOCs | 2 | 40 ml glass vials | HCl | no |
| Arsenic, lead, barium, zinc | 1 | 250 ml plastic | $HNO_3$ | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notes:

# *Appendix C*

# *Data Validation Report for Groundwater Samples*

**TO:** Anthony Finch **cc:** Mike Robison

**FROM:** KA Storne

**RE:** Data Validation Results for the MLC Site #1291 – Burton Parcel Groundwater Sampling Performed December 2010

**FILE:** 14774/46396.001.001

**DATE:** March 22, 2011

This data validation memorandum provides the data validation results for the groundwater samples collected for the Motors Liquidation Company (MLC) at the Burton Parcel located within the Hemphill Landfill in Burton, Michigan. O'Brien & Gere conducted sample collection activities in December 2010.

The following table summarizes the analysis performed for this sampling event.

**Table 1. *Analytical Method and References***

| Parameter | Method | Reference |
|---|---|---|
| **VOCs** | USEPA Method 8260B | 1 |
| **Metals** | USEPA Method 200.8 | 2 |

**Note:**

1. **USEPA. 2004. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846,* 3rd Edition, Update IIIB. Washington D.C.**
2. **USEPA. 2001. 40 CFR Part 136, Appendix A. Washington, D.C.**
3. **VOCs indicates volatile organic compounds.**
4. **Metals included Metals include Arsenic, Barium, Lead, Zinc.**

Merit Laboratories, Inc. (Merit Labs) of East Lansing, Michigan performed the analyses. The laboratory package contained quality control analysis summary forms.

The list of samples that were submitted to the laboratory for this project is presented in Attachment A. Attachment B presents the specific data validation approach applied to data generated for this investigation. Attachment C presents the Laboratory QA/QC analyses definitions.

Partial validation was performed on the samples collected for this sampling event. Raw data were not reviewed as part of this validation.

The analytical data generated for this investigation were evaluated by O'Brien & Gere using the quality assurance/quality control (QA/QC) criteria presented in the methods used by the laboratory and the following document:

- O'Brien & Gere. 2010. Quality Control Document (QCD) for the Groundwater Investigation Work Plan MLC Site #1291 –Burton Parcel, Burton, Michigan. Farmington Hills, Michigan.

Data affected by excursions from these QA/QC criteria are qualified using the following USEPA data validation guidance and professional judgment:

- USEPA. 1999. USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review. Washington D.C.
- USEPA. 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* EPA 540/R-04-004. Washington D.C.

The application of these validation guidelines has been modified to reflect the requirements of the methods utilized by Merit Labs.

The partial validation included checking the following parameters:

- QCD compliance
- Chain-of-custody record
- Sample collection
- Sample preservation
- Holding times
- Blank analysis
- Matrix spike/matrix spike duplicate (MS/MSD) analysis
- Laboratory control sample (LCS) analysis
- Field duplicate and co-located analyses
- Surrogate recovery (organics)
- Internal standards performance (organics and metals)
- ICP serial dilution analysis (metals)
- Laboratory duplicate analysis (metals)

The following sections of this memorandum present the results of the comparison of the analytical data to the QA/QC criteria specified above. Based on the QA/QC information review, an overall evaluation of data usability is also presented in the final section.

## QCD COMPLIANCE

The laboratory was requested during the validation process to revise the list of target analytes reported by the laboratory for VOCs since additional target analytes were reported by the laboratory. The revised target analyte list reported conformed to the target analyte list for VOCs in the QCD. In addition, the laboratory was requested to report the results to the QLs listed in the project QCD.

## VOCS DATA EVALUATION SUMMARY

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Chain-of-custody record
- Sample collection
- Sample preservation
- Holding times
- Blank analysis
- MS/MSD analysis
- LCS analysis
- Field duplicate and co-located analyses
- Surrogate recovery
- Internal standards performance.

Excursions from method or validation criteria were not identified during the validation process.

## METAL DATA EVALUATION SUMMARY

The following QA/QC parameters were found to meet method and validation criteria or did not result in additional qualification of sample results:

- Chain-of-custody record
- Sample collection
- Sample preservation
- Holding times
- Blank analysis
- MS/MSD analysis
- LCS analysis
- Field duplicate and co-located analyses
- Internal standards performance
- ICP serial dilution analysis
- Laboratory duplicate analysis.

Excursions from method or validation criteria were not identified during the validation process.

## DATA USABILITY

Overall data usability with respect to completeness for the final sample results reported is 100 percent for the VOC and metal data. The data are usable for qualitative and quantitative purposes. Based on the validation performed, the completeness goal of 95 percent was met for these analyses.

# *Data Validation Report*

# *Attachment A*

# *List of Samples*

| *Sample cross reference list* | | | | | |
|---|---|---|---|---|---|
| **Samples collected and submitted for data validation** | | | | | |
| **Laboratory Name** | **Date Collected** | **Client Identfication** | **Laboratory Identification** | **Matrix** | **Analysis Requested** |
| Merit Labs | 12/20/2010 | S47236.01 | OBG-MW1 | Groundwater | Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.02 | DUP01 [OBG-MW1] | Groundwater | Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.03 | OBG-MW2S | Groundwater | Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.04 | OBG-MW3 | Groundwater | Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.05 | OBG-MW3 MS | Groundwater | Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.06 | OBG-MW3 MSD | Groundwater | Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.07 | OBG-MW6S | Groundwater | Dissolved Metals, VOCs |
| Merit Labs | 12/20/2010 | S47236.08 | OBG-MW7S | Groundwater | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.09 | OBG-MW5 | Groundwater | Dissolved Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.10 | OBG-MW2D | Groundwater | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.11 | OBG-MW2D CO-LOCATED | Groundwater | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.12 | OBG-MW7D | Groundwater | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.13 | DUP02 [OBG-MW7D] | Groundwater | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.14 | Field (Ambient) Blank | Aqueous | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.15 | EB01 | Aqueous | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.16 | OBG-MW6D | Groundwater | Metals, VOCs |
| Merit Labs | 12/21/2010 | S47236.17 | TB01 | Aqueous | VOCs |

Note:

Merit Labs indicates Merit Laboratories of East Lansing, Michigan.

Sample in brackets indicates field duplicate location collected and submitted blind to the laboratory.

VOCs indicates volatile organic compounds

Metals include Arsenic, Barium, Lead, Zinc

TB indicates trip blank.

DUP indicates field duplicate.

EB indicates equpiment blank.

# *Data Validation Report*

# *Attachment B*

# *Data Validation Approach*

| *O'Brien & Gere Data validation approach*<br>*Using USEPA National Functional Guidelines* | |
|---|---|
| General Validation Approach | For certain parameters, USEPA guidance for data validation indicates that professional judgment is to be utilized to identify the appropriate validation action. In these situations, the validation approach taken by O'Brien & Gere is a conservative one; qualifiers are applied to sample data to indicate both major and minor excursions. In this way, data associated with any type of excursion are identified to the data user. Major excursions will result in data being rejected, indicating that the data are considered unusable for either quantitative or qualitative purposes. Minor excursions will result in sample data being qualified as approximate that are otherwise usable for quantitative or qualitative purposes. |
| | Final data qualifiers are assigned based on the cumulative effect of the various QA/QC excursions. For example, if a sample result is affected by low LCS recovery for which the "J" qualifier is applied, but low internal standard recoveries result in the rejection of the sample result (R), the final qualifier is "R". |
| **Parameter Type** | **Applying Data Validation Qualifiers Approach*** |
| Sample collection information-<br>Cooler Temperature | Results for samples submitted for organic and inorganic analyses impacted by cooler temperatures of greater than 10°C are qualified as approximate (UJ, J). |
| Sample collection information-<br>VOC Headspace | Results for sample containers submitted for VOC analysis that contain headspace are noted in the report.* |
| Calibration Data-<br>VOCs by USEPA Method 8260B | VOC target analytes are evaluated using the criteria of 15 percent relative standard deviation (%RSD) or correlation coefficient criteria of 0.990 for initial calibration curves. Calibration verifications are evaluated using a criterion of less than or equal to 20 percent difference (%D) for continuing calibration check compounds and a %D of less than or equal to 50 for the remaining target analytes. Initial calibrations and calibration verifications are also evaluated using the response factor (RF) criteria described in the method for system performance check compounds, a criterion of greater than or equal to 0.010 for ketones, and a criterion of 0.05 for the remaining target analytes. If analyzed, the second-source standard or low standard is evaluated using a 30% recovery or the laboratory control limits. |
| Organic Multi-results | When two results are reported, due to re-preparation or for dilution analyses, both sets of results are evaluated during the validation process. Based on the evaluation of the associated quality control data, the results reflecting the higher quality data are reported. |
| General Organic MS/MSD, LCS, Duplicate Data | Laboratory established control limits are used to assess duplicate, surrogate, MS/MSD, and LCS data. |
| | In the case that excursions are identified in more than one quality control sample of the same matrix within one sample delivery group, samples are batched according to sample preparation or analysis date and qualified accordingly. |
| | If percent recoveries are less than laboratory control limits but greater than ten percent, non-detected and detected results are qualified as approximate (UJ, J) to indicate minor excursions. |
| | If percent recoveries are greater than laboratory control limits, detected results are qualified as approximate (J) to indicate minor excursions. |
| | If percent recoveries are less than ten percent, detected results are qualified as approximate (J) and non-detected results are qualified as rejected (R) to indicate major excursions. |
| | If RPDs for MSDs or duplicates are outside of laboratory control limits, detected results are qualified as approximate (J) to indicate minor excursions. |
| Inorganic Blank Data | Concentrations in the associated samples greater than the QL but f less than five times the associated blank concentration are qualified as undetected (U) when blank concentrations are less than the QL.<br>For concentrations in the samples below the QL, the concentration is replaced with the QL and qualified as undetected (U). |
| | Non-detected concentrations in the associated samples associated with a negative blank concentration are qualified as approximate (UJ). |
| | Concentrations in the associated samples of greater than the QL but less than ten times the method or calibration blank concentration, when the calibration or method blank concentration is greater than the QL, are rejected (R). |
| | If analytes are detected in equipment blanks, sample concentrations less than the QL are replaced with the QL and qualified as undetected (U). Sample concentrations greater than the QL and less than five times the equipment blank concentration are qualified as undetected (U). |

| | |
|---|---|
| General Inorganic MS/MSD, LCS, Duplicate Data | Laboratory established control limits are used to assess duplicate, MS/MSD, and LCS data. |
| | In the case that excursions are identified in more than one quality control sample of the same matrix within one sample delivery group, samples are batched according to sample preparation or analysis date and qualified accordingly. |
| | Qualification of inorganic data for MS/MSD analyses is performed when either MS or MSD percent recoveries are outside of laboratory control limits. |
| | For inorganic analyses, if RPDs for MS/MSDs, laboratory duplicates, or field duplicates are outside of laboratory control limits, associated detected and non-detected results are qualified as approximate (UJ, J). |
| | Detected sample results associated with recoveries that are greater than the laboratory control limits are qualified as approximate biased high ($J^{(+)}$). |
| | Detected sample results associated with recoveries that both are greater than the laboratory control limits and less than the laboratory control limits or with one recovery outside of laboratory control limits, are qualified as approximate (J). |
| | Detected sample results associated with recoveries that are less than the laboratory control limits are qualified as approximate biased low ($J^{(-)}$). |
| | Non-detected sample results associated with recoveries that are less than the laboratory control limits but greater than or equal to 30 percent are qualified as approximate (UJ). |
| | Non-detected sample results associated with recoveries that are less than 30 percent are qualified as rejected (R). |
| | Results greater than the QL are qualified as "U" at that concentration. |
| | The highest concentrations of the target analytes are used to evaluate the associated samples. |
| Internal Standard organic Data | Internal standard recoveries are evaluated using control limits of within 50% of the lower standard area and up to 100% of the upper standard area of the associated calibration verification standard. The results for target analytes associated with internal standard area recoveries 25% or greater but less than the lower standard area are qualified as approximate (J, UJ) to indicate minor internal standard recovery excursions. The non-detected results for target analytes associated with internal standard area recoveries less than 25% are rejected (R) to indicate major recovery excursions |
| * Indicates that data validation guidelines do not address this situation. Therefore, validation qualifiers are not applied to data. | |
| Source O'Brien & Gere | |

| *Laboratory QA/QC analyses definitions.* | |
|---|---|
| QA/QC Term | Definition |
| Accuracy | The closeness or agreement of the observed value or test response to the true or acceptable reference value or the test response from a reference method. It is influenced by both random error (precision) and systematic error (bias). The terms “bias” and “precision” are often used in lieu of “accuracy”. |
| Precision | A measure of mutual agreement between two or more individual measurements of the same property, obtained under similar conditions. |
| Representativeness | A measure of the degree to which data accurately and precisely characterize a population; the correspondence between the analytical result and the actual quality or condition experienced by a contaminant receptor. |
| Sensitivity | The capability of a method or instrument to discriminate between measurement responses representing different levels of a variable of interest. |
| Completeness | A measure of the amount of valid data obtained from a measurement system as compared to the planned amount, usually expressed as a percentage; also a measure of the degree to which the sampling scheme represents the available range in something, regardless of what was planned. |
| Detection limit | The lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability. |
| Quantitation limit | The level above which numerical results may be obtained with a specified degree of confidence; the minimum concentration of an analyte in a specific matrix that can be identified and quantified above the method detection limit and within specified limits of precision and bias during routine analytical operating conditions. |
| Method detection limit | The minimum concentration of an analyte that undergoes preparation similar to the environmental samples and can be reported with a stated level of confidence that the analyte concentration is greater than zero. |
| Instrument detection limit | The lowest concentration of a metal target analyte that, when directly inputted and processed on a specific analytical instrument, produces a signal/response that is statistically distinct from the signal/response arising from equipment “noise” alone. |
| Gas chromatography/mass spectrometry (GC/MS) instrument performance check | Performed to verify mass resolution, identification, and to some degree, instrument sensitivity. These criteria are not sample specific; conformance is determined using standard materials. |
| Control limits | The variation in a process data set expressed as plus/minus standard deviations from the mean, generally placed on a chart to indicate the upper and lower acceptable ranges of process data and to judge whether the process is in or out of statistical limitations. |
| Calibration | Compliance requirements for satisfactory instrument calibration are established to verify that the instrument is capable of producing acceptable quantitative data. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of analysis and calibration verifications document satisfactory maintenance and adjustment of the instrument on a day-to-day basis. |
| Relative Response Factor | A measure of the relative mass spectral response of an analyte compared to its internal standard. Relative Response Factors are determined by analysis of standards and are used in the calculation of concentrations of analytes in samples. |
| Relative standard deviation | The standard deviation divided by the mean; a unit-free measure of variability. |
| Correlation coefficient | A measure of the strength of the relationship between two variables. |
| Relative Percent Difference | Used to compare two values; the relative percent difference is based on the mean of the two values, and is reported as an absolute value, i.e., always expressed as a positive number or zero. |
| Percent Difference | Used to compare two values; the percent difference indicates both the direction and the magnitude of the comparison, i.e., the percent difference may be either negative, positive, or zero. |
| Drift | The deviation in instrument response from its set or reference value over a period of time. |
| Percent Recovery | The act of determining whether or not the methodology measures all of the target analytes contained in a sample. |
| Blanks | Several types of blanks are analyzed by the laboratory. Corrective action procedures are implemented for blank analyses if target compounds are detected at concentrations greater than the method criteria. The criteria for evaluation of blanks apply to any blank associated with a group of samples. If problems with a blank exist, data associated with the project are evaluated to determine whether or not there is an inherent variability in the data for the project or if the problem is an isolated occurrence not affecting other data. |
| Reagent blank | Consists of laboratory target analyte-free water and any reagents added to a sample during analysis. This type of blank is analyzed to evaluate whether contamination occurred during the analysis of the sample due to reagent contamination. A reagent blank is usually analyzed following highly contaminated samples to assess the potential for cross-contamination during analysis. |
| Instrument blank | Consists of clean solvent spiked with the surrogates and analyzed on each GC column and instrument used for sample analysis by GC. This type of blank is analyzed to evaluate whether contamination occurred during the analysis of the sample due to instrument contamination. |
| Calibration blank | Consists of acids and reagent water used to prepare metal samples for analysis. This type of blank is analyzed to evaluate whether contamination is occurring during the preparation and analysis of the sample. |
| Method blank | A water or soil blank that undergoes the preparation procedures applied to a sample (i.e., extraction, digestion, clean-up). These samples are analyzed to examine whether sample preparation, clean-up, |

| *Laboratory QA/QC analyses definitions.* | |
|---|---|
| | and analysis techniques result in sample contamination. |
| Field/equipment | Collected and submitted for laboratory analysis, where appropriate. Field/equipment blanks are handled in the same manner as environmental samples. Equipment/field blanks are analyzed to assess contamination introduced during field sampling procedures. |
| Trip blank | Consist of samples of analyte-free water that have undergone shipment from the sampling site to the laboratory in coolers with the environmental samples submitted for volatile organic compound (VOC) analysis. Trip blanks will be analyzed for VOCs to determine if contamination has taken place during sample handling and/or shipment. Trip blanks will be utilized at a frequency of one each per cooler sent to the laboratory for VOC analysis. |
| Storage blank | Consists of sample vials filled with laboratory analyte-free water. The vials are stored at the laboratory with the samples collected for VOC analysis, under the same conditions as the samples. The storage blank is analyzed with the VOC samples to evaluate for contamination due to sample storage. |
| Internal standards performance | Compounds not found in environmental samples which are spiked into samples and quality control samples at the time of sample preparation for organic analyses. Internal standards must meet retention time and recovery criteria specified in the analytical method. Internal standards are used as the basis for quantitation of the target analytes. |
| Surrogate recovery | Compounds similar in nature to the target analytes but not expected to be detected in the environmental media which are spiked into environmental samples, blanks, and quality control samples prior to sample preparation for organic analyses. Surrogates are used to evaluate analytical efficiency by measuring recovery. |
| Laboratory control sample<br>Matrix spike blank analyses | Standard solutions that consist of known concentrations of the target analytes spiked into laboratory analyte-free water or sand. They are prepared or purchased from a certified manufacturer from a source independent from the calibration standards to provide an independent verification of the calibration procedure. They are prepared and analyzed following the same procedures employed for environmental sample analysis to assess method accuracy independently of sample matrix effects. |
| Laboratory duplicate | Two or more representative portions taken from one homogeneous sample by the analyst and analyzed in the same laboratory. |
| Matrix | The material of which the sample is composed or the substrate containing the analyte of interest, such as drinking water, waste water, air, soil/sediment, biological material. |
| Matrix Spike (MS) | An aliquot of a matrix (water or soil) fortified (spiked) with known quantities of specific target analytes and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for the matrix by measuring recovery. |
| Matrix spike duplicate (MSD) | A second aliquot of the same matrix as the matrix spike that is spiked in order to determine the precision of the method. |
| Retention time | The time a target analyte is retained on a GC column before elution. The identification of a target analyte is dependent on a target compound's retention time falling within the specified retention time window established for that compound. |
| Relative retention time | The ratio of the retention time of a compound to that of a standard. |
| Resolution | The separation between peaks on a chromatogram. |
| Interference | An element, compound, or other matrix effect present in a sample which disturbs the detection of a target analyte leading to inaccurate concentration results for the target analyte. |
| Raw data | The documentation generated during sampling and analysis which includes, but is not limited to, field notes, hardcopies of electronic data, disks, un-tabulated sample results, QC sample results, printouts of chromatograms, instrument outputs, and handwritten notes. |
| Source O'Brien & Gere | |

# *Data Validation Report*

# *Attachment C*

# *Laboratory QA/QC Analyses Definitions*

Lab Sample ID: S47236.01
Sample Tag: OBG-MW1
Collected Date/Time: 12/20/2010 10:05
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.003 | mg/L | 0.002 | 6020 | 12/29/10 15:53 | SLS | 7440-38-2 | |
| Barium | 0.140 | mg/L | 0.005 | 6020 | 12/29/10 15:53 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 15:53 | SLS | 7439-92-1 | |
| Zinc | 0.033 | mg/L | 0.005 | 6020 | 12/29/10 15:53 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:03 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:03 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:03 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:03 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/23/10 18:03 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 95-47-6 | |

Lab Sample ID: S47236.01 (continued)
Sample Tag: OBG-MW1

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:03 | JGH | 91-20-3 | |

Lab Sample ID: S47236.02
Sample Tag: DUP01
Collected Date/Time: 12/20/2010 :
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.004 | mg/L | 0.002 | 6020 | 12/29/10 15:56 | SLS | 7440-38-2 | |
| Barium | 0.141 | mg/L | 0.005 | 6020 | 12/29/10 15:56 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 15:56 | SLS | 7439-92-1 | |
| Zinc | 0.033 | mg/L | 0.005 | 6020 | 12/29/10 15:56 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:22 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:22 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:22 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:22 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/23/10 18:22 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 95-47-6 | |

Lab Sample ID: S47236.02 (continued)
Sample Tag: DUP01

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:22 | JGH | 91-20-3 | |

Merit Laboratories, Inc.

# Analytical Laboratory Report

Revised Report

Lab Sample ID: S47236.03
Sample Tag: OBG-MW2S
Collected Date/Time: 12/20/2010 11:15
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.011 | mg/L | 0.002 | 6020 | 12/29/10 15:58 | SLS | 7440-38-2 | |
| Barium | 0.107 | mg/L | 0.005 | 6020 | 12/29/10 15:58 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 15:58 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 15:58 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:40 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:40 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:40 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:40 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/23/10 18:40 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 95-47-6 | |

Lab Sample ID: S47236.03 (continued)
Sample Tag: OBG-MW2S

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:40 | JGH | 91-20-3 | |

Lab Sample ID: S47236.04
Sample Tag: OBG-MW3
Collected Date/Time: 12/20/2010 12:40
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | Not detected | mg/L | 0.002 | 6020 | 12/29/10 16:08 | SLS | 7440-38-2 | |
| Barium | 0.191 | mg/L | 0.005 | 6020 | 12/29/10 16:08 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:08 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:08 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:58 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:58 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/23/10 18:58 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/23/10 18:58 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/23/10 18:58 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 95-47-6 | |

Lab Sample ID: S47236.04 (continued)
Sample Tag: OBG-MW3

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/23/10 18:58 | JGH | 91-20-3 | |

# Analytical Laboratory Report

Revised Report

Lab Sample ID: S47236.05
Sample Tag: OBG-MW3 MS
Collected Date/Time: 12/20/2010 12:40
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.278 | mg/L | 0.002 | 6020 | 12/29/10 16:11 | SLS | 7440-38-2 | |
| Barium | 0.469 | mg/L | 0.005 | 6020 | 12/29/10 16:11 | SLS | 7440-39-3 | |
| Lead | 0.253 | mg/L | 0.003 | 6020 | 12/29/10 16:11 | SLS | 7439-92-1 | |
| Zinc | 0.245 | mg/L | 0.005 | 6020 | 12/29/10 16:11 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | 38 | ug/L | 10 | 8260B | 12/23/10 19:54 | JGH | 67-64-1 | 1 |
| Carbon disulfide | 45 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-15-0 | 1 |
| 2-Butanone (MEK) | 43 | ug/L | 10 | 8260B | 12/23/10 19:54 | JGH | 78-93-3 | 1 |
| Chloromethane | 32 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 74-87-3 | 1 |
| Vinyl chloride | 38 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-01-4 | 1 |
| Bromomethane | 51 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 74-83-9 | 1 |
| Chloroethane | 49 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-00-3 | 1 |
| 1,1-Dichloroethene | 49 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-35-4 | 1 |
| Methylene chloride | 50 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-09-2 | 1 |
| trans-1,2-Dichloroethene | 51 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 156-60-5 | 1 |
| 1,1-Dichloroethane | 50 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-34-3 | 1 |
| cis-1,2-Dichloroethene | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 156-59-2 | 1 |
| Chloroform | 55 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 67-66-3 | 1 |
| 1,1,1-Trichloroethane | 56 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 71-55-6 | 1 |
| 4-Methyl-2-pentanone (MIBK) | 51 | ug/L | 10 | 8260B | 12/23/10 19:54 | JGH | 108-10-1 | 1 |
| 2-Hexanone | 48 | ug/L | 10 | 8260B | 12/23/10 19:54 | JGH | 591-78-6 | 1 |
| Carbon tetrachloride | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 56-23-5 | 1 |
| Benzene | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 71-43-2 | 1 |
| 1,2-Dichloroethane | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 107-06-2 | 1 |
| Trichloroethene | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 79-01-6 | 1 |
| 1,2-Dichloropropane | 54 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 78-87-5 | 1 |
| Bromodichloromethane | 54 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-27-4 | 1 |
| cis-1,3-Dichloropropene | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 10061-01-5 | 1 |
| Toluene | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 108-88-3 | 1 |
| trans-1,3-Dichloropropene | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 10061-02-6 | 1 |
| 1,1,2-Trichloroethane | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 79-00-5 | 1 |
| Tetrachloroethene | 51 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 127-18-4 | 1 |
| Dibromochloromethane | 49 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 124-48-1 | 1 |
| Chlorobenzene | 50 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 108-90-7 | 1 |
| Ethylbenzene | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 100-41-4 | 1 |
| p,m-Xylene | 107 | ug/L | 2 | 8260B | 12/23/10 19:54 | JGH | | 1 |

1-Spiked at 50ug/L.

Lab Sample ID: S47236.05 (continued)
Sample Tag: OBG-MW3 MS

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| o-Xylene | 54 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 95-47-6 | 1 |
| Styrene | 39 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 100-42-5 | 1 |
| Isopropylbenzene | 49 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 98-82-8 | 1 |
| Bromoform | 45 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 75-25-2 | 1 |
| 1,1,2,2-Tetrachloroethane | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 79-34-5 | 1 |
| n-Propylbenzene | 54 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 103-65-1 | 1 |
| 1,3,5-Trimethylbenzene | 49 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 108-67-8 | 1 |
| tert-Butylbenzene | 54 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 98-06-6 | 1 |
| 1,2,4-Trimethylbenzene | 50 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 95-63-6 | 1 |
| sec-Butylbenzene | 53 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 135-98-8 | 1 |
| p-Isopropyltoluene | 57 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 99-87-6 | 1 |
| 1,3-Dichlorobenzene | 56 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 541-73-1 | 1 |
| 1,4-Dichlorobenzene | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 106-46-7 | 1 |
| 1,2-Dichlorobenzene | 52 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 95-50-1 | 1 |
| n-Butylbenzene | 55 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 104-51-8 | 1 |
| Naphthalene | 50 | ug/L | 1 | 8260B | 12/23/10 19:54 | JGH | 91-20-3 | 1 |

1-Spiked at 50ug/L.

# Analytical Laboratory Report

Revised Report

Lab Sample ID: S47236.06
Sample Tag: OBG-MW3 MSD
Collected Date/Time: 12/20/2010 12:40
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.258 | mg/L | 0.002 | 6020 | 12/29/10 16:13 | SLS | 7440-38-2 | |
| Barium | 0.449 | mg/L | 0.005 | 6020 | 12/29/10 16:13 | SLS | 7440-39-3 | |
| Lead | 0.245 | mg/L | 0.003 | 6020 | 12/29/10 16:13 | SLS | 7439-92-1 | |
| Zinc | 0.229 | mg/L | 0.005 | 6020 | 12/29/10 16:13 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | 36 | ug/L | 10 | 8260B | 12/23/10 20:12 | JGH | 67-64-1 | 1 |
| Carbon disulfide | 43 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-15-0 | 1 |
| 2-Butanone (MEK) | 42 | ug/L | 10 | 8260B | 12/23/10 20:12 | JGH | 78-93-3 | 1 |
| Chloromethane | 31 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 74-87-3 | 1 |
| Vinyl chloride | 35 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-01-4 | 1 |
| Bromomethane | 47 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 74-83-9 | 1 |
| Chloroethane | 46 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-00-3 | 1 |
| 1,1-Dichloroethene | 47 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-35-4 | 1 |
| Methylene chloride | 48 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-09-2 | 1 |
| trans-1,2-Dichloroethene | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 156-60-5 | 1 |
| 1,1-Dichloroethane | 48 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-34-3 | 1 |
| cis-1,2-Dichloroethene | 50 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 156-59-2 | 1 |
| Chloroform | 52 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 67-66-3 | 1 |
| 1,1,1-Trichloroethane | 53 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 71-55-6 | 1 |
| 4-Methyl-2-pentanone (MIBK) | 50 | ug/L | 10 | 8260B | 12/23/10 20:12 | JGH | 108-10-1 | 1 |
| 2-Hexanone | 48 | ug/L | 10 | 8260B | 12/23/10 20:12 | JGH | 591-78-6 | 1 |
| Carbon tetrachloride | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 56-23-5 | 1 |
| Benzene | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 71-43-2 | 1 |
| 1,2-Dichloroethane | 50 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 107-06-2 | 1 |
| Trichloroethene | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 79-01-6 | 1 |
| 1,2-Dichloropropane | 51 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 78-87-5 | 1 |
| Bromodichloromethane | 51 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-27-4 | 1 |
| cis-1,3-Dichloropropene | 50 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 10061-01-5 | 1 |
| Toluene | 50 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 108-88-3 | 1 |
| trans-1,3-Dichloropropene | 51 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 10061-02-6 | 1 |
| 1,1,2-Trichloroethane | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 79-00-5 | 1 |
| Tetrachloroethene | 47 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 127-18-4 | 1 |
| Dibromochloromethane | 47 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 124-48-1 | 1 |
| Chlorobenzene | 47 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 108-90-7 | 1 |
| Ethylbenzene | 50 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 100-41-4 | 1 |
| p,m-Xylene | 101 | ug/L | 2 | 8260B | 12/23/10 20:12 | JGH | | 1 |

1-Spiked at 50ug/L.

Lab Sample ID: S47236.06 (continued)
Sample Tag: OBG-MW3 MSD

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| o-Xylene | 52 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 95-47-6 | 1 |
| Styrene | 40 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 100-42-5 | 1 |
| Isopropylbenzene | 46 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 98-82-8 | 1 |
| Bromoform | 44 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 75-25-2 | 1 |
| 1,1,2,2-Tetrachloroethane | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 79-34-5 | 1 |
| n-Propylbenzene | 50 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 103-65-1 | 1 |
| 1,3,5-Trimethylbenzene | 47 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 108-67-8 | 1 |
| tert-Butylbenzene | 52 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 98-06-6 | 1 |
| 1,2,4-Trimethylbenzene | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 95-63-6 | 1 |
| sec-Butylbenzene | 51 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 135-98-8 | 1 |
| p-Isopropyltoluene | 54 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 99-87-6 | 1 |
| 1,3-Dichlorobenzene | 52 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 541-73-1 | 1 |
| 1,4-Dichlorobenzene | 48 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 106-46-7 | 1 |
| 1,2-Dichlorobenzene | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 95-50-1 | 1 |
| n-Butylbenzene | 51 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 104-51-8 | 1 |
| Naphthalene | 49 | ug/L | 1 | 8260B | 12/23/10 20:12 | JGH | 91-20-3 | 1 |

1-Spiked at 50ug/L.

Merit Laboratories, Inc.

# Analytical Laboratory Report

Revised Report

Lab Sample ID: S47236.07
Sample Tag: OBG-MW6S
Collected Date/Time: 12/20/2010 14:50
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic, Dissolved | 0.010 | mg/L | 0.002 | 6020 | 12/29/10 16:01 | SLS | 7440-38-2 | |
| Barium, Dissolved | 0.193 | mg/L | 0.005 | 6020 | 12/29/10 16:01 | SLS | 7440-39-3 | |
| Lead, Dissolved | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:01 | SLS | 7439-92-1 | |
| Zinc, Dissolved | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:01 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 18:52 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 18:52 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 156-59-2 | |
| Chloroform | 1 | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 18:52 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 18:52 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 18:52 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 95-47-6 | |

Lab Sample ID: S47236.07 (continued)
Sample Tag: OBG-MW6S

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 18:52 | JGH | 91-20-3 | |

Lab Sample ID: S47236.08
Sample Tag: OBG-MW7S
Collected Date/Time: 12/20/2010 16:15
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.007 | mg/L | 0.002 | 6020 | 12/29/10 16:03 | SLS | 7440-38-2 | |
| Barium | 0.325 | mg/L | 0.005 | 6020 | 12/29/10 16:03 | SLS | 7440-39-3 | |
| Lead | 0.003 | mg/L | 0.003 | 6020 | 12/29/10 16:03 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:03 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | 11 | ug/L | 10 | 8260B | 12/27/10 19:11 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 19:11 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-35-4 | |
| Methylene chloride | 1 | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 19:11 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 19:11 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 19:11 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 95-47-6 | |

Lab Sample ID: S47236.08 (continued)
Sample Tag: OBG-MW7S

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 104-51-8 | |
| Naphthalene | 1 | ug/L | 1 | 8260B | 12/27/10 19:11 | JGH | 91-20-3 | |

Lab Sample ID: S47236.09
Sample Tag: OBG-MW5
Collected Date/Time: 12/21/2010 09:30
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic, Dissolved | 0.003 | mg/L | 0.002 | 6020 | 12/29/10 16:06 | SLS | 7440-38-2 | |
| Barium, Dissolved | 0.952 | mg/L | 0.005 | 6020 | 12/29/10 16:06 | SLS | 7440-39-3 | |
| Lead, Dissolved | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:06 | SLS | 7439-92-1 | |
| Zinc, Dissolved | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:06 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 19:29 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 19:29 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 19:29 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 19:29 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 56-23-5 | |
| Benzene | 3 | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 108-90-7 | |
| Ethylbenzene | 1 | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 19:29 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 95-47-6 | |

Lab Sample ID: S47236.09 (continued)
Sample Tag: OBG-MW5

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 79-34-5 | |
| n-Propylbenzene | 1 | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | 5 | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 104-51-8 | |
| Naphthalene | 8 | ug/L | 1 | 8260B | 12/27/10 19:29 | JGH | 91-20-3 | |

Lab Sample ID: S47236.10
Sample Tag: OBG-MW2D
Collected Date/Time: 12/21/2010 10:50
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.017 | mg/L | 0.002 | 6020 | 12/29/10 16:21 | SLS | 7440-38-2 | |
| Barium | 0.262 | mg/L | 0.005 | 6020 | 12/29/10 16:21 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:21 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:21 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 19:47 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 19:47 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 19:47 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 19:47 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 19:47 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 95-47-6 | |

Lab Sample ID: S47236.10 (continued)
Sample Tag: OBG-MW2D

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 19:47 | JGH | 91-20-3 | |

Lab Sample ID: S47236.11
Sample Tag: OBG-MW2D CO-LOCATED
Collected Date/Time: 12/21/2010 10:50
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.015 | mg/L | 0.002 | 6020 | 12/29/10 16:23 | SLS | 7440-38-2 | |
| Barium | 0.257 | mg/L | 0.005 | 6020 | 12/29/10 16:23 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:23 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:23 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:05 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:05 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:05 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:05 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 20:05 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 95-47-6 | |

Lab Sample ID: S47236.11 (continued)
Sample Tag: OBG-MW2D CO-LOCATED

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:05 | JGH | 91-20-3 | |

Lab Sample ID: S47236.12
Sample Tag: OBG-MW7D
Collected Date/Time: 12/21/2010 12:30
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.028 | mg/L | 0.002 | 6020 | 12/29/10 16:26 | SLS | 7440-38-2 | |
| Barium | 0.091 | mg/L | 0.005 | 6020 | 12/29/10 16:26 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:26 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:26 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:23 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:23 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:23 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:23 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 20:23 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 95-47-6 | |

Lab Sample ID: S47236.12 (continued)
Sample Tag: OBG-MW7D

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:23 | JGH | 91-20-3 | |

Lab Sample ID: S47236.13
Sample Tag: DUP02
Collected Date/Time: 12/21/2010 :
Matrix: Groundwater
COC Reference: 60355

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.028 | mg/L | 0.002 | 6020 | 12/29/10 16:28 | SLS | 7440-38-2 | |
| Barium | 0.092 | mg/L | 0.005 | 6020 | 12/29/10 16:28 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:28 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:28 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:41 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:41 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:41 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:41 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 20:41 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 95-47-6 | |

Lab Sample ID: S47236.13 (continued)
Sample Tag: DUP02

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:41 | JGH | 91-20-3 | |

Lab Sample ID: S47236.14
Sample Tag: Field (Ambient) Blank
Collected Date/Time: 12/21/2010 13:10
Matrix: Quality Control
COC Reference: 60356

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | Not detected | mg/L | 0.002 | 6020 | 12/29/10 16:30 | SLS | 7440-38-2 | |
| Barium | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:30 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:30 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:30 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:59 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:59 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 20:59 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 20:59 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 20:59 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 95-47-6 | |

Lab Sample ID: S47236.14 (continued)
Sample Tag: Field (Ambient) Blank

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 20:59 | JGH | 91-20-3 | |

Merit Laboratories, Inc.

# Analytical Laboratory Report

Revised Report

Lab Sample ID: S47236.15
Sample Tag: EB01
Collected Date/Time: 12/21/2010 13:20
Matrix: Quality Control
COC Reference: 60356

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | Not detected | mg/L | 0.002 | 6020 | 12/29/10 16:33 | SLS | 7440-38-2 | |
| Barium | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:33 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:33 | SLS | 7439-92-1 | |
| Zinc | Not detected | mg/L | 0.005 | 6020 | 12/29/10 16:33 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 21:17 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 21:17 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 21:17 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 21:17 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 21:17 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 95-47-6 | |

Lab Sample ID: S47236.15 (continued)
Sample Tag: EB01

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:17 | JGH | 91-20-3 | |

Merit Laboratories, Inc.

# Analytical Laboratory Report

Revised Report

Lab Sample ID: S47236.16
Sample Tag: OBG-MW6D
Collected Date/Time: 12/21/2010 14:00
Matrix: Groundwater
COC Reference: 60356

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 2 | 40ml Glass | HCL | Yes | 4.0 | IR |
| 1 | 125ml Plastic | HNO3 | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Metal Digestion | Completed | | | 3015A | 12/29/10 01:00 | SLS | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.015 | mg/L | 0.002 | 6020 | 12/29/10 16:35 | SLS | 7440-38-2 | |
| Barium | 0.090 | mg/L | 0.005 | 6020 | 12/29/10 16:35 | SLS | 7440-39-3 | |
| Lead | Not detected | mg/L | 0.003 | 6020 | 12/29/10 16:35 | SLS | 7439-92-1 | |
| Zinc | 0.006 | mg/L | 0.005 | 6020 | 12/29/10 16:35 | SLS | 7440-66-6 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 21:35 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 21:35 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 21:35 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 21:35 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 21:35 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 95-47-6 | |

Lab Sample ID: S47236.16 (continued)
Sample Tag: OBG-MW6D

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:35 | JGH | 91-20-3 | |

Lab Sample ID: S47236.17
Sample Tag: TB01
Collected Date/Time: 12/21/2010 :
Matrix: Quality Control
COC Reference: 60356

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 1 | 40ml Glass | HCL | Yes | 4.0 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics - DEQ List** | | | | | | | | |
| Acetone | Not detected | ug/L | 10 | 8260B | 12/27/10 21:53 | JGH | 67-64-1 | |
| Carbon disulfide | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-15-0 | |
| 2-Butanone (MEK) | Not detected | ug/L | 10 | 8260B | 12/27/10 21:53 | JGH | 78-93-3 | |
| Chloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 74-87-3 | |
| Vinyl chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-01-4 | |
| Bromomethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 74-83-9 | |
| Chloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-00-3 | |
| 1,1-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-35-4 | |
| Methylene chloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-09-2 | |
| trans-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-34-3 | |
| cis-1,2-Dichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 156-59-2 | |
| Chloroform | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 67-66-3 | |
| 1,1,1-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK) | Not detected | ug/L | 10 | 8260B | 12/27/10 21:53 | JGH | 108-10-1 | |
| 2-Hexanone | Not detected | ug/L | 10 | 8260B | 12/27/10 21:53 | JGH | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 56-23-5 | |
| Benzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 107-06-2 | |
| Trichloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-27-4 | |
| cis-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 10061-01-5 | |
| Toluene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 127-18-4 | |
| Dibromochloromethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 124-48-1 | |
| Chlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 108-90-7 | |
| Ethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 100-41-4 | |
| p,m-Xylene | Not detected | ug/L | 2 | 8260B | 12/27/10 21:53 | JGH | | |
| o-Xylene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 95-47-6 | |
| Styrene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 98-82-8 | |
| Bromoform | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 79-34-5 | |
| n-Propylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 103-65-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 99-87-6 | |

Lab Sample ID: S47236.17 (continued)
Sample Tag: TB01

| Analysis | Results | Units | RL | Method | Run Date/Time | Analyst | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics - DEQ List (continued)** | | | | | | | | |
| 1,3-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 95-50-1 | |
| n-Butylbenzene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 104-51-8 | |
| Naphthalene | Not detected | ug/L | 1 | 8260B | 12/27/10 21:53 | JGH | 91-20-3 | |

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