# 2016 ANNUAL GROUNDWATER REPORT

**James F. Bell #1E**
**NMOCD Case#: 3RP-196-0**
**Meter Code: 94715**
**T30N, R13W, Sec10, Unit P**

## SITE DETAILS

**Site Location:** Latitude: 36.822568 N, Longitude: -108.187110 W
**Land Type:** Federal
**Operator:** XTO Energy, Inc.

## SITE BACKGROUND

- **Site Assessment:** 3/94
- **Excavation:** 4/94

Environmental Remediation activities at the James F. Bell #1E (Site) are being managed pursuant to the procedures set forth in the document entitled, "Remediation Plan for Groundwater Encountered during Pit Closure Activities" (Remediation Plan, El Paso Natural Gas Company / El Paso Field Services Company, 1995). This Remediation Plan was conditionally approved by the New Mexico Oil Conservation Division (OCD) in correspondence dated November 30, 1995; and the OCD approval conditions were adopted into El Paso CGP Company, LLC's (EPCGP's) program methods. Currently, the Site is operated by XTO Energy, Inc. and is active.

The Site is located on Federal land. Various site investigations have occurred from 1994 through 2016. Monitoring wells were installed in 1995 (MW-1 through MW-4 and soil borings, 1997 (temporary monitoring wells PZ-01 through PZ-05), 1999 (soil borings), and 2016 (MW-5 through MW-12, and SB-1). Free product is present at the site, and recovery has been performed periodically since 1997. In 2016, free product has been encountered in MW-1, MW-8 and MW-10. Groundwater sampling is being conducted on a semi-annual basis.

## MONITORING WELL INSTALLATION ACTIVITIES

In June 2016, new monitoring well locations were staked and surveyed for permitting and utility locating purposes. The monitoring well advancement and installation activities were completed in accordance with the Monitoring Well Installation Work Plan, submitted on June 29, 2016.

Eight new wells (MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12) were drilled in July/August 2016, to further characterize the extent of the dissolved-phase hydrocarbons at the Site. Soil boring SB-1 was also advanced in the vicinity of the former pit to evaluate soil concentrations at this location. Ground surface and casing elevations of the new monitoring wells were surveyed in September 2016 by a licensed surveyor using state plane coordinates.

Monitoring wells were constructed of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC), with 0.010-inch, continuous, factory-slotted PVC screen. The well screen was installed from 15 feet below ground surface (bgs) to 40 feet bgs and bisects the observed water table located at depths ranging from 21-28 feet below the top of the monitoring well casings during 2016 gauging events. A 3-foot seal of bentonite chips was placed above the sandpack and hydrated, and the remaining annular space filled with bentonite grout. Monitoring wells MW-6 through MW-8, and MW-10, were completed as at-grade completions with locking water-tight compression caps and a traffic-rated bolt-down manhole centered in a concrete pad. The remaining monitoring wells were completed as stick-up wells with locking protective casings and a concrete surface completion. Four protective bollards were installed around each new monitoring well with a stick-up completion. Borehole logs and well construction diagrams are provided in Appendix A.

Monitoring wells MW-5 and MW-6 were installed up gradient of former pit location. Monitoring well MW-7 was installed northeast of the former pit. MW-8 was installed to the northwest and down gradient of the former pit. Monitoring well MW-9 was installed to the west on a side gradient to the perceived plume. MW-10 was installed to the north near the Site wellhead. MW-11 and MW-12 were installed down gradient to the northwest. Soil boring SB-1 was completed near MW-1 to evaluate remaining soil impacts in the vicinity of the former pit. Pertinent site features and soil boring/monitoring well locations are shown on maps in Figures 1 through 4.

During advancement of each monitoring well and the soil boring completed in July/August 2016, the soil sample interval exhibiting the highest photoionization detector (PID) reading was collected and placed in a 4-ounce jar for laboratory analysis. Additional soil samples were retained from SB-1 to quantify petroleum hydrocarbon concentrations at additional intervals. Retained sample jars were stored in an ice-filled cooler and shipped under standard chain-of-custody protocols to TestAmerica Laboratories, Inc. in Pensacola, Florida (TestAmerica). The soil samples were analyzed for the presence of benzene, toluene, ethylbenzene, and total xylenes (BTEX) according to United States Environmental Protection Agency (EPA) Method SW846 8021B, total petroleum hydrocarbons (TPH), gasoline range organics, diesel range organics, and mineral range organics using EPA Method 8015B; and chloride according to EPA Method 300. The soil sample analytical report is provided in Appendix B.

Monitoring well development was performed using a well swab and down-hole pump until visibly clear groundwater was observed. Purged groundwater was containerized and transported to Basin Disposal, Inc. in Bloomfield, NM for disposal. Soil drums were staged on site for later disposal at Envirotech, Inc. (Envirotech), located south of Bloomfield, NM. On August 9, 2016, Sierra Oilfield Services, Inc. removed 9 drums of soil cuttings from the Site and delivered them to Envirotech. Disposal documentation is contained in Appendix C.

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## GROUNDWATER MONITORING ACTIVITIES

On April 15 water levels were gauged at MW-1, MW-2, MW-3, and MW-4 and groundwater samples were collected from each well that did not contain free product using HydraSleeve™ (HydraSleeve) no-purge groundwater sampling devices. Monitoring well MW-1 through MW-11 were gauged on October 11, 2016, with groundwater samples collected from wells using HydraSleeves where free product was absent. The HydraSleeves were set during the previous sampling event, or following well development for newly-installed wells, approximately 0.5 foot above the termination depth. The HydraSleeves were set using a suspension tether and stainless steel weights to collect a sample from the screened interval.

Groundwater samples were placed into laboratory-supplied sample containers, packed on ice, and shipped under standard chain-of-custody protocols to TestAmerica Laboratories, Inc. in Pensacola, Florida where they were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional field parameters are collected from the excess sample water recovered by the HydraSleeve. Excess sample water is poured into a YSI multi-parameter instrument sample cup and analyzed. Field parameters include dissolved oxygen, temperature, conductivity, pH, and oxidation-reduction potential. Field parameters are not collected if free product is present. The unused sample water is combined in a waste container and taken to Basin Disposal, Inc. for disposal.

## FREE PRODUCT RECOVERY

Free product was manually recovered from MW-1 and MW-8 in 2016. Approximately 1.75 gallons of free product was manually recovered from MW-1 from April through December 2016. Approximately 0.06 gallons of free product were recovered from MW-8 from October through December 2016. During the free product recovery assessment event conducted in April 2016, a field specific gravity measurements of 0.79 was recorded from the free product recovered from MW-1 using a hydrometer. Based on the data collected, transmissivity estimates of 0.01 to 0.06 $ft^2$/ day was obtained using Bouwer and Rice, and Cooper, Bredehoeff, and Papadopulos models.

Mobile dual phase extraction (MDPE) events were completed on December 2, and 3, 2016, by AcuVac Remediation, LLC, of Houston, Texas (AcuVac). The purpose of the MDPE events was to evaluate more aggressive free product recovery methods from monitoring wells MW-1 and MW-8. MDPE is a process combining soil vapor extraction (SVE) with groundwater depression to enhance the removal of liquid and vapor phase hydrocarbons. A submersible pump is used to simultaneously remove groundwater, inducing a hydraulic gradient toward the extraction well, and creating groundwater depression to expose the hydrocarbon smear zone to SVE. Recovered liquids were transferred to a portable storage tank for off-site disposal. Recovered vapors were used as fuel and burned in the MDPE internal combustion engine (ICE), resulting in little to no emissions. Power generated by the ICE is used to create the induced vacuum for SVE.

Two, 8-hour MDPE events were completed, one using MW-3 as an extraction well, and a second using MW-8 as an extraction well. Based on field data collected by AcuVac, approximately 12.19 gallons of hydrocarbons were recovered from MW-3, and approximately 8.07 gallons of hydrocarbons were recovered from MW-8. AcuVac's report summarizing the MDPE events at the Site is presented as Appendix D. Recovered fluids from the MDPE event where transported to Basin Disposal Inc. for disposal. Waste disposal documentation is included as Appendix C.

In order to confirm hydrocarbon recovery during the MDPE events, a vapor sample was collected at the extraction wellhead during each MDPE event. The vapor samples were collected in laboratory-provided Summa canisters, and shipped under chain-of-custody protocols to TestAmerica Laboratories, Inc. in Burlington, Vermont. The vapor samples were analyzed for TPH and BTEX constituents. The analytical results were used to supplement the field measurements collected by Acuvac in order to calculate constituent-specific mass removal for each extraction well. Based on the vapor concentrations, 89 pounds of hydrocarbons as TPH was removed from MW-1, and 48 pounds of hydrocarbons as TPH were removed from MW-8. The mass removal calculation tables and laboratory reports are included as Appendix E.

## SUMMARY TABLES

Historic analytical and water level data are summarized in Table 1 and Table 2, respectively. When free product was present, static water level elevations were corrected for measurable thicknesses of free product (specific gravity of 0.79). Monthly free product recovery data is summarized in Table 3. Soil analytical results are summarized in Table 4.

## SITE MAPS

Groundwater analytical maps (Figures 1 and 3) and groundwater elevation contour maps (Figures 2 and 4) summarize results of the 2016 groundwater sampling and gauging events. The soil analytical map (Figure 5) summarizes the results of the soil sampling activities.

## ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix F.

## GROUND WATER RESULTS

- The groundwater flow direction is generally to the north-northwest at the Site (see Figures 2 and 4).
- Free product was observed in MW-1, MW-8, and MW-10 in 2016. No samples were collected from these monitoring wells.
- Groundwater samples collected in 2016 from MW-3, MW-5, MW-6, MW-7, MW-9, and MW-11 exceeded the New Mexico Water Quality Control Commission (NMWQCC) standard (10 micrograms per liter [µg/L]) for benzene in groundwater. Benzene was not detected in monitoring wells MW-2, MW-4 and MW-12.
- Groundwater samples collected in 2016 from MW-5, MW-6, MW-7, and MW-11 exceeded the NMWQCC standard (750 micrograms per liter [µg/L]) for toluene in groundwater. Toluene was either below the NMWQCC standard or not detected in monitoring wells MW-2, MW-3, MW-4, MW-9, and MW-12.
- Groundwater samples collected in 2016 from MW-3, MW-6, MW-7, and MW-11 exceeded the NMWQCC standard (750 micrograms per liter [µg/L]) for ethylbenzene in groundwater. Ethylbenzene was either below the NMWQCC standard or not detected in monitoring wells MW-2, MW-4, MW-5, MW-9, and MW-12.
- Groundwater samples collected in 2016 from MW-3, MW-5, MW-6, MW-7,MW-9 and MW-11 exceeded the NMWQCC standard (620 micrograms per liter [µg/L]) for total xylenes in groundwater. Total xylenes were not detected in monitoring wells MW-2, MW-4, and MW-12.

## SOIL RESULTS

- Soil samples were collected from the borings for monitoring wells MW-5 through MW-12 and soil boring SB-1. For benzene, reported concentrations were below the applicable limit in the New Mexico Oil Conservation Division (NMOCD) 2013 Pit Rule Guidance (10 milligrams per kilogram (mg/kg). Total BTEX concentration exceeded the applicable limit in the NMOCD 2013 Pit Rule Guidance (50 mg/kg) in soil samples collected at MW-5, MW-6, and the four samples submitted from SB-1.
- TPH ranged from non-detect in the soil sample collected from MW-10 to 1,690 mg/kg in in the soil sample collected from MW-6. TPH concentrations exceeded the 2013 Pit Rule Guidance (100 mg/kg) at MW-5, MW-6, MW-8, and the four soil samples submitted from SB-1.
- Concentrations of chloride were not detected in any of the soil samples submitted for laboratory analysis.

## PLANNED FUTURE ACTIVITIES

Groundwater monitoring events will be conducted on a semi-annual basis. Periodic free product recovery activities are also to continue in 2017. For any additional site activates, a Work Plan will be submitted to the NMOCD prior to implementation. The 2017 Annual Report will be submitted in early 2018.

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## TABLES

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-1 | 10/17/95 | 11200 | 26400 | 1540 | 16500 |
| MW-1 | 12/11/95 | 10800 | 15400 | 1870 | 18400 |
| MW-1 | 12/04/96 | 10300 | 33200 | 1400 | 15200 |
| MW-1 | 03/05/97 | 9850 | 33400 | 1370 | 15200 |
| MW-1 | 09/29/00 | NS | NS | NS | NS |
| MW-1 | 02/26/01 | NS | NS | NS | NS |
| MW-1 | 03/14/01 | NS | NS | NS | NS |
| MW-1 | 04/06/01 | NS | NS | NS | NS |
| MW-1 | 06/22/01 | NS | NS | NS | NS |
| MW-1 | 07/11/01 | NS | NS | NS | NS |
| MW-1 | 07/26/01 | NS | NS | NS | NS |
| MW-1 | 08/16/01 | NS | NS | NS | NS |
| MW-1 | 09/06/01 | NS | NS | NS | NS |
| MW-1 | 09/17/01 | NS | NS | NS | NS |
| MW-1 | 12/13/01 | NS | NS | NS | NS |
| MW-1 | 01/08/02 | NS | NS | NS | NS |
| MW-1 | 02/28/02 | NS | NS | NS | NS |
| MW-1 | 03/28/02 | NS | NS | NS | NS |
| MW-1 | 09/13/02 | NS | NS | NS | NS |
| MW-1 | 09/19/02 | NS | NS | NS | NS |
| MW-1 | 12/04/02 | NS | NS | NS | NS |
| MW-1 | 04/18/03 | NS | NS | NS | NS |
| MW-1 | 06/19/03 | NS | NS | NS | NS |
| MW-1 | 09/22/03 | NS | NS | NS | NS |
| MW-1 | 12/15/03 | NS | NS | NS | NS |
| MW-1 | 02/27/04 | NS | NS | NS | NS |
| MW-1 | 03/16/04 | NS | NS | NS | NS |
| MW-1 | 06/09/04 | NS | NS | NS | NS |
| MW-1 | 07/26/04 | NS | NS | NS | NS |
| MW-1 | 09/10/04 | NS | NS | NS | NS |
| MW-1 | 12/14/04 | NS | NS | NS | NS |
| MW-1 | 12/18/04 | NS | NS | NS | NS |
| MW-1 | 03/17/05 | NS | NS | NS | NS |
| MW-1 | 04/15/05 | NS | NS | NS | NS |
| MW-1 | 05/17/05 | NS | NS | NS | NS |
| MW-1 | 06/23/05 | NS | NS | NS | NS |
| MW-1 | 09/12/05 | NS | NS | NS | NS |
| MW-1 | 09/13/05 | NS | NS | NS | NS |
| MW-1 | 10/28/05 | NS | NS | NS | NS |

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| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-1 | 11/18/05 | NS | NS | NS | NS |
| MW-1 | 12/22/05 | NS | NS | NS | NS |
| MW-1 | 01/18/06 | NS | NS | NS | NS |
| MW-1 | 02/21/06 | NS | NS | NS | NS |
| MW-1 | 03/25/06 | NS | NS | NS | NS |
| MW-1 | 04/28/06 | NS | NS | NS | NS |
| MW-1 | 05/23/06 | NS | NS | NS | NS |
| MW-1 | 06/14/06 | NS | NS | NS | NS |
| MW-1 | 07/21/06 | NS | NS | NS | NS |
| MW-1 | 08/24/06 | NS | NS | NS | NS |
| MW-1 | 09/25/06 | NS | NS | NS | NS |
| MW-1 | 12/27/06 | NS | NS | NS | NS |
| MW-1 | 03/26/07 | NS | NS | NS | NS |
| MW-1 | 06/11/07 | <1 | <1 | 1360 | <2 |
| MW-1 | 09/18/07 | NS | NS | NS | NS |
| MW-1 | 03/04/08 | NS | NS | NS | NS |
| MW-1 | 06/12/08 | 10000 | 29700 | 1550 | 16800 |
| MW-1 | 09/08/08 | NS | NS | NS | NS |
| MW-1 | 12/03/08 | NS | NS | NS | NS |
| MW-1 | 03/02/09 | NS | NS | NS | NS |
| MW-1 | 06/03/09 | 7120 | 25200 | 1270 | 13800 |
| MW-1 | 08/27/09 | NS | NS | NS | NS |
| MW-1 | 11/02/09 | NS | NS | NS | NS |
| MW-1 | 02/11/10 | NS | NS | NS | NS |
| MW-1 | 05/26/10 | 8100 | 26100 | 1300 | 14300 |
| MW-1 | 09/30/10 | NS | NS | NS | NS |
| MW-1 | 11/01/10 | NS | NS | NS | NS |
| MW-1 | 02/02/11 | NS | NS | NS | NS |
| MW-1 | 05/10/11 | 5630 | 22600 | 1630 | 17600 |
| MW-1 | 09/26/11 | NS | NS | NS | NS |
| MW-1 | 11/01/11 | NS | NS | NS | NS |
| MW-1 | 02/16/12 | NS | NS | NS | NS |
| MW-1 | 05/08/12 | 7490 | 25400 | 1390 | 15000 |
| MW-1 | 06/07/13 | 8200 | 31000 | 1100 | 15000 |
| MW-1 | 09/12/13 | NS | NS | NS | NS |
| MW-1 | 12/13/13 | NS | NS | NS | NS |
| MW-1 | 04/05/14 | NS | NS | NS | NS |
| MW-1 | 10/21/14 | NS | NS | NS | NS |
| MW-1 | 05/27/15 | NS | NS | NS | NS |
| MW-1 | 05/27/15 | NS | NS | NS | NS |
| MW-1 | 11/18/15 | NS | NS | NS | NS |
| MW-1 | 04/15/16 | NS | NS | NS | NS |
| MW-1 | 10/11/16 | NS | NS | NS | NS |

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-2 | 12/11/95 | 94.7 | 1.4 | 11.3 | 31.1 |
| MW-2 | 12/04/96 | 2.52 | <1 | <1 | <3 |
| MW-2 | 03/05/97 | 1.49 | <1 | <1 | <3 |
| MW-2 | 10/11/00 | 200 | <0.5 | 81 | 28 |
| MW-2 | 04/06/01 | NS | NS | NS | NS |
| MW-2 | 06/05/01 | NS | NS | NS | NS |
| MW-2 | 06/25/01 | 160 | <0.5 | 77 | 22 |
| MW-2 | 12/21/01 | NS | NS | NS | NS |
| MW-2 | 05/15/02 | NS | NS | NS | NS |
| MW-2 | 06/05/02 | 53 | <0.5 | 50 | 9.7 |
| MW-2 | 09/06/02 | NS | NS | NS | NS |
| MW-2 | 09/13/02 | NS | NS | NS | NS |
| MW-2 | 12/18/02 | NS | NS | NS | NS |
| MW-2 | 06/19/03 | 6.5 | <1 | 17.8 | 1.7 |
| MW-2 | 09/22/03 | NS | NS | NS | NS |
| MW-2 | 12/15/03 | NS | NS | NS | NS |
| MW-2 | 03/16/04 | NS | NS | NS | NS |
| MW-2 | 06/09/04 | <0.5 | <0.5 | <0.5 | <1 |
| MW-2 | 09/10/04 | NS | NS | NS | NS |
| MW-2 | 12/14/04 | NS | NS | NS | NS |
| MW-2 | 03/17/05 | NS | NS | NS | NS |
| MW-2 | 06/23/05 | <1 | <1 | <1 | <2 |
| MW-2 | 09/13/05 | NS | NS | NS | NS |
| MW-2 | 10/28/05 | NS | NS | NS | NS |
| MW-2 | 12/22/05 | NS | NS | NS | NS |
| MW-2 | 03/25/06 | NS | NS | NS | NS |
| MW-2 | 06/14/06 | <1 | <1 | <1 | <2 |
| MW-2 | 09/25/06 | NS | NS | NS | NS |
| MW-2 | 12/27/06 | NS | NS | NS | NS |
| MW-2 | 03/26/07 | NS | NS | NS | NS |
| MW-2 | 06/11/07 | <1 | <1 | <1 | <2 |
| MW-2 | 09/18/07 | NS | NS | NS | NS |
| MW-2 | 03/04/08 | NS | NS | NS | NS |
| MW-2 | 06/12/08 | <1 | <1 | <1 | <2 |
| MW-2 | 09/08/08 | NS | NS | NS | NS |
| MW-2 | 12/03/08 | NS | NS | NS | NS |
| MW-2 | 03/02/09 | NS | NS | NS | NS |
| MW-2 | 06/03/09 | 0.3 J | 2.1 | <1 | 0.84 J |
| MW-2 | 08/27/09 | NS | NS | NS | NS |
| MW-2 | 11/02/09 | NS | NS | NS | NS |
| MW-2 | 02/11/10 | NS | NS | NS | NS |
| MW-2 | 05/26/10 | NS | NS | NS | NS |
| MW-2 | 09/30/10 | NS | NS | NS | NS |
| MW-2 | 11/01/10 | NS | NS | NS | NS |
| MW-2 | 02/02/11 | NS | NS | NS | NS |
| MW-2 | 05/10/11 | NS | NS | NS | NS |
| MW-2 | 09/26/11 | NS | NS | NS | NS |
| MW-2 | 11/01/11 | NS | NS | NS | NS |
| MW-2 | 02/16/12 | NS | NS | NS | NS |
| MW-2 | 05/08/12 | NS | NS | NS | NS |
| MW-2 | 06/07/13 | <0.14 | <0.30 | <0.20 | <0.23 |
| MW-2 | 09/12/13 | <0.14 | <0.30 | <0.20 | <0.23 |
| MW-2 | 12/13/13 | <0.20 | <0.38 | <0.20 | <0.65 |
| MW-2 | 04/05/14 | <0.20 | <0.38 | <0.20 | <0.65 |
| MW-2 | 10/21/14 | <0.38 | <0.70 | <0.50 | <1.6 |
| MW-2 | 05/27/15 | <1.0 | <5.0 | <1.0 | <5.0 |
| MW-2 | 11/18/15 | <1.0 | <1.0 | <1.0 | <3.0 |
| MW-2 | 04/15/16 | <1.0 | <5.0 | <1.0 | <5.0 |
| MW-2 | 10/11/16 | <1.0 | <5.0 | <1.0 | <5.0 |

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| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-3 | 12/11/95 | 1790 | 10400 | 1010 | 8070 |
| MW-3 | 12/04/96 | 4210 | 19200 | 1140 | 11700 |
| MW-3 | 03/05/97 | 4000 | 19200 | 1280 | 13600 |
| MW-3 | 03/12/01 | NS | NS | NS | NS |
| MW-3 | 04/06/01 | NS | NS | NS | NS |
| MW-3 | 06/05/01 | NS | NS | NS | NS |
| MW-3 | 06/14/01 | NS | NS | NS | NS |
| MW-3 | 06/28/01 | NS | NS | NS | NS |
| MW-3 | 07/06/01 | NS | NS | NS | NS |
| MW-3 | 07/11/01 | NS | NS | NS | NS |
| MW-3 | 07/20/01 | NS | NS | NS | NS |
| MW-3 | 08/02/01 | NS | NS | NS | NS |
| MW-3 | 08/08/01 | NS | NS | NS | NS |
| MW-3 | 08/16/01 | NS | NS | NS | NS |
| MW-3 | 08/20/01 | NS | NS | NS | NS |
| MW-3 | 08/31/01 | NS | NS | NS | NS |
| MW-3 | 09/06/01 | NS | NS | NS | NS |
| MW-3 | 09/17/01 | NS | NS | NS | NS |
| MW-3 | 09/25/01 | NS | NS | NS | NS |
| MW-3 | 10/03/01 | NS | NS | NS | NS |
| MW-3 | 10/11/01 | NS | NS | NS | NS |
| MW-3 | 12/04/01 | NS | NS | NS | NS |
| MW-3 | 12/13/01 | NS | NS | NS | NS |
| MW-3 | 12/21/01 | NS | NS | NS | NS |
| MW-3 | 12/28/01 | NS | NS | NS | NS |
| MW-3 | 01/04/02 | NS | NS | NS | NS |
| MW-3 | 01/08/02 | NS | NS | NS | NS |
| MW-3 | 01/17/02 | NS | NS | NS | NS |
| MW-3 | 01/23/02 | NS | NS | NS | NS |
| MW-3 | 01/31/02 | NS | NS | NS | NS |
| MW-3 | 02/07/02 | NS | NS | NS | NS |
| MW-3 | 02/14/02 | NS | NS | NS | NS |
| MW-3 | 02/20/02 | NS | NS | NS | NS |
| MW-3 | 02/28/02 | NS | NS | NS | NS |
| MW-3 | 03/06/02 | NS | NS | NS | NS |
| MW-3 | 03/11/02 | NS | NS | NS | NS |
| MW-3 | 03/21/02 | NS | NS | NS | NS |
| MW-3 | 03/28/02 | NS | NS | NS | NS |
| MW-3 | 04/04/02 | NS | NS | NS | NS |
| MW-3 | 04/12/02 | NS | NS | NS | NS |
| MW-3 | 04/19/02 | NS | NS | NS | NS |
| MW-3 | 04/25/02 | NS | NS | NS | NS |
| MW-3 | 05/03/02 | NS | NS | NS | NS |
| MW-3 | 05/15/02 | NS | NS | NS | NS |
| MW-3 | 05/24/02 | NS | NS | NS | NS |
| MW-3 | 05/31/02 | NS | NS | NS | NS |
| MW-3 | 06/07/02 | NS | NS | NS | NS |
| MW-3 | 06/14/02 | NS | NS | NS | NS |
| MW-3 | 06/21/02 | NS | NS | NS | NS |
| MW-3 | 06/27/02 | NS | NS | NS | NS |
| MW-3 | 07/02/02 | NS | NS | NS | NS |
| MW-3 | 07/11/02 | NS | NS | NS | NS |
| MW-3 | 07/22/02 | NS | NS | NS | NS |
| MW-3 | 07/25/02 | NS | NS | NS | NS |
| MW-3 | 07/31/02 | NS | NS | NS | NS |
| MW-3 | 08/08/02 | NS | NS | NS | NS |
| MW-3 | 08/16/02 | NS | NS | NS | NS |
| MW-3 | 08/22/02 | NS | NS | NS | NS |
| MW-3 | 08/28/02 | NS | NS | NS | NS |
| MW-3 | 09/06/02 | NS | NS | NS | NS |
| MW-3 | 09/13/02 | NS | NS | NS | NS |

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-3 | 09/19/02 | NS | NS | NS | NS |
| MW-3 | 09/25/02 | NS | NS | NS | NS |
| MW-3 | 10/04/02 | NS | NS | NS | NS |
| MW-3 | 10/10/02 | NS | NS | NS | NS |
| MW-3 | 10/15/02 | NS | NS | NS | NS |
| MW-3 | 10/23/02 | NS | NS | NS | NS |
| MW-3 | 10/30/02 | NS | NS | NS | NS |
| MW-3 | 11/08/02 | NS | NS | NS | NS |
| MW-3 | 11/21/02 | NS | NS | NS | NS |
| MW-3 | 12/04/02 | NS | NS | NS | NS |
| MW-3 | 12/10/02 | NS | NS | NS | NS |
| MW-3 | 12/18/02 | NS | NS | NS | NS |
| MW-3 | 12/27/02 | NS | NS | NS | NS |
| MW-3 | 01/07/03 | NS | NS | NS | NS |
| MW-3 | 01/22/03 | NS | NS | NS | NS |
| MW-3 | 01/29/03 | NS | NS | NS | NS |
| MW-3 | 02/05/03 | NS | NS | NS | NS |
| MW-3 | 02/12/03 | NS | NS | NS | NS |
| MW-3 | 02/20/03 | NS | NS | NS | NS |
| MW-3 | 02/28/03 | NS | NS | NS | NS |
| MW-3 | 03/02/03 | NS | NS | NS | NS |
| MW-3 | 03/06/03 | NS | NS | NS | NS |
| MW-3 | 03/19/03 | NS | NS | NS | NS |
| MW-3 | 03/26/03 | NS | NS | NS | NS |
| MW-3 | 04/02/03 | NS | NS | NS | NS |
| MW-3 | 04/10/03 | NS | NS | NS | NS |
| MW-3 | 04/18/03 | NS | NS | NS | NS |
| MW-3 | 04/28/03 | NS | NS | NS | NS |
| MW-3 | 05/07/03 | NS | NS | NS | NS |
| MW-3 | 05/13/03 | NS | NS | NS | NS |
| MW-3 | 05/21/03 | NS | NS | NS | NS |
| MW-3 | 05/27/03 | NS | NS | NS | NS |
| MW-3 | 06/03/03 | NS | NS | NS | NS |
| MW-3 | 06/09/03 | NS | NS | NS | NS |
| MW-3 | 06/16/03 | NS | NS | NS | NS |
| MW-3 | 06/19/03 | NS | NS | NS | NS |
| MW-3 | 06/23/03 | NS | NS | NS | NS |
| MW-3 | 07/01/03 | NS | NS | NS | NS |
| MW-3 | 07/10/03 | NS | NS | NS | NS |
| MW-3 | 07/15/03 | NS | NS | NS | NS |
| MW-3 | 07/21/03 | NS | NS | NS | NS |
| MW-3 | 07/29/03 | NS | NS | NS | NS |
| MW-3 | 08/04/03 | NS | NS | NS | NS |
| MW-3 | 08/11/03 | NS | NS | NS | NS |
| MW-3 | 08/18/03 | NS | NS | NS | NS |
| MW-3 | 08/25/03 | NS | NS | NS | NS |
| MW-3 | 09/02/03 | NS | NS | NS | NS |
| MW-3 | 09/08/03 | NS | NS | NS | NS |
| MW-3 | 09/15/03 | NS | NS | NS | NS |
| MW-3 | 09/22/03 | NS | NS | NS | NS |
| MW-3 | 09/29/03 | NS | NS | NS | NS |
| MW-3 | 10/06/03 | NS | NS | NS | NS |
| MW-3 | 10/13/03 | NS | NS | NS | NS |
| MW-3 | 10/20/03 | NS | NS | NS | NS |
| MW-3 | 10/27/03 | NS | NS | NS | NS |
| MW-3 | 11/03/03 | NS | NS | NS | NS |
| MW-3 | 11/10/03 | NS | NS | NS | NS |
| MW-3 | 11/17/03 | NS | NS | NS | NS |
| MW-3 | 11/26/03 | NS | NS | NS | NS |
| MW-3 | 12/04/03 | NS | NS | NS | NS |
| MW-3 | 12/09/03 | NS | NS | NS | NS |

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-3 | 12/15/03 | NS | NS | NS | NS |
| MW-3 | 01/02/04 | NS | NS | NS | NS |
| MW-3 | 01/11/04 | NS | NS | NS | NS |
| MW-3 | 01/16/04 | NS | NS | NS | NS |
| MW-3 | 01/23/04 | NS | NS | NS | NS |
| MW-3 | 01/30/04 | NS | NS | NS | NS |
| MW-3 | 02/06/04 | NS | NS | NS | NS |
| MW-3 | 02/12/04 | NS | NS | NS | NS |
| MW-3 | 02/18/04 | NS | NS | NS | NS |
| MW-3 | 02/27/04 | NS | NS | NS | NS |
| MW-3 | 03/16/04 | NS | NS | NS | NS |
| MW-3 | 04/13/04 | NS | NS | NS | NS |
| MW-3 | 05/10/04 | NS | NS | NS | NS |
| MW-3 | 06/02/04 | NS | NS | NS | NS |
| MW-3 | 06/09/04 | 1590 | 4520 | 966 | 1830 |
| MW-3 | 07/26/04 | NS | NS | NS | NS |
| MW-3 | 08/16/04 | NS | NS | NS | NS |
| MW-3 | 09/09/04 | NS | NS | NS | NS |
| MW-3 | 09/10/04 | NS | NS | NS | NS |
| MW-3 | 10/11/04 | NS | NS | NS | NS |
| MW-3 | 11/17/04 | NS | NS | NS | NS |
| MW-3 | 12/13/04 | NS | NS | NS | NS |
| MW-3 | 12/14/04 | NS | NS | NS | NS |
| MW-3 | 01/17/05 | NS | NS | NS | NS |
| MW-3 | 02/15/05 | NS | NS | NS | NS |
| MW-3 | 03/16/05 | NS | NS | NS | NS |
| MW-3 | 03/17/05 | NS | NS | NS | NS |
| MW-3 | 04/15/05 | NS | NS | NS | NS |
| MW-3 | 05/17/05 | NS | NS | NS | NS |
| MW-3 | 06/23/05 | 2260 | 1090 | 1920 | 24800 |
| MW-3 | 07/19/05 | NS | NS | NS | NS |
| MW-3 | 08/22/05 | NS | NS | NS | NS |
| MW-3 | 09/13/05 | NS | NS | NS | NS |
| MW-3 | 10/28/05 | NS | NS | NS | NS |
| MW-3 | 11/18/05 | NS | NS | NS | NS |
| MW-3 | 12/22/05 | NS | NS | NS | NS |
| MW-3 | 01/18/06 | NS | NS | NS | NS |
| MW-3 | 02/21/06 | NS | NS | NS | NS |

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-3 | 03/25/06 | NS | NS | NS | NS |
| MW-3 | 04/28/06 | NS | NS | NS | NS |
| MW-3 | 05/23/06 | NS | NS | NS | NS |
| MW-3 | 06/14/06 | 795 | <50 | 818 | 10900 |
| MW-3 | 09/25/06 | NS | NS | NS | NS |
| MW-3 | 12/27/06 | NS | NS | NS | NS |
| MW-3 | 03/26/07 | NS | NS | NS | NS |
| MW-3 | 06/11/07 | 868 | <10 | 1490 | 13900 |
| MW-3 | 09/18/07 | NS | NS | NS | NS |
| MW-3 | 03/04/08 | NS | NS | NS | NS |
| MW-3 | 06/12/08 | 876 | <50 | 1030 | 10700 |
| MW-3 | 09/08/08 | NS | NS | NS | NS |
| MW-3 | 12/03/08 | NS | NS | NS | NS |
| MW-3 | 03/02/09 | NS | NS | NS | NS |
| MW-3 | 06/03/09 | 549 | <25 | 750 | 7320 |
| MW-3 | 08/27/09 | NS | NS | NS | NS |
| MW-3 | 11/02/09 | NS | NS | NS | NS |
| MW-3 | 02/11/10 | NS | NS | NS | NS |
| MW-3 | 05/26/10 | 517 | <50 | 971 | 9680 |
| MW-3 | 09/30/10 | NS | NS | NS | NS |
| MW-3 | 11/01/10 | NS | NS | NS | NS |
| MW-3 | 02/02/11 | NS | NS | NS | NS |
| MW-3 | 05/10/11 | 402 | <10 | 922 | 11100 |
| MW-3 | 09/26/11 | NS | NS | NS | NS |
| MW-3 | 11/01/11 | NS | NS | NS | NS |
| MW-3 | 02/16/12 | NS | NS | NS | NS |
| MW-3 | 05/08/12 | 482 | 10.2 J | 1200 | 9060 |
| MW-3 | 06/07/13 | 99 | <6.0 | 250 | 3900 |
| MW-3 | 09/12/13 | 90 | <6.0 | 380 | 3400 |
| MW-3 | 12/13/13 | 89 | <6.0 | 460 | 4500 |
| MW-3 | 04/05/14 | 79 | <3.8 | 400 | 2900 |
| MW-3 | 10/21/14 | 93 | <3.5 | 650 | 1400 |
| MW-3 | 05/27/15 | 56 | <50 | 400 | 530 |
| MW-3 | 11/18/15 | 290 | 5.5 | 570 | 490 |
| MW-3 | 04/15/16 | 36 | <25 | 290 | 89 |
| MW-3 | 10/11/16 | 82 | <50 | 910 | 1400 |

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-4 | 12/11/95 | <2.5 | <2.5 | <2.5 | <7.5 |
| MW-4 | 12/04/96 | <1 | <1 | <1 | <3 |
| MW-4 | 03/05/97 | <1 | <1 | <1 | <3 |
| MW-4 | 10/11/00 | <0.5 | <0.5 | <0.5 | <0.5 |
| MW-4 | 04/06/01 | NS | NS | NS | NS |
| MW-4 | 06/05/01 | NS | NS | NS | NS |
| MW-4 | 06/25/01 | <0.5 | <0.5 | <0.5 | <0.5 |
| MW-4 | 12/21/01 | NS | NS | NS | NS |
| MW-4 | 05/15/02 | NS | NS | NS | NS |
| MW-4 | 06/05/02 | <0.5 | <0.5 | <0.5 | <1 |
| MW-4 | 09/06/02 | NS | NS | NS | NS |
| MW-4 | 12/18/02 | NS | NS | NS | NS |
| MW-4 | 06/19/03 | NS | NS | NS | NS |
| MW-4 | 09/22/03 | NS | NS | NS | NS |
| MW-4 | 12/15/03 | NS | NS | NS | NS |
| MW-4 | 03/16/04 | NS | NS | NS | NS |
| MW-4 | 06/09/04 | NS | NS | NS | NS |
| MW-4 | 09/10/04 | NS | NS | NS | NS |
| MW-4 | 12/14/04 | NS | NS | NS | NS |
| MW-4 | 03/17/05 | NS | NS | NS | NS |
| MW-4 | 06/23/05 | NS | NS | NS | NS |
| MW-4 | 09/13/05 | NS | NS | NS | NS |
| MW-4 | 12/22/05 | NS | NS | NS | NS |
| MW-4 | 03/25/06 | NS | NS | NS | NS |
| MW-4 | 06/14/06 | NS | NS | NS | NS |
| MW-4 | 09/25/06 | NS | NS | NS | NS |
| MW-4 | 12/27/06 | NS | NS | NS | NS |
| MW-4 | 03/26/07 | NS | NS | NS | NS |
| MW-4 | 06/11/07 | NS | NS | NS | NS |
| MW-4 | 09/18/07 | NS | NS | NS | NS |
| MW-4 | 03/04/08 | NS | NS | NS | NS |
| MW-4 | 06/12/08 | NS | NS | NS | NS |
| MW-4 | 09/08/08 | NS | NS | NS | NS |
| MW-4 | 12/03/08 | NS | NS | NS | NS |
| MW-4 | 03/02/09 | NS | NS | NS | NS |
| MW-4 | 06/03/09 | NS | NS | NS | NS |
| MW-4 | 08/27/09 | NS | NS | NS | NS |
| MW-4 | 11/02/09 | NS | NS | NS | NS |

# TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

| James F. Bell #1E | | | | | |
|---|---|---|---|---|---|
| Location | Date | Benzene (µg/L) | Toluene (µg/L) | Ethylbenzene (µg/L) | Total Xylenes (µg/L) |
| NMWQCC Standards: | | 10 | 750 | 750 | 620 |
| MW-4 | 02/11/10 | NS | NS | NS | NS |
| MW-4 | 05/26/10 | NS | NS | NS | NS |
| MW-4 | 09/30/10 | NS | NS | NS | NS |
| MW-4 | 11/01/10 | NS | NS | NS | NS |
| MW-4 | 02/02/11 | NS | NS | NS | NS |
| MW-4 | 05/10/11 | NS | NS | NS | NS |
| MW-4 | 09/26/11 | NS | NS | NS | NS |
| MW-4 | 11/01/11 | NS | NS | NS | NS |
| MW-4 | 02/16/12 | NS | NS | NS | NS |
| MW-4 | 05/08/12 | NS | NS | NS | NS |
| MW-4 | 06/07/13 | <0.14 | <0.30 | <0.20 | 0.24 J |
| MW-4 | 09/12/13 | <0.14 | <0.30 | <0.20 | <0.23 |
| MW-4 | 12/13/13 | <0.14 | <0.30 | <0.20 | 0.36 J |
| MW-4 | 04/05/14 | <0.20 | <0.38 | <0.20 | 1.3 J |
| MW-4 | 10/21/14 | <0.38 | <0.70 | <0.50 | <1.6 |
| MW-4 | 05/27/15 | <1.0 | <5.0 | <1.0 | <5.0 |
| MW-4 | 11/18/15 | <1.0 | <1.0 | <1.0 | <3.0 |
| MW-4 | 04/15/16 | <1.0 | <5.0 | <1.0 | <5.0 |
| MW-4 | 10/11/16 | <1.0 | <5.0 | <1.0 | <5.0 |
| | | | | | |
| MW-5 | 10/11/16 | 1400 | 3300 | 120 | 2600 |
| | | | | | |
| MW-6 | 10/11/16 | 1200 | 4100 | 750 | 6200 |
| | | | | | |
| MW-7 | 10/11/16 | 1200 | 2000 | 1300 | 8000 |
| | | | | | |
| MW-8 | 10/11/16 | NS | NS | NS | NS |
| | | | | | |
| MW-9 | 10/11/16 | 84 | 82 | 140 | 750 |
| | | | | | |
| MW-10 | 10/11/16 | NS | NS | NS | NS |
| | | | | | |
| MW-11 | 10/11/16 | 3200 | 8200 | 950 | 10000 |
| | | | | | |
| MW-12 | 10/11/16 | <1.0 | <5.0 | <1.0 | <5.0 |

Notes:
"µg/L" = micrograms per liter
Results highlighted yellow exceed their respective New Mexico Water Quality Control Commission (NMWQCC) standards.
"J" = Result is less than the reporting limit but greater than or equal to the method detection limit and the result in an approximate value.
"<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit).
"NS" = Monitoring well not sampled

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-1 | 10/17/95 | 5810.88 | 26.67 | NR | | 5784.21 |
| MW-1 | 12/11/95 | 5810.88 | 26.23 | NR | | 5784.65 |
| MW-1 | 12/04/96 | 5810.88 | 28.00 | 26.16 | 1.84 | 5784.33 |
| MW-1 | 03/05/97 | 5810.88 | 28.47 | 26.47 | 2.00 | 5783.99 |
| MW-1 | 09/29/00 | 5810.88 | 29.09 | 27.29 | 1.80 | 5783.21 |
| MW-1 | 02/26/01 | 5810.88 | 29.06 | 27.61 | 1.45 | 5782.96 |
| MW-1 | 03/14/01 | 5810.88 | 29.60 | 27.49 | 2.11 | 5782.94 |
| MW-1 | 04/06/01 | 5810.88 | 29.08 | 27.67 | 1.41 | 5782.91 |
| MW-1 | 06/22/01 | 5810.88 | 29.57 | 28.10 | 1.47 | 5782.47 |
| MW-1 | 07/11/01 | 5810.88 | 28.95 | 27.95 | 1.00 | 5782.72 |
| MW-1 | 07/26/01 | 5810.88 | 29.51 | 28.21 | 1.30 | 5782.39 |
| MW-1 | 08/16/01 | 5810.88 | 28.49 | 28.40 | 0.09 | 5782.46 |
| MW-1 | 09/06/01 | 5810.88 | 28.46 | 28.41 | 0.05 | 5782.45 |
| MW-1 | 09/17/01 | 5810.88 | 28.46 | 28.19 | 0.27 | 5782.63 |
| MW-1 | 12/13/01 | 5810.88 | 28.50 | 28.20 | 0.30 | 5782.61 |
| MW-1 | 01/08/02 | 5810.88 | 28.54 | 28.25 | 0.29 | 5782.56 |
| MW-1 | 02/28/02 | 5810.88 | 28.62 | 28.31 | 0.31 | 5782.50 |
| MW-1 | 03/28/02 | 5810.88 | 28.64 | 28.51 | 0.13 | 5782.34 |
| MW-1 | 09/13/02 | 5810.88 | 31.17 | 29.20 | 1.97 | 5781.26 |
| MW-1 | 09/19/02 | 5810.88 | 30.82 | 28.45 | 2.37 | 5781.93 |
| MW-1 | 12/04/02 | 5810.88 | 29.07 | 28.37 | 0.70 | 5782.36 |
| MW-1 | 04/18/03 | 5810.88 | 29.29 | 28.44 | 0.85 | 5782.26 |
| MW-1 | 06/19/03 | 5810.88 | 29.41 | 29.19 | 0.22 | 5781.64 |
| MW-1 | 09/22/03 | 5810.88 | 28.64 | 28.31 | 0.33 | 5782.50 |
| MW-1 | 12/15/03 | 5810.88 | 28.24 | 28.04 | 0.20 | 5782.79 |
| MW-1 | 02/27/04 | 5810.88 | 28.21 | 28.19 | 0.02 | 5782.68 |
| MW-1 | 03/16/04 | 5810.88 | 28.13 | 28.08 | 0.05 | 5782.78 |
| MW-1 | 06/09/04 | 5810.88 | 28.27 | 28.03 | 0.24 | 5782.79 |
| MW-1 | 07/26/04 | 5810.88 | 28.48 | 27.95 | 0.53 | 5782.81 |
| MW-1 | 09/10/04 | 5810.88 | 27.89 | 27.82 | 0.07 | 5783.04 |
| MW-1 | 12/14/04 | 5810.88 | 27.68 | 27.68 | 0.00 | 5783.20 |
| MW-1 | 12/18/04 | 5810.88 | 27.71 | 27.67 | 0.04 | 5783.20 |
| MW-1 | 03/17/05 | 5810.88 | 27.83 | 27.65 | 0.18 | 5783.19 |
| MW-1 | 04/15/05 | 5810.88 | 28.03 | 27.72 | 0.31 | 5783.09 |
| MW-1 | 05/17/05 | 5810.88 | 27.78 | 27.35 | 0.43 | 5783.43 |
| MW-1 | 06/23/05 | 5810.88 | 27.23 | 27.21 | 0.02 | 5783.66 |
| MW-1 | 09/12/05 | 5810.88 | 26.56 | 26.52 | 0.04 | 5784.35 |
| MW-1 | 09/13/05 | 5810.88 | 26.56 | ND | | 5784.32 |
| MW-1 | 10/28/05 | 5810.88 | 26.27 | ND | | 5784.61 |
| MW-1 | 11/18/05 | 5810.88 | 26.26 | ND | | 5784.62 |
| MW-1 | 12/22/05 | 5810.88 | 26.09 | ND | | 5784.79 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-1 | 01/18/06 | 5810.88 | 26.02 | ND | | 5784.86 |
| MW-1 | 02/21/06 | 5810.88 | 26.14 | ND | | 5784.74 |
| MW-1 | 03/25/06 | 5810.88 | 26.20 | ND | | 5784.68 |
| MW-1 | 04/28/06 | 5810.88 | 26.34 | ND | | 5784.54 |
| MW-1 | 05/23/06 | 5810.88 | 26.39 | ND | | 5784.49 |
| MW-1 | 06/14/06 | 5810.88 | 26.33 | ND | | 5784.55 |
| MW-1 | 07/21/06 | 5810.88 | 26.38 | ND | | 5784.50 |
| MW-1 | 08/24/06 | 5810.88 | 26.29 | ND | | 5784.59 |
| MW-1 | 09/25/06 | 5810.88 | 26.30 | ND | | 5784.58 |
| MW-1 | 12/27/06 | 5810.88 | 26.08 | ND | | 5784.80 |
| MW-1 | 03/26/07 | 5810.88 | 27.28 | ND | | 5783.60 |
| MW-1 | 06/11/07 | 5810.88 | 26.47 | ND | | 5784.41 |
| MW-1 | 09/18/07 | 5810.88 | 26.38 | ND | | 5784.50 |
| MW-1 | 03/04/08 | 5810.88 | 26.66 | ND | | 5784.22 |
| MW-1 | 06/12/08 | 5810.88 | 26.60 | ND | | 5784.28 |
| MW-1 | 09/08/08 | 5810.88 | 26.29 | ND | | 5784.59 |
| MW-1 | 12/03/08 | 5810.88 | 26.31 | ND | | 5784.57 |
| MW-1 | 03/02/09 | 5810.88 | 26.58 | ND | | 5784.30 |
| MW-1 | 06/03/09 | 5810.88 | 26.86 | ND | | 5784.02 |
| MW-1 | 08/27/09 | 5810.88 | 27.03 | ND | | 5783.85 |
| MW-1 | 11/02/09 | 5810.88 | 26.92 | ND | | 5783.96 |
| MW-1 | 02/11/10 | 5810.88 | 27.15 | ND | | 5783.73 |
| MW-1 | 05/26/10 | 5810.88 | 27.07 | 26.95 | 0.12 | 5783.90 |
| MW-1 | 09/30/10 | 5810.88 | 26.40 | ND | | 5784.48 |
| MW-1 | 11/01/10 | 5810.88 | 26.14 | ND | | 5784.74 |
| MW-1 | 02/02/11 | 5810.88 | 26.18 | ND | | 5784.70 |
| MW-1 | 05/10/11 | 5810.88 | 26.22 | ND | | 5784.66 |
| MW-1 | 09/26/11 | 5810.88 | 25.39 | ND | | 5785.49 |
| MW-1 | 11/01/11 | 5810.88 | 26.26 | ND | | 5784.62 |
| MW-1 | 02/16/12 | 5810.88 | 26.70 | ND | | 5784.18 |
| MW-1 | 05/08/12 | 5810.88 | 26.80 | ND | | 5784.08 |
| MW-1 | 06/07/13 | 5810.88 | 28.77 | 27.36 | 1.41 | 5783.22 |
| MW-1 | 09/12/13 | 5810.88 | 28.95 | 27.41 | 1.54 | 5783.14 |
| MW-1 | 12/13/13 | 5810.88 | 28.62 | 27.29 | 1.33 | 5783.31 |
| MW-1 | 04/05/14 | 5810.88 | 28.98 | 27.42 | 1.56 | 5783.13 |
| MW-1 | 10/21/14 | 5810.88 | 28.50 | 27.40 | 1.10 | 5783.24 |
| MW-1 | 05/27/15 | 5810.88 | 29.29 | 27.58 | 1.71 | 5782.94 |
| MW-1 | 11/18/15 | 5810.88 | 27.22 | 26.92 | 0.30 | 5783.89 |
| MW-1 | 04/15/16 | 5810.88 | 27.51 | 27.09 | 0.42 | 5783.70 |
| MW-1 | 10/11/16 | 5810.88 | 26.90 | 26.82 | 0.08 | 5784.04 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-2 | 12/11/95 | 5809.46 | 25.32 | NR | | 5784.14 |
| MW-2 | 12/04/96 | 5809.46 | 26.09 | NR | | 5783.37 |
| MW-2 | 03/05/97 | 5809.46 | 26.30 | NR | | 5783.16 |
| MW-2 | 10/11/00 | 5809.46 | 26.41 | NR | | 5783.05 |
| MW-2 | 04/06/01 | 5809.46 | 26.64 | NR | | 5782.82 |
| MW-2 | 06/05/01 | 5809.46 | 26.81 | NR | | 5782.65 |
| MW-2 | 06/25/01 | 5809.46 | 26.79 | NR | | 5782.67 |
| MW-2 | 12/21/01 | 5809.46 | 26.79 | NR | | 5782.67 |
| MW-2 | 05/15/02 | 5809.46 | 27.02 | NR | | 5782.44 |
| MW-2 | 06/05/02 | 5809.46 | 27.06 | NR | | 5782.40 |
| MW-2 | 09/06/02 | 5809.46 | 27.09 | NR | | 5782.37 |
| MW-2 | 09/13/02 | 5809.46 | 27.07 | NR | | 5782.39 |
| MW-2 | 12/18/02 | 5809.46 | 27.09 | NR | | 5782.37 |
| MW-2 | 06/19/03 | 5809.46 | 27.04 | ND | | 5782.42 |
| MW-2 | 09/22/03 | 5809.46 | 26.82 | ND | | 5782.64 |
| MW-2 | 12/15/03 | 5809.46 | 26.42 | ND | | 5783.04 |
| MW-2 | 03/16/04 | 5809.46 | 26.33 | ND | | 5783.13 |
| MW-2 | 06/09/04 | 5809.46 | 26.34 | ND | | 5783.12 |
| MW-2 | 09/10/04 | 5809.46 | 26.17 | ND | | 5783.29 |
| MW-2 | 12/14/04 | 5809.46 | 26.13 | ND | | 5783.33 |
| MW-2 | 03/17/05 | 5809.46 | 26.14 | ND | | 5783.32 |
| MW-2 | 06/23/05 | 5809.46 | 25.81 | ND | | 5783.65 |
| MW-2 | 09/13/05 | 5809.46 | 25.54 | ND | | 5783.92 |
| MW-2 | 10/28/05 | 5809.46 | 26.43 | ND | | 5783.03 |
| MW-2 | 12/22/05 | 5809.46 | 25.35 | ND | | 5784.11 |
| MW-2 | 03/25/06 | 5809.46 | 25.53 | ND | | 5783.93 |
| MW-2 | 06/14/06 | 5809.46 | 25.66 | ND | | 5783.80 |
| MW-2 | 09/25/06 | 5809.46 | 25.59 | ND | | 5783.87 |
| MW-2 | 12/27/06 | 5809.46 | 25.17 | ND | | 5784.29 |
| MW-2 | 03/26/07 | 5809.46 | 25.40 | ND | | 5784.06 |
| MW-2 | 06/11/07 | 5809.46 | 25.48 | ND | | 5783.98 |
| MW-2 | 09/18/07 | 5809.46 | 25.47 | ND | | 5783.99 |
| MW-2 | 03/04/08 | 5809.46 | 26.72 | ND | | 5782.74 |
| MW-2 | 06/12/08 | 5809.46 | 25.62 | ND | | 5783.84 |
| MW-2 | 09/08/08 | 5809.46 | 26.35 | ND | | 5783.11 |
| MW-2 | 12/03/08 | 5809.46 | 25.45 | ND | | 5784.01 |
| MW-2 | 03/02/09 | 5809.46 | 25.70 | ND | | 5783.76 |
| MW-2 | 06/03/09 | 5809.46 | 25.95 | ND | | 5783.51 |
| MW-2 | 08/27/09 | 5809.46 | 25.97 | ND | | 5783.49 |
| MW-2 | 11/02/09 | 5809.46 | 25.99 | ND | | 5783.47 |
| MW-2 | 02/11/10 | 5809.46 | 26.17 | ND | | 5783.29 |
| MW-2 | 05/26/10 | 5809.46 | 26.07 | ND | | 5783.39 |
| MW-2 | 09/30/10 | 5809.46 | 25.42 | ND | | 5784.04 |
| MW-2 | 11/01/10 | 5809.46 | 25.28 | ND | | 5784.18 |
| MW-2 | 02/02/11 | 5809.46 | 24.32 | ND | | 5785.14 |
| MW-2 | 05/10/11 | 5809.46 | 25.43 | ND | | 5784.03 |
| MW-2 | 09/26/11 | 5809.46 | 25.52 | ND | | 5783.94 |
| MW-2 | 11/01/11 | 5809.46 | 25.56 | ND | | 5783.90 |
| MW-2 | 02/16/12 | 5809.46 | 25.82 | ND | | 5783.64 |
| MW-2 | 05/08/12 | 5809.46 | 26.02 | ND | | 5783.44 |
| MW-2 | 06/07/13 | 5809.46 | 26.53 | ND | | 5782.93 |
| MW-2 | 09/12/13 | 5809.46 | 26.68 | ND | | 5782.78 |
| MW-2 | 12/13/13 | 5809.46 | 26.38 | ND | | 5783.08 |
| MW-2 | 04/05/14 | 5809.46 | 26.37 | ND | | 5783.09 |
| MW-2 | 10/21/14 | 5809.46 | 26.45 | ND | | 5783.01 |
| MW-2 | 05/27/15 | 5809.46 | 26.57 | ND | | 5782.89 |
| MW-2 | 11/18/15 | 5809.46 | 25.90 | ND | | 5783.56 |
| MW-2 | 04/15/16 | 5809.46 | 26.23 | ND | | 5783.23 |
| MW-2 | 10/11/16 | 5809.46 | 26.06 | ND | | 5783.40 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-3 | 12/11/95 | 5810.13 | 26.52 | NR | | 5783.61 |
| MW-3 | 12/04/96 | 5810.13 | 27.72 | 27.16 | 0.56 | 5782.85 |
| MW-3 | 03/05/97 | 5810.13 | 28.87 | 27.09 | 1.78 | 5782.66 |
| MW-3 | 03/12/01 | 5810.13 | 29.18 | 27.84 | 1.34 | 5782.00 |
| MW-3 | 04/06/01 | 5810.13 | 29.27 | 27.86 | 1.41 | 5781.97 |
| MW-3 | 06/05/01 | 5810.13 | 29.48 | 28.06 | 1.42 | 5781.77 |
| MW-3 | 06/14/01 | 5810.13 | 29.41 | 27.98 | 1.43 | 5781.84 |
| MW-3 | 06/28/01 | 5810.13 | 29.57 | 28.15 | 1.42 | 5781.68 |
| MW-3 | 07/06/01 | 5810.13 | 29.41 | 28.06 | 1.35 | 5781.78 |
| MW-3 | 07/11/01 | 5810.13 | 29.61 | 28.26 | 1.35 | 5781.58 |
| MW-3 | 07/20/01 | 5810.13 | 29.43 | 28.13 | 1.30 | 5781.72 |
| MW-3 | 08/02/01 | 5810.13 | 29.50 | 28.22 | 1.28 | 5781.64 |
| MW-3 | 08/08/01 | 5810.13 | 29.40 | 28.16 | 1.24 | 5781.70 |
| MW-3 | 08/16/01 | 5810.13 | 29.46 | 28.21 | 1.25 | 5781.65 |
| MW-3 | 08/20/01 | 5810.13 | 29.61 | 28.31 | 1.30 | 5781.54 |
| MW-3 | 08/31/01 | 5810.13 | 29.47 | 28.17 | 1.30 | 5781.68 |
| MW-3 | 09/06/01 | 5810.13 | 29.62 | 28.31 | 1.31 | 5781.54 |
| MW-3 | 09/17/01 | 5810.13 | 29.62 | 28.34 | 1.28 | 5781.52 |
| MW-3 | 09/25/01 | 5810.13 | 29.48 | 28.22 | 1.26 | 5781.64 |
| MW-3 | 10/03/01 | 5810.13 | 29.47 | 28.25 | 1.22 | 5781.62 |
| MW-3 | 10/11/01 | 5810.13 | 29.50 | 28.23 | 1.27 | 5781.63 |
| MW-3 | 12/04/01 | 5810.13 | 29.89 | 28.55 | 1.34 | 5781.29 |
| MW-3 | 12/13/01 | 5810.13 | 29.89 | 28.54 | 1.35 | 5781.30 |
| MW-3 | 12/21/01 | 5810.13 | 29.63 | 28.36 | 1.27 | 5781.50 |
| MW-3 | 12/28/01 | 5810.13 | 29.68 | 28.43 | 1.25 | 5781.43 |
| MW-3 | 01/04/02 | 5810.13 | 29.63 | 28.39 | 1.24 | 5781.47 |
| MW-3 | 01/08/02 | 5810.13 | 29.59 | 28.41 | 1.18 | 5781.47 |
| MW-3 | 01/17/02 | 5810.13 | 30.00 | 28.70 | 1.30 | 5781.15 |
| MW-3 | 01/23/02 | 5810.13 | 28.71 | 28.70 | 0.01 | 5781.42 |
| MW-3 | 01/31/02 | 5810.13 | 28.70 | 28.68 | 0.02 | 5781.44 |
| MW-3 | 02/07/02 | 5810.13 | 30.00 | 28.70 | 1.30 | 5781.15 |
| MW-3 | 02/14/02 | 5810.13 | 28.80 | 27.80 | 1.00 | 5782.12 |
| MW-3 | 02/20/02 | 5810.13 | 28.76 | 28.74 | 0.02 | 5781.38 |
| MW-3 | 02/28/02 | 5810.13 | 29.82 | 28.64 | 1.18 | 5781.24 |
| MW-3 | 03/06/02 | 5810.13 | 29.72 | 28.55 | 1.17 | 5781.33 |
| MW-3 | 03/11/02 | 5810.13 | 29.90 | 28.72 | 1.18 | 5781.16 |
| MW-3 | 03/21/02 | 5810.13 | 29.82 | 28.61 | 1.21 | 5781.26 |
| MW-3 | 03/28/02 | 5810.13 | 29.74 | 28.57 | 1.17 | 5781.31 |
| MW-3 | 04/04/02 | 5810.13 | 29.84 | 28.66 | 1.18 | 5781.22 |
| MW-3 | 04/12/02 | 5810.13 | 30.28 | 28.93 | 1.35 | 5780.91 |
| MW-3 | 04/19/02 | 5810.13 | 30.25 | 28.93 | 1.32 | 5780.92 |
| MW-3 | 04/25/02 | 5810.13 | 30.24 | 28.93 | 1.31 | 5780.92 |
| MW-3 | 05/03/02 | 5810.13 | 28.96 | NR | 0.00 | 5781.17 |
| MW-3 | 05/15/02 | 5810.13 | 29.86 | 28.69 | 1.17 | 5781.19 |
| MW-3 | 05/24/02 | 5810.13 | 29.53 | 28.53 | 1.00 | 5781.39 |
| MW-3 | 05/31/02 | 5810.13 | 29.96 | 28.72 | 1.24 | 5781.14 |
| MW-3 | 06/07/02 | 5810.13 | 29.91 | 28.72 | 1.19 | 5781.16 |
| MW-3 | 06/14/02 | 5810.13 | 30.31 | 28.97 | 1.34 | 5780.87 |
| MW-3 | 06/21/02 | 5810.13 | 30.54 | 29.32 | 1.22 | 5780.55 |
| MW-3 | 06/27/02 | 5810.13 | 30.65 | 29.30 | 1.35 | 5780.54 |
| MW-3 | 07/02/02 | 5810.13 | 30.56 | 29.25 | 1.31 | 5780.60 |
| MW-3 | 07/11/02 | 5810.13 | 30.66 | 29.31 | 1.35 | 5780.53 |
| MW-3 | 07/22/02 | 5810.13 | 30.54 | 29.17 | 1.37 | 5780.67 |
| MW-3 | 07/25/02 | 5810.13 | 30.40 | 29.25 | 1.15 | 5780.64 |
| MW-3 | 07/31/02 | 5810.13 | 30.38 | 29.04 | 1.34 | 5780.80 |
| MW-3 | 08/08/02 | 5810.13 | 30.15 | 29.13 | 1.03 | 5780.78 |
| MW-3 | 08/16/02 | 5810.13 | 35.25 | 29.30 | 5.95 | 5779.58 |
| MW-3 | 08/22/02 | 5810.13 | 30.07 | 28.74 | 1.33 | 5781.11 |
| MW-3 | 08/28/02 | 5810.13 | 29.75 | 28.78 | 0.97 | 5781.14 |
| MW-3 | 09/06/02 | 5810.13 | 30.03 | 28.98 | 1.06 | 5780.93 |
| MW-3 | 09/13/02 | 5810.13 | 29.29 | 28.63 | 0.66 | 5781.36 |
| MW-3 | 09/19/02 | 5810.13 | 30.43 | 29.42 | 1.02 | 5780.50 |
| MW-3 | 09/25/02 | 5810.13 | 30.28 | 29.40 | 0.88 | 5780.54 |
| MW-3 | 10/04/02 | 5810.13 | 30.19 | 29.35 | 0.85 | 5780.60 |
| MW-3 | 10/10/02 | 5810.13 | 30.32 | 29.46 | 0.86 | 5780.49 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-3 | 10/15/02 | 5810.13 | 30.29 | 29.50 | 0.79 | 5780.46 |
| MW-3 | 10/23/02 | 5810.13 | 30.32 | 29.66 | 0.66 | 5780.33 |
| MW-3 | 10/30/02 | 5810.13 | 30.58 | 29.32 | 1.26 | 5780.54 |
| MW-3 | 11/08/02 | 5810.13 | 30.58 | 29.36 | 1.22 | 5780.51 |
| MW-3 | 11/21/02 | 5810.13 | 30.45 | 29.45 | 1.00 | 5780.47 |
| MW-3 | 12/04/02 | 5810.13 | 30.47 | 29.48 | 0.99 | 5780.44 |
| MW-3 | 12/10/02 | 5810.13 | 30.23 | 29.48 | 0.75 | 5780.49 |
| MW-3 | 12/18/02 | 5810.13 | 30.28 | 29.38 | 0.90 | 5780.56 |
| MW-3 | 12/27/02 | 5810.13 | 30.21 | 29.45 | 0.76 | 5780.52 |
| MW-3 | 01/07/03 | 5810.13 | 30.26 | 29.45 | 0.81 | 5780.50 |
| MW-3 | 01/22/03 | 5810.13 | 29.46 | 28.75 | 0.71 | 5781.23 |
| MW-3 | 01/29/03 | 5810.13 | 29.34 | 28.76 | 0.58 | 5781.24 |
| MW-3 | 02/05/03 | 5810.13 | 28.77 | 28.29 | 0.48 | 5781.73 |
| MW-3 | 02/12/03 | 5810.13 | 29.33 | 28.78 | 0.55 | 5781.23 |
| MW-3 | 02/20/03 | 5810.13 | 29.33 | 28.77 | 0.56 | 5781.24 |
| MW-3 | 02/28/03 | 5810.13 | 29.31 | 28.80 | 0.51 | 5781.22 |
| MW-3 | 03/02/03 | 5810.13 | 29.27 | 28.81 | 0.46 | 5781.22 |
| MW-3 | 03/06/03 | 5810.13 | 29.31 | 28.79 | 0.52 | 5781.23 |
| MW-3 | 03/19/03 | 5810.13 | 29.30 | 28.82 | 0.48 | 5781.20 |
| MW-3 | 03/26/03 | 5810.13 | 29.33 | 28.82 | 0.51 | 5781.20 |
| MW-3 | 04/02/03 | 5810.13 | 29.33 | 28.80 | 0.53 | 5781.21 |
| MW-3 | 04/10/03 | 5810.13 | 29.32 | 28.84 | 0.48 | 5781.18 |
| MW-3 | 04/18/03 | 5810.13 | 29.29 | 28.85 | 0.44 | 5781.18 |
| MW-3 | 04/28/03 | 5810.13 | 29.19 | 28.86 | 0.33 | 5781.20 |
| MW-3 | 05/07/03 | 5810.13 | 29.25 | 28.83 | 0.42 | 5781.21 |
| MW-3 | 05/13/03 | 5810.13 | 29.27 | 28.85 | 0.42 | 5781.19 |
| MW-3 | 05/21/03 | 5810.13 | 29.29 | 28.86 | 0.43 | 5781.17 |
| MW-3 | 05/27/03 | 5810.13 | 29.21 | 28.85 | 0.36 | 5781.20 |
| MW-3 | 06/03/03 | 5810.13 | 29.23 | 28.84 | 0.39 | 5781.20 |
| MW-3 | 06/09/03 | 5810.13 | 29.20 | 28.84 | 0.36 | 5781.21 |
| MW-3 | 06/16/03 | 5810.13 | 29.20 | 28.82 | 0.38 | 5781.23 |
| MW-3 | 06/19/03 | 5810.13 | 29.16 | 28.86 | 0.30 | 5781.20 |
| MW-3 | 06/23/03 | 5810.13 | 29.23 | 28.83 | 0.40 | 5781.21 |
| MW-3 | 07/01/03 | 5810.13 | 29.85 | 29.78 | 0.07 | 5780.33 |
| MW-3 | 07/10/03 | 5810.13 | 30.39 | 29.96 | 0.43 | 5780.07 |
| MW-3 | 07/15/03 | 5810.13 | 30.29 | 30.12 | 0.17 | 5779.97 |
| MW-3 | 07/21/03 | 5810.13 | 30.24 | 30.11 | 0.13 | 5779.99 |
| MW-3 | 07/29/03 | 5810.13 | 30.14 | 29.89 | 0.25 | 5780.18 |
| MW-3 | 08/04/03 | 5810.13 | 29.94 | 29.62 | 0.32 | 5780.44 |
| MW-3 | 08/11/03 | 5810.13 | 30.09 | 30.02 | 0.07 | 5780.09 |
| MW-3 | 08/18/03 | 5810.13 | 30.09 | 30.01 | 0.08 | 5780.10 |
| MW-3 | 08/25/03 | 5810.13 | 30.09 | 30.00 | 0.09 | 5780.11 |
| MW-3 | 09/02/03 | 5810.13 | 30.12 | 30.03 | 0.09 | 5780.08 |
| MW-3 | 09/08/03 | 5810.13 | 30.15 | 30.05 | 0.10 | 5780.05 |
| MW-3 | 09/15/03 | 5810.13 | 30.05 | 29.97 | 0.08 | 5780.14 |
| MW-3 | 09/22/03 | 5810.13 | 29.14 | 28.70 | 0.44 | 5781.33 |
| MW-3 | 09/29/03 | 5810.13 | 29.98 | 29.95 | 0.03 | 5780.17 |
| MW-3 | 10/06/03 | 5810.13 | 30.00 | 29.94 | 0.06 | 5780.17 |
| MW-3 | 10/13/03 | 5810.13 | 29.95 | 29.89 | 0.06 | 5780.22 |
| MW-3 | 10/20/03 | 5810.13 | 29.86 | 29.80 | 0.06 | 5780.31 |
| MW-3 | 10/27/03 | 5810.13 | 29.85 | 29.80 | 0.05 | 5780.31 |
| MW-3 | 11/03/03 | 5810.13 | 29.83 | 29.80 | 0.03 | 5780.32 |
| MW-3 | 11/10/03 | 5810.13 | 29.66 | 29.65 | 0.01 | 5780.47 |
| MW-3 | 11/17/03 | 5810.13 | 29.32 | 29.31 | 0.01 | 5780.81 |
| MW-3 | 11/26/03 | 5810.13 | 29.32 | 29.31 | 0.01 | 5780.81 |
| MW-3 | 12/04/03 | 5810.13 | 29.23 | ND | | 5780.90 |
| MW-3 | 12/09/03 | 5810.13 | 29.24 | ND | | 5780.89 |
| MW-3 | 12/15/03 | 5810.13 | 28.40 | ND | | 5781.73 |
| MW-3 | 01/02/04 | 5810.13 | 28.42 | ND | | 5781.71 |
| MW-3 | 01/11/04 | 5810.13 | 28.37 | 28.36 | 0.01 | 5781.76 |
| MW-3 | 01/16/04 | 5810.13 | 28.25 | 28.25 | 0.00 | 5781.88 |
| MW-3 | 01/23/04 | 5810.13 | 28.22 | ND | | 5781.91 |
| MW-3 | 01/30/04 | 5810.13 | 28.22 | 28.22 | 0.00 | 5781.90 |
| MW-3 | 02/06/04 | 5810.13 | 28.23 | ND | | 5781.90 |
| MW-3 | 02/12/04 | 5810.13 | 28.20 | ND | | 5781.93 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-3 | 02/18/04 | 5810.13 | 28.17 | ND | | 5781.96 |
| MW-3 | 02/27/04 | 5810.13 | 28.20 | ND | | 5781.93 |
| MW-3 | 03/16/04 | 5810.13 | 28.21 | ND | | 5781.92 |
| MW-3 | 04/13/04 | 5810.13 | 28.19 | ND | | 5781.94 |
| MW-3 | 05/10/04 | 5810.13 | 28.22 | ND | | 5781.91 |
| MW-3 | 06/02/04 | 5810.13 | 28.19 | ND | | 5781.94 |
| MW-3 | 06/09/04 | 5810.13 | 28.21 | ND | | 5781.92 |
| MW-3 | 07/26/04 | 5810.13 | 28.08 | ND | | 5782.05 |
| MW-3 | 08/16/04 | 5810.13 | 28.08 | ND | | 5782.05 |
| MW-3 | 09/09/04 | 5810.13 | 28.02 | ND | | 5782.11 |
| MW-3 | 09/10/04 | 5810.13 | 28.03 | ND | | 5782.10 |
| MW-3 | 10/11/04 | 5810.13 | 27.96 | ND | | 5782.17 |
| MW-3 | 11/17/04 | 5810.13 | 27.87 | ND | | 5782.26 |
| MW-3 | 12/13/04 | 5810.13 | 27.87 | ND | | 5782.26 |
| MW-3 | 12/14/04 | 5810.13 | 27.83 | ND | | 5782.30 |
| MW-3 | 01/17/05 | 5810.13 | 27.78 | ND | | 5782.35 |
| MW-3 | 02/15/05 | 5810.13 | 27.74 | ND | | 5782.39 |
| MW-3 | 03/16/05 | 5810.13 | 27.72 | ND | | 5782.41 |
| MW-3 | 03/17/05 | 5810.13 | 27.69 | ND | | 5782.44 |
| MW-3 | 04/15/05 | 5810.13 | 27.69 | ND | | 5782.44 |
| MW-3 | 05/17/05 | 5810.13 | 27.38 | ND | | 5782.75 |
| MW-3 | 06/23/05 | 5810.13 | 27.19 | ND | | 5782.94 |
| MW-3 | 07/19/05 | 5810.13 | 27.07 | ND | | 5783.06 |
| MW-3 | 08/22/05 | 5810.13 | 26.87 | ND | | 5783.26 |
| MW-3 | 09/13/05 | 5810.13 | 26.78 | ND | | 5783.35 |
| MW-3 | 10/28/05 | 5810.13 | 26.43 | ND | | 5783.70 |
| MW-3 | 11/18/05 | 5810.13 | 26.44 | ND | | 5783.69 |
| MW-3 | 12/22/05 | 5810.13 | 26.36 | ND | | 5783.77 |
| MW-3 | 01/18/06 | 5810.13 | 23.36 | ND | | 5786.77 |
| MW-3 | 02/21/06 | 5810.13 | 26.52 | ND | | 5783.61 |
| MW-3 | 03/25/06 | 5810.13 | 26.60 | ND | | 5783.53 |
| MW-3 | 04/28/06 | 5810.13 | 26.73 | ND | | 5783.40 |
| MW-3 | 05/23/06 | 5810.13 | 26.78 | ND | | 5783.35 |
| MW-3 | 06/14/06 | 5810.13 | 26.71 | ND | | 5783.42 |
| MW-3 | 09/25/06 | 5810.13 | 26.34 | ND | | 5783.79 |
| MW-3 | 12/27/06 | 5810.13 | 26.96 | ND | | 5783.17 |
| MW-3 | 03/26/07 | 5810.13 | 26.40 | ND | | 5783.73 |
| MW-3 | 06/11/07 | 5810.13 | 26.42 | ND | | 5783.71 |
| MW-3 | 09/18/07 | 5810.13 | 26.50 | ND | | 5783.63 |
| MW-3 | 03/04/08 | 5810.13 | 26.65 | ND | | 5783.48 |
| MW-3 | 06/12/08 | 5810.13 | 26.42 | ND | | 5783.71 |
| MW-3 | 09/08/08 | 5810.13 | 26.32 | ND | | 5783.81 |
| MW-3 | 12/03/08 | 5810.13 | 26.53 | ND | | 5783.60 |
| MW-3 | 03/02/09 | 5810.13 | 26.75 | ND | | 5783.38 |
| MW-3 | 06/03/09 | 5810.13 | 26.97 | ND | | 5783.16 |
| MW-3 | 08/27/09 | 5810.13 | 26.99 | ND | | 5783.14 |
| MW-3 | 11/02/09 | 5810.13 | 27.04 | ND | | 5783.09 |
| MW-3 | 02/11/10 | 5810.13 | 26.23 | ND | | 5783.90 |
| MW-3 | 05/26/10 | 5810.13 | 26.87 | ND | | 5783.26 |
| MW-3 | 09/30/10 | 5810.13 | 26.25 | ND | | 5783.88 |
| MW-3 | 11/01/10 | 5810.13 | 26.15 | ND | | 5783.98 |
| MW-3 | 02/02/11 | 5810.13 | 26.38 | ND | | 5783.75 |
| MW-3 | 05/10/11 | 5810.13 | 26.45 | ND | | 5783.68 |
| MW-3 | 09/26/11 | 5810.13 | 26.55 | ND | | 5783.58 |
| MW-3 | 11/01/11 | 5810.13 | 26.57 | ND | | 5783.56 |
| MW-3 | 02/16/12 | 5810.13 | 26.88 | ND | | 5783.25 |
| MW-3 | 05/08/12 | 5810.13 | 27.97 | ND | | 5782.16 |
| MW-3 | 06/07/13 | 5810.13 | 27.61 | ND | | 5782.52 |
| MW-3 | 09/12/13 | 5810.13 | 27.69 | ND | | 5782.44 |
| MW-3 | 12/13/13 | 5810.13 | 27.26 | ND | | 5782.87 |
| MW-3 | 04/05/14 | 5810.13 | 27.39 | ND | | 5782.74 |
| MW-3 | 10/21/14 | 5810.13 | 27.51 | ND | | 5782.62 |
| MW-3 | 05/27/15 | 5810.13 | 27.50 | ND | | 5782.63 |
| MW-3 | 11/18/15 | 5810.13 | 26.92 | ND | | 5783.21 |
| MW-3 | 04/15/16 | 5810.13 | 27.28 | ND | | 5782.85 |
| MW-3 | 10/11/16 | 5810.13 | 27.08 | ND | | 5783.05 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| Location | Date | TOC | Depth to Water (ft.) | Depth to LNAPL (ft.) | LNAPL Thickness (ft.) | GW Elevation (ft.) |
| MW-4 | 12/11/95 | 5809.54 | 25.55 | NR | | 5783.99 |
| MW-4 | 12/04/96 | 5809.54 | 26.27 | NR | | 5783.27 |
| MW-4 | 03/05/97 | 5809.54 | 26.44 | NR | | 5783.10 |
| MW-4 | 10/11/00 | 5809.54 | 26.56 | NR | | 5782.98 |
| MW-4 | 04/06/01 | 5809.54 | 26.82 | NR | | 5782.72 |
| MW-4 | 06/05/01 | 5809.54 | 26.94 | NR | | 5782.60 |
| MW-4 | 06/25/01 | 5809.54 | 26.93 | NR | | 5782.61 |
| MW-4 | 12/21/01 | 5809.54 | 26.92 | NR | | 5782.62 |
| MW-4 | 05/15/02 | 5809.54 | 27.14 | NR | | 5782.40 |
| MW-4 | 06/05/02 | 5809.54 | 27.16 | NR | | 5782.38 |
| MW-4 | 09/06/02 | 5809.54 | 27.19 | NR | | 5782.35 |
| MW-4 | 12/18/02 | 5809.54 | 27.02 | NR | | 5782.52 |
| MW-4 | 06/19/03 | 5809.54 | 26.92 | ND | | 5782.62 |
| MW-4 | 09/22/03 | 5809.54 | 26.83 | ND | | 5782.71 |
| MW-4 | 12/15/03 | 5809.54 | 26.37 | ND | | 5783.17 |
| MW-4 | 03/16/04 | 5809.54 | 26.40 | ND | | 5783.14 |
| MW-4 | 06/09/04 | 5809.54 | 26.41 | ND | | 5783.13 |
| MW-4 | 09/10/04 | 5809.54 | 26.29 | ND | | 5783.25 |
| MW-4 | 12/14/04 | 5809.54 | 26.19 | ND | | 5783.35 |
| MW-4 | 03/17/05 | 5809.54 | 26.23 | ND | | 5783.31 |
| MW-4 | 06/23/05 | 5809.54 | 25.90 | ND | | 5783.64 |
| MW-4 | 09/13/05 | 5809.54 | 25.69 | ND | | 5783.85 |
| MW-4 | 12/22/05 | 5809.54 | 25.49 | ND | | 5784.05 |
| MW-4 | 03/25/06 | 5809.54 | 25.68 | ND | | 5783.86 |
| MW-4 | 06/14/06 | 5809.54 | 25.83 | ND | | 5783.71 |
| MW-4 | 09/25/06 | 5809.54 | 25.67 | ND | | 5783.87 |
| MW-4 | 12/27/06 | 5809.54 | 25.22 | ND | | 5784.32 |
| MW-4 | 03/26/07 | 5809.54 | 25.53 | ND | | 5784.01 |
| MW-4 | 06/11/07 | 5809.54 | 25.60 | ND | | 5783.94 |
| MW-4 | 09/18/07 | 5809.54 | 25.62 | ND | | 5783.92 |
| MW-4 | 03/04/08 | 5809.54 | 25.88 | ND | | 5783.66 |
| MW-4 | 06/12/08 | 5809.54 | 25.64 | ND | | 5783.90 |
| MW-4 | 09/08/08 | 5809.54 | 25.46 | ND | | 5784.08 |
| MW-4 | 12/03/08 | 5809.54 | 25.60 | ND | | 5783.94 |
| MW-4 | 03/02/09 | 5809.54 | 25.85 | ND | | 5783.69 |
| MW-4 | 06/03/09 | 5809.54 | 26.13 | ND | | 5783.41 |
| MW-4 | 08/27/09 | 5809.54 | 26.09 | ND | | 5783.45 |
| MW-4 | 11/02/09 | 5809.54 | 26.13 | ND | | 5783.41 |
| MW-4 | 02/11/10 | 5809.54 | 26.28 | ND | | 5783.26 |
| MW-4 | 05/26/10 | 5809.54 | 26.10 | ND | | 5783.44 |
| MW-4 | 09/30/10 | 5809.54 | 25.47 | ND | | 5784.07 |
| MW-4 | 11/01/10 | 5809.54 | 25.35 | ND | | 5784.19 |
| MW-4 | 02/02/11 | 5809.54 | 24.50 | ND | | 5785.04 |
| MW-4 | 05/10/11 | 5809.54 | 25.57 | ND | | 5783.97 |
| MW-4 | 09/26/11 | 5809.54 | 25.66 | ND | | 5783.88 |
| MW-4 | 11/01/11 | 5809.54 | 25.72 | ND | | 5783.82 |
| MW-4 | 02/16/12 | 5809.54 | 25.95 | ND | | 5783.59 |
| MW-4 | 05/08/12 | 5809.54 | 26.16 | ND | | 5783.38 |
| MW-4 | 06/07/13 | 5809.54 | 26.68 | ND | | 5782.86 |
| MW-4 | 09/12/13 | 5809.54 | 26.78 | ND | | 5782.76 |
| MW-4 | 12/13/13 | 5809.54 | 26.35 | ND | | 5783.19 |
| MW-4 | 04/05/14 | 5809.54 | 26.44 | ND | | 5783.10 |
| MW-4 | 10/21/14 | 5809.54 | 26.56 | ND | | 5782.98 |
| MW-4 | 05/27/15 | 5809.54 | 26.80 | ND | | 5782.74 |
| MW-4 | 11/18/15 | 5809.54 | 26.02 | ND | | 5783.52 |
| MW-4 | 04/15/16 | 5809.54 | 26.36 | ND | | 5783.18 |
| MW-4 | 10/11/16 | 5809.54 | 26.05 | ND | | 5783.49 |

# TABLE 2 - GROUNDWATER ELEVATION RESULTS

| James F. Bell #1E | | | | | | |
|---|---|---|---|---|---|---|
| **Location** | **Date** | **TOC** | **Depth to Water (ft.)** | **Depth to LNAPL (ft.)** | **LNAPL Thickness (ft.)** | **GW Elevation (ft.)** |
| MW-5 | 10/11/16 | 5811.49 | 31.51 | ND | | 5779.98 |
| MW-6 | 10/11/16 | 5807.41 | 22.28 | ND | | 5785.13 |
| MW-7 | 10/11/16 | 5807.17 | 23.38 | ND | | 5783.79 |
| MW-8 | 10/11/16 | 5806.62 | 22.76 | 22.51 | | 5784.06 |
| MW-9 | 10/11/16 | 5810.31 | 26.97 | ND | | 5783.34 |
| MW-10 | 10/11/16 | 5807.54 | 23.92 | 23.90 | | 5783.64 |
| MW-11 | 10/11/16 | 5810.13 | 27.13 | ND | | 5783.00 |
| MW-12 | 10/11/16 | 5809.61 | 26.75 | ND | | 5782.86 |

Notes:
"ft" = feet
"TOC" = Top of casing
"LNAPL" = Light non-aqueous phase liquid
"ND" = LNAPL not detected
"NR" = LNAPL not recorded

# TABLE 3
## FREE PRODUCT RECOVERY
## James F Bell #1E - San Juan County, NM

| WEll ID - MW-1 | Depth to Product (Feet) | Depth to Water (Feet) | Measured Thickness (Feet) | Product Bailed (gal) | Water Bailed (gal) |
|---|---|---|---|---|---|
| **Date** | | | | | |
| 4/12/2016 | 27.09 | 27.51 | 0.42 | 0.5 | 0.28 |
| 5/23/2016 | 27.12 | 27.49 | 0.37 | 0.13 | 0.00 |
| 6/16/2016 | NM | NM | 0.44 | 0.19 | 0.03 |
| 7/16/2016 | NM | NM | 0.33 | 0.30 | 0.03 |
| 8/17/2016 | 26.90 | 27.15 | 0.25 | 0.03 | 0.00 |
| 9/24/2016 | NM | NM | 0.11 | 0.07 | 0.00 |
| 10/11/2016 | 26.82 | 26.90 | 0.08 | 0.05 | 0.00 |
| 11/14/2016 | 26.98 | 27.00 | 0.02 | 0.00 | 0.00 |
| 12/2/2016 | 24.79 | 24.84 | 0.05 | 10.63* | 21.00 |
| | 12/2/2016 - Mobile Dual Phase Extraction Event | | | | |
| 12/13/2016 | 27.00 | 27.33 | 0.33 | 0.48 | 0.01 |

NM= Not Measured. Measured thickness was obtained by measuring the thickness within the bailer.

* = Includes recovered vapors

# TABLE 3
## FREE PRODUCT RECOVERY
## James F Bell #1E - San Juan County, NM

| WEll ID - MW-8 | Depth to Product (Feet) | Depth to Water (Feet) | Measured Thickness (Feet) | Product Bailed (gal) | Water Bailed (gal) |
|---|---|---|---|---|---|
| **Date** | | | | | |
| 10/11/2016 | 22.50 | 22.76 | 0.26 | 0.05 | 0.00 |
| 10/14/2016 | 22.48 | 22.60 | 0.12 | No Recovery | No Recovery |
| 12/2/2016 | 22.48 | 22.89 | 0.41 | No Recovery | No Recovery |
| 12/3/2016 | 22.89 | 23.44 | 0.55 | 7.13* | 48.00 |
| | 12/3/2016 - Mobile Dual Phase Extraction Event | | | | |
| 12/13/2016 | 22.63 | 22.64 | 0.01 | <0.01 | 0.00 |

NM= Not Measured. Measured thickness was obtained by measuring the thickness within the bailer.
* = Includes recovered vapors

# TABLE 4 - SOIL ANALYTICAL RESULTS

| James F Bell E#1 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location (depth in feet bgs)** | **Date (mm/dd/yy)** | **Benzene (mg/kg)** | **Toluene (mg/kg)** | **Ethylbenzene (mg/kg)** | **Total Xylenes (mg/kg)** | **BTEX Total (mg/kg)** | **GRO C6-10 (mg/kg)** | **DRO C10-28 (mg/kg)** | **MRO C28-35 (mg/kg)** | **TPH (mg/kg)** | **Chloride (mg/kg)** |
| NMOCD Criteria: | | 10 | NE | NE | NE | 50 | NE | NE | NE | 100 | 600 |
| MW-5 (17-18) | 08/02/16 | BRL | 7.4 | 7.2 | 69 | **83.6** | 980 | 350 | 22 | **1352** | BRL |
| MW-6 (9-10) | 08/01/16 | 0.19 | 5.5 | 8.7 | 77 | **91.4** | 1300 | 370 | 20 | **1690** | BRL |
| MW-7 (21-22) | 08/01/16 | 0.0013 | BRL | 0.0024 | 0.015 | 0.02 | 0.23 | 15 | BLR | 15.2 | BRL |
| MW-8 (22-23) | 07/27/16 | 0.0024 | 0.11 | 0.4 | 3 | 3.51 | 130 | 440 | 33 | **603** | BRL |
| MW-9 (19-20) | 07/29/16 | BRL | BRL | 0.0024 | 0.018 | 0.02 | 1.9 | 37 | BRL | 38.9 | BRL |
| MW-10 (19-20) | 07/30/16 | 0.0011 | BRL | BRL | BRL | 0.001 | BRL | BRL | BRL | BRL | BRL |
| MW-11 (20-20.5) | 07/27/16 | BRL | BRL | BRL | BRL | BRL | BRL | 33 | 16 | 49 | BRL |
| MW-12 (17-18) | 07/28/16 | BRL | BRL | BRL | BRL | BRL | BRL | 12 | BRL | 12 | BRL |
| SB-1 (7-8) | 8/2/2016 | 0.28 | 12 | 6.5 | 59 | **77.8** | 920 | 570 | 51 | **1541** | BRL |
| SB-1 (12-13) | 8/2/2016 | 0.42 | 13 | 6.3 | 56 | **75.7** | 650 | 210 | 12 | **872** | BRL |
| SB-1 (16-17) | 8/2/2016 | 0.27 | 6.8 | 3.6 | 33 | **43.7** | 480 | 150 | 16 | **646** | BRL |
| SB-1 (20-21) | 8/2/2016 | 0.53 | 14 | 6.8 | 61 | **82.3** | 900 | 160 | 12 | **1072** | BRL |

Notes:

| | |
|---|---|
| mg/kg | Milligrams per kilogram |
| BRL | Below Reporting Limits |
| NE | New Mexico Oil Conservation Division (NMOCD) Standard Not Established |
| BTEX | Benzene, toluene, ethylbenzene, xylenes |
| GRO | Gasoline range organics |
| DRO | Diesel range organics |
| MRO | Motor oil range organics |
| Total BTEX | Sum of the detectable concentrations of individual BTEX constituents |
| TPH | Total Petroleum Hydrocarbon concentration is calculated by adding GRO, DRO, and MRO and rounded to the nearest mg/kg. |
| NMOCD Criteria | New Mexico Oil Conservation Division closure criteria for groundwater ≤50 feet below bottom of pit to groundwater less than 10,000 mg/L TDS<br>Results bolded and highlighted yellow exceed their respective NMOCD Standards |

## FIGURES

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JAMES F. BELL #1E\2016 MAPS\JF_Bell_#1E_GARM_1SA_2016.mxd

MW-4
B: <1.0
T: <5.0
E: <1.0
X: <5.0

MW-3
B: **36**
T: <25
E: 290
X: 89

MW-2
B: <1.0
T: <5.0
E: <1.0
X: <5.0

MW-1
NS

MW-4
MW-3
MW-2
MW-1
WELLHEAD
TANK
FORMER AMOCO PIT
FORMER EPC PIT
SEPARATOR
PIT
METER HOUSE
COMPRESSOR
PIPELINE

SMA BENCHMARK
ELEV 5807.36'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

5805
5800
5810
5815

AERIAL IMAGERY FROM GOOGLE EARTH, DATED 6/10/2013

## LEGEND:

- 5805 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UNDERGROUND CABLE
- UNKNOWN BURIED LINE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- WELLHEAD
- RIG ANCHOR
- SMA BENCHMARK

**EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:**

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<1 = BELOW METHOD DETECTION LIMIT

| ANALYTE | NMWQCC STANDARDS |
|---|---|
| B = Benzene | 10 µg/L |
| T = Toluene | 750 µg/L |
| E = Ethylbenzene | 750 µg/L |
| X = Total Xylenes | 620 µg/L |

N

SCALE IN FEET
0 40 80

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| | 10/27/2016 | SLG | SLG | SRV |

TITLE:

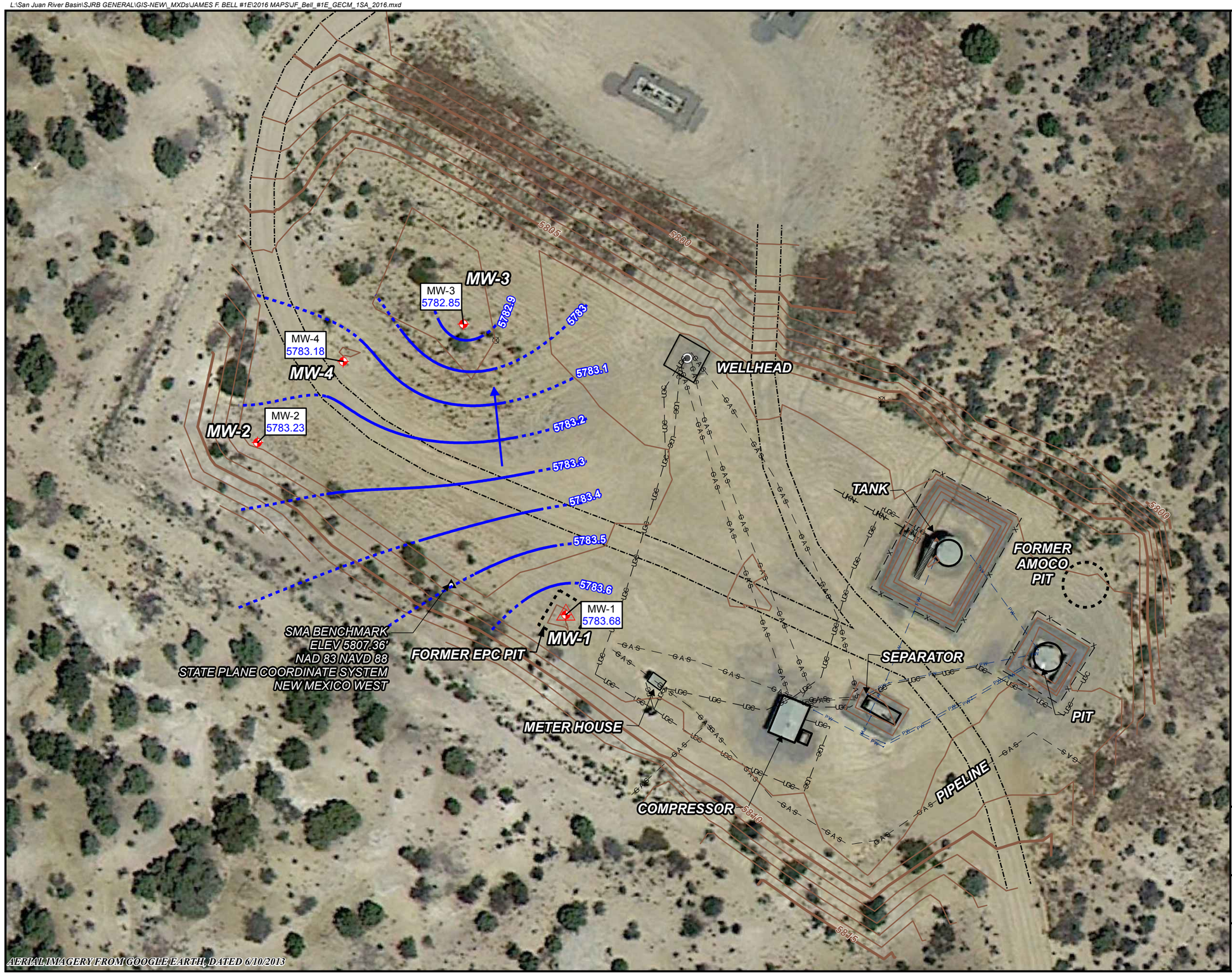
GROUNDWATER ANALYTICAL RESULTS
APRIL 15, 2016

PROJECT:
JAMES F. BELL #1E
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.: 1

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JAMES F. BELL #1E\2016 MAPS\JF_Bell_#1E_GECM_1SA_2016.mxd




## LEGEND:

- 5805 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UGC UNDERGROUND CABLE
- UKN UNKNOWN BURIED LINE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- WELLHEAD
- RIG ANCHOR
- SMA BENCHMARK

**NOTES:**

5783.88 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

5783.8 CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.1 FOOT CONTOUR INTERVAL)

DIRECTION OF APPARENT GROUNDWATER FLOW

N

SCALE IN FEET

0 40 80

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| | 10/27/2016 | CCL | CCL | SRV |

TITLE:

***GROUNDWATER ELEVATION MAP***
***NOVEMBER 18, 2015***

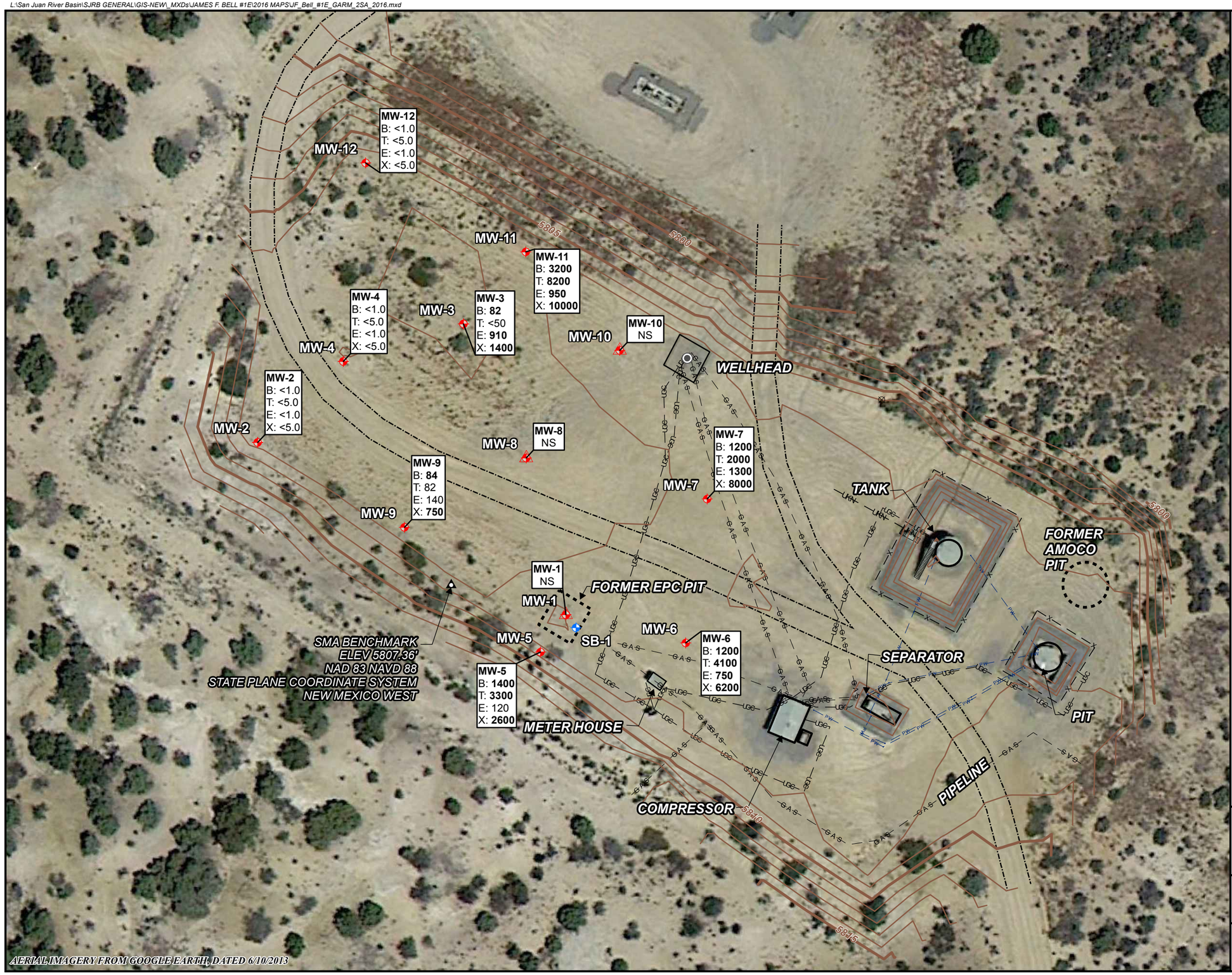
PROJECT:

***JAMES F. BELL #1E***
***SAN JUAN RIVER BASIN***
***SAN JUAN COUNTY, NEW MEXICO***

MWH

Figure No.: 2

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JAMES F. BELL #1E\2016 MAPS\JF_Bell_#1E_GARM_2SA_2016.mxd




## LEGEND:

- 5805 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UGC UNDERGROUND CABLE
- UKN UNKNOWN BURIED LINE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- SOIL BORING
- WELLHEAD
- RIG ANCHOR
- SMA BENCHMARK

**EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:**

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<1 = BELOW METHOD DETECTION LIMIT

| ANALYTE | NMWQCC STANDARDS |
|---|---|
| B = Benzene | 10 µg/L |
| T = Toluene | 750 µg/L |
| E = Ethylbenzene | 750 µg/L |
| X = Total Xylenes | 620 µg/L |

N

SCALE IN FEET
0 40 80

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| | 11/30/2016 | SLG | SLG | SRV |

TITLE:

***GROUNDWATER ANALYTICAL RESULTS***
***OCTOBER 11, 2016***

PROJECT:
***JAMES F. BELL #1E***
***SAN JUAN RIVER BASIN***
***SAN JUAN COUNTY, NEW MEXICO***

MWH

Figure No.: 3

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JAMES F. BELL #1E\2016 MAPS\JF_Bell_#1E_GECM_2SA_2016.mxd

MW-12 5782.86
MW-11 5783.00
MW-3 5783.05
MW-4 5783.49
MW-10 5783.64
MW-2 5783.40
MW-8 5784.06*
MW-9 5783.34
MW-7 5783.79
MW-1 5784.04
MW-5 5779.98*
MW-6 5785.13

5805
5800
5795
5790
5785
5784.5
5784
5783.5
5783
5810
5815

WELLHEAD
TANK
FORMER AMOCO PIT
SEPARATOR
PIT
FORMER EPC PIT
METER HOUSE
COMPRESSOR
PIPELINE

SMA BENCHMARK
ELEV 5807.36'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AERIAL IMAGERY FROM GOOGLE EARTH, DATED 6/10/2013

## LEGEND:

- 5805 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UGC UNDERGROUND CABLE
- UKN UNKNOWN BURIED LINE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- WELLHEAD
- RIG ANCHOR
- SMA BENCHMARK

**NOTES:**

5783.88 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

5783.8 CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.5 FOOT CONTOUR INTERVAL)

DIRECTION OF APPARENT GROUNDWATER FLOW

WATER LEVEL ANOMALOUS AND NOT USED FOR CONTOURING GROUNDWATER ELEVATIONS

N

SCALE IN FEET
0 40 80

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| | 11/30/2016 | CCL | CCL | SRV |

TITLE:

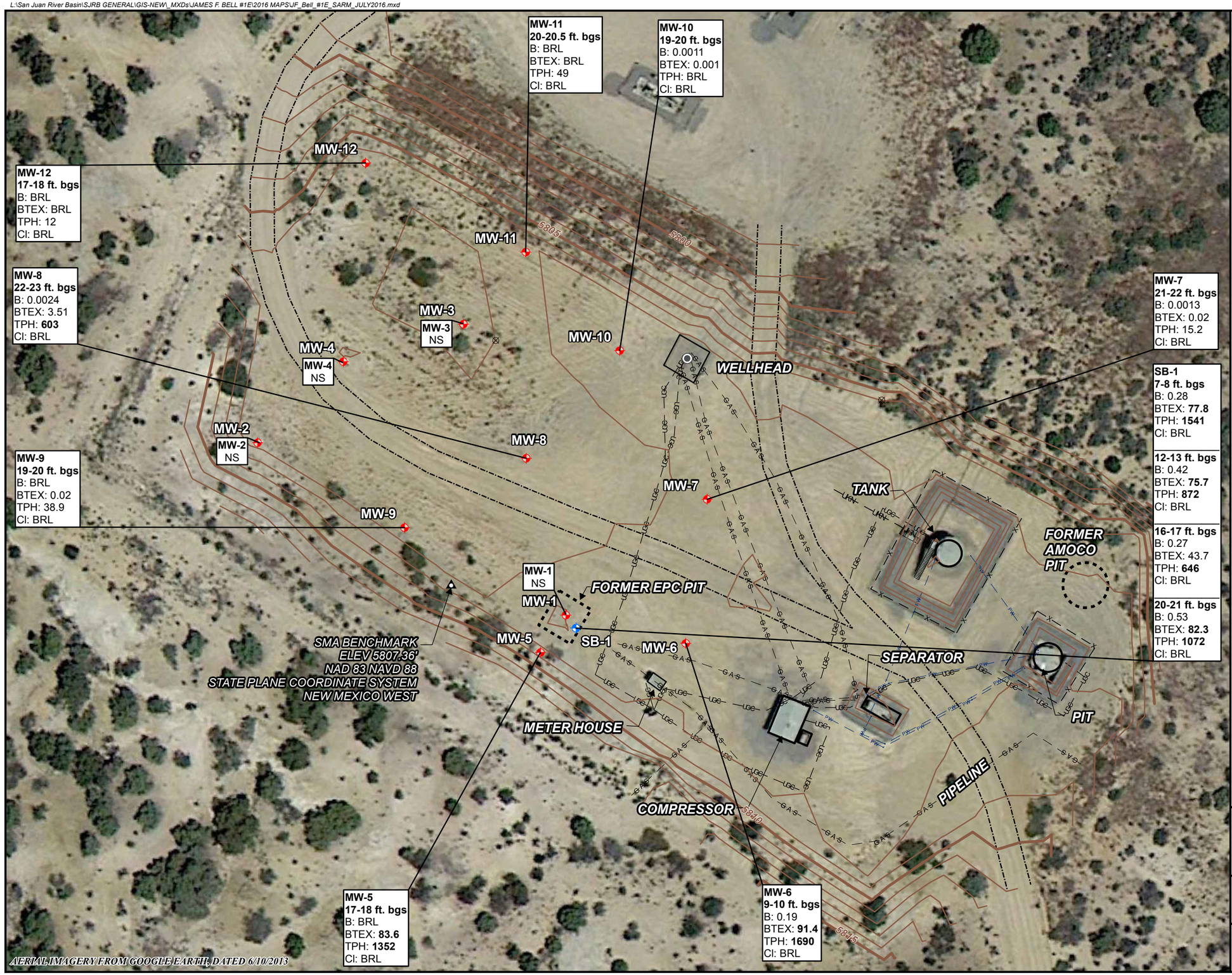
**GROUNDWATER ELEVATION MAP**
**OCTOBER 11, 2016**

PROJECT:
**JAMES F. BELL #1E**
**SAN JUAN RIVER BASIN**
**SAN JUAN COUNTY, NEW MEXICO**

MWH

Figure No.: 4

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JAMES F. BELL #1E\2016 MAPS\JF_Bell_#1E_SARM_JULY2016.mxd




## LEGEND:

- 5805 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UNDERGROUND CABLE
- UNKNOWN BURIED LINE
- MONITORING WELL
- SOIL BORING
- WELLHEAD
- RIG ANCHOR
- SMA BENCHMARK

**NOTES:**

MW-8 AND MW-11 SAMPLES COLLECTED 7/27/2016; MW-12 7/28/2016; MW-9 7/29/2016; MW-10 7/30/2016; MW-6 AND MW-7 8/1/2016; MW-5 AND SB-1 8/2/2016.

UTILITY LOCATIONS ARE APPROXIMATE.

ft. bgs = FEET BELOW GROUND SURFACE
NS = NOT SAMPLED

**EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:**

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF APPLICABLE NEW MEXICO OIL CONSERVATION DIVISION SOIL CRITERIA FOR THAT ANALYTE.
mg/kg = MILLIGRAM/KILOGRAM
BRL = BELOW REPORTING LIMITS

| ANALYTE | NMOCD STANDARDS |
|---|---|
| B = Benzene | 10 mg/kg |
| BTEX = Benzene, toluene, ethylbenzene, xylenes | 50 mg/kg |
| TPH = Total Petroleum Hydrocarbons | 100 mg/kg |
| Cl = Chloride | 600 mg/kg |

N

SCALE IN FEET
0 40 80

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| | 2/1/2017 | SLG | SLG | SRV |

TITLE:

***SOIL ANALYTICAL RESULTS***

PROJECT:
***JAMES F. BELL #1E***
***SAN JUAN RIVER BASIN***
***SAN JUAN COUNTY, NEW MEXICO***

MWH

Figure No.:
**5**

## APPENDICES

APPENDIX A – BOREHOLE AND WELL CONSTRUCTION LOGS

APPENDIX B – SOIL SAMPLING ANALYTICAL REPORTS

APPENDIX C – WASTE DISPOSAL DOCUMENTATION

APPENDIX D – MASS REMOVAL CALCULATIONS AND LABORATORY REPORT

APPENDIX E – MOBILE DUAL PHASE EXTRACTION REPORT

APPENDIX F – APRIL 29, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT
OCTOBER 26, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT

# APPENDIX A

# Drilling Log

MWH

Monitoring Well **MW-5**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5808.28 ft* North *2118801.259* East *2619510.687*

Top of Casing *5811.49 ft* Water Level Initial ▽ *5788.49* 08/02/16 00:00 Static ▼ *5772.59* 08/11/16 00:00

Hole Depth *40.0 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *8/2/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Dirt surface. Approximately. 20-25 feet from MW-1.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | | 100% | | | SM | Silty sand, brown, dry, loose, fine to medium sand, no hydrocarbon odor. Pothole to refusal at 1'. | |
| 2 | 0.0 | 100% | | | | Sandstone, pulverized cuttings from 1' to 4', dry, medium to coarse sand, angular, no hydrocarbon odor to strong hydrocarbon odor at 4', light gray to brown. Rock coring began at 4'. Sandstone from 4' to 13' was compacted in the samples. | |
| 4 | 0.0 | | | | | | |
| | 444.1 | | | | | | |
| 6 | 490 | 100% | | | | | |
| | 663.6 | | | | | | |
| 8 | 981.4 | | | | | | |
| | 302.6 | | | | | Black hydrocarbon staining at 9' and 10.5', loose, weakly cemented sands. | |
| 10 | 1033 | 100% | | | | | |
| | 2036 | | | | | Light gray to brown, moderately hard sandstone at 11'. | |
| 12 | 331.8 | | | | | | |
| | 326.3 | | | | | Dark brown to reddish-brown (iron staining?), competent sandstone, hard, highly fractured, slight hydrocarbon odor in fractures, dry to slightly moist. | |
| 14 | 67.4 | | | | | | |
| | 40.9 | 100% | | | | | |
| 16 | 10.6 | | | | | Light brown, weakly cemented, coarse sand, strong hydrocarbon odor. | |
| | 2043 | MW-5 17-18' | | | | | |
| 18 | 2858 | | | | | Reddish-brown at 18'. | |
| | 2080 | 100% | | | | | |
| ▽ 20 | | | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-5**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|
| | | | *Continued* | |
| 20 | 575.0 | | Very moist at 21'. | |
| | 1566 | | Color changes to light brown at 21.5'. | |
| 22 | 569.1 | 100% | | |
| | 481.2 | | Water at 23'. | |
| 24 | 86.1 | 100% | Shale, olive-brown to dark gray, dry to moist cuttings, no hydrocarbon odor, clayey, hard at 25'. Stratex/air rotary began at 25'. | |
| 26 | | | | |
| | 1.7 | 100% | | |
| 28 | | | | |
| 30 | | | Bluish-gray cuttings at 30'. | |
| 32 | 0.0 | 100% | | |
| 34 | | | | |
| 36 | | | Dark gray cuttings at 35.5'. | |
| | 0.0 | 100% | | |
| 38 | | | | |
| 40 | | | Total depth = 40'. | |
| 42 | | | | |
| 44 | | | | |
| 46 | | | | |

Drilling Log 2016 JF BELL #1E LOGS.GPJ MWH IA.GDT 12/20/16

# Drilling Log

MWH

Monitoring Well **MW-6**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5807.58 ft* North *2118805.058* East *2619571.153*

Top of Casing *5807.41 ft* Water Level Initial ▽ *5783.41* 08/01/16 00:00 Static ▼ *5784.33* 08/11/16 00:00

Hole Depth *40.0 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *8/1/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Surface is dirt with gravel.*
*Adjacent to dirt/gravel road.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | 0.0 | 100% | | | SM | Silty sand, brown, dry, loose, fine to medium sand, trace cobbles, minor gravel, no hydrocarbon odor. Pothole to refusal at 1'. Rock coring began at 1'. | |
| 2 | 0.0 | | | | | Sandstone, dry, highly fractured, brown to light brown/olive with depth, medium to coarse angular sand, no hydrocarbon odor, black hydrocarbon staining present at 5.5', weakly cemented. | |
| | 0.0 | | | | | | |
| 4 | 0.0 | 100% | | | | | |
| | 0.0 | | | | | | |
| 6 | 5.2 | | | | | | |
| | 22.9 | | | | | | |
| 8 | 232.6 | | | | | Strong hydrocarbon odor at 8'. | |
| | 878.8 | 100% MW-6 9-10' | | | | | |
| 10 | 2143 | | | | | Sandstone from 11' to 16' and from 22' to 27' was compacted in the samples. | |
| | 2022 | | | | | | |
| 12 | 19.1 | | | | | Slightly moist at 11.5'. | |
| | 374.9 | | | | | | |
| 14 | 1157 | 100% | | | | Sandstone becomes more silty and clayey from 14' to 18', dark brown. | |
| | 288.8 | | | | | | |
| 16 | 159.6 | | | | | Very moist at 16'. | |
| | 521.6 | 100% | | | | | |
| 18 | 13.1 | | | | | Sandstone becomes less silty and clayey from 18' to 22', dry, cemented, none to slight hydrocarbon odor. | |
| | 14.6 | 100% | | | | | |
| 20 | | | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-6**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| | | | | | | *Continued* | |
| 20 | 9.1 | | | | | | |
| | 39.0 | 100% | | | | | |
| 22 | 7.1 | | | | | Sandstone to clayey sand from 22' to 27', very moist, water present in the 22' to 24' interval, dark brown. | |
| | 3.0 | | | | | | |
| 24 | 594.6 | | | | | | |
| | 174.6 | 100% | | | | | |
| 26 | 101.9 | | | | | | |
| | | | | | | Shale, dark gray to gray, dry, no hydrocarbon odor, hard. Stratex/air rotary began at 27'. | |
| 28 | 0.0 | 100% | | | | | |
| 30 | | | | | | | |
| 32 | 0.0 | 100% | | | | Slightly moist at 32'. Cuttings are bluish-gray at 33' and gray at 35'. | |
| 34 | | | | | | | |
| 36 | | | | | | | |
| | 0.0 | 100% | | | | | |
| 38 | | | | | | | |
| 40 | | | | | | Total depth = 40'. | |
| 42 | | | | | | | |
| 44 | | | | | | | |
| 46 | | | | | | | |

# Drilling Log

MWH

Monitoring Well **MW-7**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5807.41 ft* North *2118864.994* East *2619580.077*

Top of Casing *5807.17 ft* Water Level Initial ▽ *5785.17* 07/26/16 00:00 Static ▼ *5782.72* 08/11/16 00:00

Hole Depth *40.0 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *7/26/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Surface is dirt with gravel. Adjacent to dirt/gravel road. NR = No recovery.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| | 0.0 | 100% | | | SM | Silty sand with gravel, trace cobbles, brown. Pothole to refusal at 2.5'. | |
| 2 | | | | | | No recovery. | |
| | NR | 0% | | | | Sandstone, dry, light brown, highly fractured, medium to coarse-grained sand, no hydrocarbon odor, weakly to moderately cemented. Rock coring began at 3'. | |
| 4 | 0.0 | | | | | | |
| | 0.0 | | | | | No recovery. | |
| | NR | | | | | | |
| 6 | NR | 30% | | | | | |
| | NR | | | | | | |
| 8 | NR | | | | | Sandstone with unconsolidated layers, light to dark brown, dry, medium to coarse-grained angular sand, no hydrocarbon odor, moderately cemented, loose to hard. Sandstone from 8' to 13' and from 18' to 24' was compacted in the samples. | |
| | 0.0 | | | | | | |
| 10 | 0.0 | 100% | | | | | |
| | 0.0 | | | | | | |
| 12 | 0.0 | | | | | | |
| | 0.0 | | | | | Slightly moist at 13' with minor gravel content, no hydrocarbon odor. | |
| 14 | 0.7 | | | | | | |
| | 1.0 | 100% | | | | | |
| 16 | 6.7 | | | | | | |
| | 18.8 | | | | | | |
| 18 | 2.8 | | | | | | |
| | 0.2 | 100% | | | | | |
| 20 | | | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-7**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| | | | | | | *Continued* | |
| 20 | 0.6 | | | | | Very slight hydrocarbon odor at 21'. | |
| | 1.7 | MW-7 21-22' | | | | | |
| 22 ▽ | 26.4 | 100% | | | | Strong hydrocarbon odor, color changes to reddish-brown, water at 22'. | |
| | 310.7 | | | | | | |
| 24 ▼ | 126.7 | | | | | Clayey sand, slightly moist to wet, moderate hydrocarbon odor, dark brown, coarse-grained sand. Clayey sand and shale in the 24' to 28' interval was compacted in the sample. | |
| | 162.8 | | | | SC | | |
| 26 | 91.6 | 100% | | | | | |
| | 62.3 | | | | | Shale, dark gray, wet cuttings, clayey, at 32' cuttings are dry and bluish-gray with no hydrocarbon odor. Stratex/air rotary began at 28'. | |
| 28 | 31.0 | | | | | | |
| | 32.0 | 100% | | | | | |
| 30 | | | | | | | |
| 32 | 18.1 | 100% | | | | | |
| 34 | | | | | | | |
| 36 | | | | | | | |
| | 7.3 | 100% | | | | | |
| 38 | | | | | | | |
| 40 | | | | | | Total depth = 40'. | |
| 42 | | | | | | | |
| 44 | | | | | | | |
| 46 | | | | | | | |

# Drilling Log

MWH

Monitoring Well **MW-8**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5806.80 ft* North *2118882.073* East *2619504.705*

Top of Casing *5806.62 ft* Water Level Initial ▽ *5782.62* 07/26/16 00:00 Static ▼ *5782.9* 08/11/16 00:00

Hole Depth *39.9 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *7/26/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Surface is dirt with gravel. Adjacent to dirt/gravel road. NR = No recovery.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| | 0.0 | 100% | | | SM | Silty sand, brown, loose, minor gravel and cobbles, dry, fine-grained sand, no hydrocarbon odor. Pothole to refusal at 2.5'. | |
| 2 | | | | | | | |
| | 0.0 | | | | | Sandstone, highly weathered and fractured, dry, no hydrocarbon odor, medium-grained angular sand, weakly to moderately cemented. Sandstone from 2.5' to 24' was compacted in the samples. Rock coring began at 2.5'. | |
| 4 | 0.0 | | | | | | |
| | 0.0 | 100% | | | | | |
| 6 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 8 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 10 | 0.0 | 100% | | | | Sand becomes more coarse-grained at 10'. | |
| | 0.0 | | | | | | |
| 12 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 14 | 0.0 | | | | | | |
| | 0.5 | 100% | | | | | |
| 16 | 0.2 | | | | | Slight hydrocarbon odor at 16', moderate hydrocarbon odor from 17-19', dark brown, competent rock. | |
| | 19.6 | | | | | | |
| 18 | 243.6 | | | | | | |
| | 634.1 | 100% | | | | | |
| 20 | | | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-8**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| | | | | | | *Continued* | |
| 20 | 25.4 | | | | | | |
| | 12.7 | 100% | | | | | |
| 22 | 10.4 | MW-8 22-23' | | | | | |
| | 62.1 | | | | | | |
| 24 ▼ | 57.8 | 100% | | | | Water present at 24'. | |
| | | | | | | Shale, dark gray, wet, slight hydrocarbon odor, clayey, soft. No recovery. | |
| 26 | | | | | | | |
| | NR | 10% | | | | | |
| 28 | | | | | | | |
| 30 | | | | | | Shale, balled cuttings, wet, dark gray, weathered to clay, no hydrocarbon odor. Stratex/air rotary began at 29.5'. | |
| 32 | 0.4 | 100% | | | | | |
| 34 | | | | | | | |
| 36 | | | | | | Dry, light gray, no hydrocarbon odor. | |
| | 0.3 | 100% | | | | | |
| 38 | | | | | | | |
| 40 | | | | | | Total depth = 39.5'. Overdrilled to set well at 39.9'. | |
| 42 | | | | | | | |
| 44 | | | | | | | |
| 46 | | | | | | | |

# Drilling Log

MWH

Monitoring Well **MW-9**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5806.82 ft* North *2118853.163* East *2619454.071*

Top of Casing *5810.31 ft* Water Level Initial ▽ *5785.31* 07/26/16 00:00 Static ▼ *5772.03* 08/11/16 00:00

Hole Depth *40.0 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *7/26/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Surface is dirt with gravel. NR = No recovery.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | | | | | SM | Silty sand, dry, brown, loose, no hydrocarbon odor. Pothole to refusal at 7". Rock coring began at 7". | |
| | 0.0 | | | | | Sandstone, brown with reddish-brown (iron staining), dry, moderately hard to hard, medium to coarse-grained sand, moderately cemented, no hydrocarbon odor, moderate fractures, angular sand. | |
| 2 | 0.0 | | | | | | |
| | 0.0 | 100% | | | | | |
| 4 | 0.0 | | | | | | |
| | 0.0 | | | | | Brown to light grayish-brown at 5'. Sandstone from 5' to 10' and from 15' to 20' was compacted in the samples. | |
| 6 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 8 | 0.0 | 100% | | | | | |
| | 0.0 | | | | | | |
| 10 | 0.0 | | | | | At 10', reddish-brown, fewer fractures, weakly to moderately cemented. | |
| | 0.0 | | | | | | |
| 12 | 0.0 | | | | | Dark brown, very coarse-grained sand with minor gravel present at 12'. | |
| | 1.0 | 100% | | | | | |
| 14 | 2.0 | | | | | | |
| | 2.2 | | | | | | |
| 16 | 9.2 | | | | | Slight to moderate hydrocarbon odor at 15.5', dry to slightly moist. | |
| | 37.8 | 100% | | | | | |
| 18 | | | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-9**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| | | | | | | *Continued* | |
| 18 | 100.9 | | | | | | |
| | 111.7 | 100% MW-9 19-20' | | | | | |
| 20 | 126.6 | | | | | No recovery. Noticeable hydrocarbon odor coming from borehole while attempting to drill the 20' to 25' interval. Water at 25'. | |
| | NR | | | | | | |
| 22 | NR | | | | | | |
| | | 0% | | | | | |
| | NR | | | | | | |
| 24 | NR | | | | | | |
| | NR | | | | | Sandstone, unconsolidated, wet, none to slight hydrocarbon odor. Stratex/air rotary began at 25'. | |
| | 1.9 | 100% | | | | | |
| 26 | 0.7 | | | | | Shale, dark gray, dry, highly weathered to powder, hard, no hydrocarbon odor. | |
| 28 | 0.0 | 100% | | | | | |
| 30 | | | | | | Color changes to bluish-gray at 31'. | |
| 32 | 0.0 | 100% | | | | | |
| 34 | | | | | | Color changes to dark gray at 35'. | |
| 36 | | | | | | | |
| | 0.0 | 100% | | | | | |
| 38 | | | | | | | |
| 40 | | | | | | Total depth = 40'. | |
| 42 | | | | | | | |

# Drilling Log

MWH

Monitoring Well **MW-10**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5807.61 ft* North *2118926.844* East *2619543.683*

Top of Casing *5807.54 ft* Water Level Initial ▽ *5786.54* 07/26/16 00:00 Static ▼ *5777.3* 08/11/16 00:00

Hole Depth *39.5 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *7/26/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Surface is dirt with gravel. Approximately 20-25 feet from wellhead.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| 2 | 0.0 | 100% | | | SM | Silty sand, brown to gray with depth, dry, loose, minor gravel content, trace cobbles, no hydrocarbon odor; sewer odor and trash debris encountered at 4.5'. Rock coring began at 5'. | |
| 4 | | | | | | | |
| 6 | 0.0 | | | | | Sandstone, light brown to light gray, dry, moderately hard to hard, medium to coarse-grained angular sand, no hydrocarbon odor, highly fractured, some reddish-brown iron staining. Sandstone from 5' to 22' was compacted in the samples. | |
| | 0.0 | 100% | | | | | |
| 8 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 10 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 12 | 0.0 | 100% | | | | Gravel present at 12'. | |
| | 0.0 | | | | | | |
| 14 | 0.0 | | | | | | |
| | 0.0 | | | | | | |
| 16 | 1.2 | | | | | | |
| | 2.6 | 100% | | | | | |
| 18 | 6.4 | | | | | Very slightly moist with a slight hydrocarbon odor at 18'. Weakly cemented at 19'. | |
| | 8.5 | MW-10 19-20' | | | | | |
| 20 | | | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-10**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| | | | | | | *Continued* | |
| 20 | 26.2 | | | | | | |
| ▽ | 13.1 | 100% | | | | Water present at 21'. Hydrocarbon-stained from 21' to 22'. Strong hydrocarbon odor. Dark brown. | |
| 22 | 374.3 | | | | | Slightly moist to moist from 22' to 25'. Continued hydrocarbon odor. Stratex/air rotary began at 22'. | |
| | 32.4 | 100% | | | | | |
| 24 | | | | | | Color transitions to dark gray at 24'. | |
| 26 | | | | | | Shale, dark gray, wet to dry at 30', hydrocarbon odor becoming very slight at 30', powdered cuttings. | |
| | 19.5 | 100% | | | | | |
| 28 | | | | | | | |
| 30 ▼ | | | | | | | |
| 32 | | | | | | Becomes light gray at 31', dry, no hydrocarbon odor. | |
| | 1.7 | 100% | | | | | |
| 34 | | | | | | | |
| 36 | | | | | | Becomes bluish-gray at 35' | |
| | 0.0 | 100% | | | | | |
| 38 | | | | | | | |
| 40 | | | | | | Total depth = 40'. | |
| 42 | | | | | | | |
| 44 | | | | | | | |
| 46 | | | | | | | |

# Drilling Log

MWH

Monitoring Well **MW-11**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *5807.53 ft* North *2118967.844* East *2619504.525*

Top of Casing *5810.13 ft* Water Level Initial ▽ *5784.63* 07/26/16 00:00 Static ▼ *5782.83* 08/11/16 00:00

Hole Depth *40.0 ft* Screen: Diameter *2 in* Length *25.0 ft* Type/Size *PVC/0.01 in*

Hole Diameter *6.0 in* Casing: Diameter *2 in* Length *15.0 ft* Type *PVC*

Drill Co. *Yellow Jacket* Drilling Method *Stratex* Sand Pack *10/20 CO silica*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *7/26/2016* Completion Date *8/4/2016* Checked By *S. Varsa*

*COMMENTS*
*Surface is sand and gravel with minor vegetation. Poor recovery at MW-11 attributed to Stratex sampling limitations.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| 0 | | | | | | | |
| 0 | 0.0 | 100% | | | SM | Silty sand, dry, loose, minor cobbles, brown, medium to fine-grained, no hydrocarbon odor. Stratex/air rotary began at 7' (no rock coring). | |
| 8 | NM | 100% | | | | Sandstone, very hard, dry. | |
| 8 | NM | | | | | | |
| 10 | NM | | | | | | |
| 10 | NR | 0% | | | | No recovery from 10' to 11.5'. | |
| 12 | 0.0 | 100% | | | | | |
| 16 | NR | 0% | | | | No recovery from 15' to 16.5'. | |
| 16 | | | | | | Cuttings moist at 18'. | |
| 18 | | 100% | | | | | |

*Continued Next Page*

# Drilling Log

MWH

Monitoring Well **MW-11**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. | Well Completion |
|---|---|---|---|---|---|---|---|
| | | | | | | *Continued* | |
| 18 | 0.0 | 100% | | | | | |
| 20 | 0.0 | MW-11 20-20.5' | | | SP | Sand, poorly sorted, light brown, slightly moist, loose, no hydrocarbon odor. | |
| | NR | 33% | | | | No recovery from 20.5' to 21.5'. | |
| 22 | | | | | | Sandstone, color changes to medium brown, water present at 25', slight hydrocarbon odor at 25'. | |
| | 0.0 | 100% | | | | | |
| 24 | | | | | | | |
| | | | | | | No recovery from 25' to 26.5'. | |
| 26 | NR | 0% | | | | | |
| | | | | | | Color changes to dark brown and then to gray near 30'. | |
| 28 | 10.2 | 100% | | | | | |
| 30 | 0.0 | | | | | Shale, dark gray to bluish-gray below 30.8', dry to moist, powdered silty cuttings, dry and hard below 30.8', no hydrocarbon odor, | |
| | NR | 100% | | | | | |
| 32 | | | | | | | |
| | 0.0 | 100% | | | | | |
| 34 | | | | | | | |
| | 0.0 | | | | | | |
| 36 | NR | 100% | | | | | |
| 38 | 0.0 | 100% | | | | | |
| 40 | | | | | | | |
| | | | | | | Total depth = 40'. | |
| 42 | | | | | | | |

# Drilling Log

MWH

Soil Boring **SB-1**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

Surface Elev. *NA* North *NA* East *NA*

Top of Casing *NA* Water Level Initial ▽ *23.0ft* 08/02/16 00:00 Static ▼ *23.9ft* 08/03/16 00:00

Hole Depth *25.0 ft* Screen: Diameter *NA* Length *NA* Type/Size *NA*

Hole Diameter *6.0 in* Casing: Diameter *NA* Length *NA* Type *NA*

Drill Co. *Yellow Jacket* Drilling Method *Rock Core/Stratex* Sand Pack *NA*

Driller *Roger Rubio* Driller Reg. # *WD-1458* Log By *Brad Barton*

Start Date *8/2/2016* Completion Date *8/2/2016* Checked By *S. Varsa*

*COMMENTS*
*8' east of MW-1.*

Bentonite Chips | Bentonite Granules | Grout | Bentonite Pellets | Sand Pack | PP Sand Pack

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. |
|---|---|---|---|---|---|---|
| 0 | 0.0 | 100% | | | SM | Silty sand, brown, dry, loose, trace gravel and cobbles, no hydrocarbon odor, fine to medium-grained sand. Pothole to refusal at 1.5'. Stratex/air rotary used from 1.5' to 4'. |
| 2 | 0.0 | 100% | | | | Sandstone, brown, dry, medium-grained, angular, black hydrocarbon staining at 4', strong hydrocarbon odor at 5'. Rock coring began at 4'. Sandstone from 4' to 13' and from 18' to 23' was compacted in the samples. Stratex/air rotary used from 23' to 25' |
| 4 | 0.0 | | | | | |
| | 1173 | | | | | |
| 6 | 1070 | 100% | | | | |
| | 1277 | SB-1 7-8' | | | | |
| 8 | 1430 | | | | | |
| | 1224 | | | | | |
| 10 | 220.1 | | | | | |
| | 311.4 | 100% | | | | Becomes light brown and weakly cemented at 10.5'. |
| 12 | 574.5 | SB-1 12-13' | | | | |
| | 1814 | | | | | |
| 14 | 452.3 | 100% | | | | Brown, weakly to moderately cemented, strong hydrocarbon odor at 13.5'. |

*Continued Next Page*

# Drilling Log

MWH

Soil Boring **SB-1**



Project *JF Bell #1E* Owner *El Paso CGP Company, LLC*

Location *San Juan County, New Mexico* Project Number *10509366*

| Depth (ft) | PID (ppm) | % Recovery | Blow Count Recovery | Graphic Log | USCS | Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. |
|---|---|---|---|---|---|---|
| | | | | | | *Continued* |
| | 1004 | | | | | |
| 16 | 1599 | SB-1 16-17' 100% | | | | |
| | 1683 | | | | | |
| 18 | 1133 | | | | | |
| | 1020 | | | | | |
| 20 | 1873 | SB-1 20-21' 100% | | | | At 19.5', becomes dark brown to black with hydrocarbon staining, very strong hydrocarbon odor, slightly moist, weakly cemented. |
| | 1894 | | | | | |
| 22 | 109.7 | | | | | |
| | 101.4 | | | | | Very moist at 22.5', water present at 23'. |
| 24 | 1561 | 100% | | | | |
| | 13.4 | 100% | | | | Shale, dry to slightly moist, none to slight hydrocarbon odor, light brown to light gray, powdered. |
| 26 | | | | | | Total depth = 25'. |
| 28 | | | | | | |
| 30 | | | | | | |
| 32 | | | | | | |
| 34 | | | | | | |

# APPENDIX B

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-125243-1
Client Project/Site: James F Bell #1E

For:
MWH Americas Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner

*Authorized for release by:*
*8/10/2016 4:34:21 PM*

Marty Edwards, Manager of Project Management
(850)471-6227
marty.edwards@testamericainc.com

# Table of Contents

# Definitions/Glossary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

## Qualifiers

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| 4 | MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable. |
| X | Surrogate is outside control limits |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

## Job ID: 400-125243-1

### Laboratory: TestAmerica Pensacola

**Narrative**

**Job Narrative**
**400-125243-1**

**Comments**
No additional comments.

**Receipt**
The samples were received on 7/30/2016 9:22 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

**HPLC/IC**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC VOA**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Organic Prep**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Lab Admin**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Detection Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

## Client Sample ID: MW-11 (20-20.5) — Lab Sample ID: 400-125243-1

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 33 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 16 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: MW-8 (22-23) — Lab Sample ID: 400-125243-2

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 130 | | 7.6 | | mg/Kg | 100 | ☼ | 8015B | Total/NA |
| Benzene | 0.0024 | | 0.0013 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 0.40 | | 0.038 | | mg/Kg | 50 | ☼ | 8021B | Total/NA |
| Toluene | 0.11 | | 0.0063 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 3.0 | | 0.19 | | mg/Kg | 50 | ☼ | 8021B | Total/NA |
| C10-C28 | 440 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 33 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: MW-12 (17-18) — Lab Sample ID: 400-125243-3

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 12 | | 10 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

This Detection Summary does not include radiochemical test results.

# Sample Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Solid | 07/27/16 11:00 | 07/30/16 09:22 |
| 400-125243-2 | MW-8 (22-23) | Solid | 07/27/16 17:30 | 07/30/16 09:22 |
| 400-125243-3 | MW-12 (17-18) | Solid | 07/28/16 17:00 | 07/30/16 09:22 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

**Client Sample ID: MW-11 (20-20.5)**
**Date Collected: 07/27/16 11:00**
**Date Received: 07/30/16 09:22**

**Lab Sample ID: 400-125243-1**
**Matrix: Solid**
**Percent Solids: 91.8**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.10 | | 0.10 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *110* | | *65 - 125* | *08/01/16 12:00* | *08/01/16 17:51* | *1* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0010 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:51 | 1 |
| Ethylbenzene | <0.0010 | | 0.0010 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:51 | 1 |
| Toluene | <0.0051 | | 0.0051 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:51 | 1 |
| Xylenes, Total | <0.0051 | | 0.0051 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *105* | | *40 - 150* | *08/01/16 12:00* | *08/01/16 17:51* | *1* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **C10-C28** | **33** | | 11 | | mg/Kg | ☼ | 08/01/16 08:48 | 08/01/16 17:14 | 1 |
| **C28-C35** | **16** | | 11 | | mg/Kg | ☼ | 08/01/16 08:48 | 08/01/16 17:14 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *87* | | *27 - 151* | *08/01/16 08:48* | *08/01/16 17:14* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/03/16 21:16 | 1 |

## Client Sample ID: MW-8 (22-23)

**Date Collected: 07/27/16 17:30**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-2

**Matrix: Solid**
**Percent Solids: 92.4**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 130 | | 7.6 | | mg/Kg | ☼ | 08/02/16 11:00 | 08/02/16 21:13 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *102* | | *65 - 125* | *08/02/16 11:00* | *08/02/16 21:13* | *100* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0024 | | 0.0013 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 21:06 | 1 |
| Ethylbenzene | 0.40 | | 0.038 | | mg/Kg | ☼ | 08/02/16 13:00 | 08/02/16 22:08 | 50 |
| Toluene | 0.11 | | 0.0063 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 21:06 | 1 |
| Xylenes, Total | 3.0 | | 0.19 | | mg/Kg | ☼ | 08/02/16 13:00 | 08/02/16 22:08 | 50 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *106* | | *40 - 150* | *08/01/16 12:00* | *08/01/16 21:06* | *1* |
| *a,a,a-Trifluorotoluene (pid)* | *109* | | *40 - 150* | *08/02/16 13:00* | *08/02/16 22:08* | *50* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 440 | | 11 | | mg/Kg | ☼ | 08/01/16 08:48 | 08/01/16 17:24 | 1 |
| C28-C35 | 33 | | 11 | | mg/Kg | ☼ | 08/01/16 08:48 | 08/01/16 17:24 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *84* | | *27 - 151* | *08/01/16 08:48* | *08/01/16 17:24* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <22 | | 22 | | mg/Kg | ☼ | | 08/03/16 22:25 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

**Client Sample ID: MW-12 (17-18)**
**Date Collected: 07/28/16 17:00**
**Date Received: 07/30/16 09:22**

**Lab Sample ID: 400-125243-3**
**Matrix: Solid**
**Percent Solids: 95.2**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.10 | | 0.10 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:24 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *105* | | *65 - 125* | *08/01/16 12:00* | *08/01/16 17:24* | *1* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0010 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:24 | 1 |
| Ethylbenzene | <0.0010 | | 0.0010 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:24 | 1 |
| Toluene | <0.0051 | | 0.0051 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:24 | 1 |
| Xylenes, Total | <0.0051 | | 0.0051 | | mg/Kg | ☼ | 08/01/16 12:00 | 08/01/16 17:24 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *102* | | *40 - 150* | *08/01/16 12:00* | *08/01/16 17:24* | *1* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 12 | | 10 | | mg/Kg | ☼ | 08/01/16 08:48 | 08/01/16 17:35 | 1 |
| C28-C35 | <10 | | 10 | | mg/Kg | ☼ | 08/01/16 08:48 | 08/01/16 17:35 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *86* | | *27 - 151* | *08/01/16 08:48* | *08/01/16 17:35* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/03/16 22:48 | 1 |

## GC VOA

### Analysis Batch: 316772

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Total/NA | Solid | 8021B | 316865 |
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 8021B | 316865 |
| 400-125243-3 | MW-12 (17-18) | Total/NA | Solid | 8021B | 316865 |
| MB 400-316865/1-A | Method Blank | Total/NA | Solid | 8021B | 316865 |
| LCS 400-316865/2-A | Lab Control Sample | Total/NA | Solid | 8021B | 316865 |
| 400-125243-3 MS | MW-12 (17-18) | Total/NA | Solid | 8021B | 316865 |
| 400-125243-3 MSD | MW-12 (17-18) | Total/NA | Solid | 8021B | 316865 |

### Analysis Batch: 316774

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Total/NA | Solid | 8015B | 316865 |
| 400-125243-3 | MW-12 (17-18) | Total/NA | Solid | 8015B | 316865 |
| MB 400-316865/1-A | Method Blank | Total/NA | Solid | 8015B | 316865 |
| LCS 400-316865/3-A | Lab Control Sample | Total/NA | Solid | 8015B | 316865 |
| 400-125243-3 MS | MW-12 (17-18) | Total/NA | Solid | 8015B | 316865 |
| 400-125243-3 MSD | MW-12 (17-18) | Total/NA | Solid | 8015B | 316865 |

### Prep Batch: 316865

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Total/NA | Solid | 5035 | |
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 5035 | |
| 400-125243-3 | MW-12 (17-18) | Total/NA | Solid | 5035 | |
| MB 400-316865/1-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 400-316865/2-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCS 400-316865/3-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| 400-125243-3 MS | MW-12 (17-18) | Total/NA | Solid | 5035 | |
| 400-125243-3 MS | MW-12 (17-18) | Total/NA | Solid | 5035 | |
| 400-125243-3 MSD | MW-12 (17-18) | Total/NA | Solid | 5035 | |
| 400-125243-3 MSD | MW-12 (17-18) | Total/NA | Solid | 5035 | |

### Analysis Batch: 316986

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 8015B | 316988 |
| MB 400-316988/1-A | Method Blank | Total/NA | Solid | 8015B | 316988 |
| LCS 400-316988/2-A | Lab Control Sample | Total/NA | Solid | 8015B | 316988 |
| 400-125215-C-1-C MS | Matrix Spike | Total/NA | Solid | 8015B | 316988 |
| 400-125215-C-1-D MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B | 316988 |

### Prep Batch: 316988

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 5035 | |
| MB 400-316988/1-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 400-316988/2-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| 400-125215-C-1-C MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 400-125215-C-1-D MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Prep Batch: 316993

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 5035 | |
| MB 400-316993/1-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 400-316993/2-A | Lab Control Sample | Total/NA | Solid | 5035 | |

### Analysis Batch: 317073

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 8021B | 316993 |
| MB 400-316993/1-A | Method Blank | Total/NA | Solid | 8021B | 316993 |
| LCS 400-316993/2-A | Lab Control Sample | Total/NA | Solid | 8021B | 316993 |

## GC Semi VOA

### Prep Batch: 316714

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Total/NA | Solid | 3546 | |
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 3546 | |
| 400-125243-3 | MW-12 (17-18) | Total/NA | Solid | 3546 | |
| MB 400-316714/24-A | Method Blank | Total/NA | Solid | 3546 | |
| LCS 400-316714/23-A | Lab Control Sample | Total/NA | Solid | 3546 | |
| 400-125210-A-1-B MS | Matrix Spike | Total/NA | Solid | 3546 | |
| 400-125210-A-1-C MSD | Matrix Spike Duplicate | Total/NA | Solid | 3546 | |

### Analysis Batch: 316807

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Total/NA | Solid | 8015B | 316714 |
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | 8015B | 316714 |
| 400-125243-3 | MW-12 (17-18) | Total/NA | Solid | 8015B | 316714 |
| MB 400-316714/24-A | Method Blank | Total/NA | Solid | 8015B | 316714 |
| LCS 400-316714/23-A | Lab Control Sample | Total/NA | Solid | 8015B | 316714 |

### Analysis Batch: 316895

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125210-A-1-B MS | Matrix Spike | Total/NA | Solid | 8015B | 316714 |
| 400-125210-A-1-C MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B | 316714 |

## HPLC/IC

### Leach Batch: 316967

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Soluble | Solid | DI Leach | |
| 400-125243-2 | MW-8 (22-23) | Soluble | Solid | DI Leach | |
| 400-125243-3 | MW-12 (17-18) | Soluble | Solid | DI Leach | |
| MB 400-316967/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 400-316967/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 400-316967/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |
| 400-125243-1 MS | MW-11 (20-20.5) | Soluble | Solid | DI Leach | |
| 400-125243-1 MSD | MW-11 (20-20.5) | Soluble | Solid | DI Leach | |

### Analysis Batch: 317269

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Soluble | Solid | 300.0 | 316967 |
| 400-125243-2 | MW-8 (22-23) | Soluble | Solid | 300.0 | 316967 |
| 400-125243-3 | MW-12 (17-18) | Soluble | Solid | 300.0 | 316967 |
| MB 400-316967/1-A | Method Blank | Soluble | Solid | 300.0 | 316967 |
| LCS 400-316967/2-A | Lab Control Sample | Soluble | Solid | 300.0 | 316967 |
| LCSD 400-316967/3-A | Lab Control Sample Dup | Soluble | Solid | 300.0 | 316967 |
| 400-125243-1 MS | MW-11 (20-20.5) | Soluble | Solid | 300.0 | 316967 |
| 400-125243-1 MSD | MW-11 (20-20.5) | Soluble | Solid | 300.0 | 316967 |

# QC Association Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

## General Chemistry

### Analysis Batch: 317238

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125243-1 | MW-11 (20-20.5) | Total/NA | Solid | Moisture | |
| 400-125243-2 | MW-8 (22-23) | Total/NA | Solid | Moisture | |
| 400-125243-3 | MW-12 (17-18) | Total/NA | Solid | Moisture | |

## Method: 8015B - Gasoline Range Organics - (GC)

**Lab Sample ID: MB 400-316865/1-A**
**Matrix: Solid**
**Analysis Batch: 316774**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.10 | | 0.10 | | mg/Kg | | 08/01/16 12:00 | 08/01/16 12:53 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *106* | | *65 - 125* | *08/01/16 12:00* | *08/01/16 12:53* | *1* |

**Lab Sample ID: LCS 400-316865/3-A**
**Matrix: Solid**
**Analysis Batch: 316774**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | | | 1.00 | 1.05 | | mg/Kg | | 105 | 62 - 141 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *105* | | *65 - 125* |

**Lab Sample ID: 400-125243-3 MS**
**Matrix: Solid**
**Analysis Batch: 316774**

**Client Sample ID: MW-12 (17-18)**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.10 | | 1.03 | 1.24 | | mg/Kg | ☼ | 120 | 10 - 150 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *106* | | *65 - 125* |

**Lab Sample ID: 400-125243-3 MSD**
**Matrix: Solid**
**Analysis Batch: 316774**

**Client Sample ID: MW-12 (17-18)**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.10 | | 1.04 | 1.26 | | mg/Kg | ☼ | 121 | 10 - 150 | 2 | 32 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *102* | | *65 - 125* |

**Lab Sample ID: MB 400-316988/1-A**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <5.0 | | 5.0 | | mg/Kg | | 08/02/16 11:00 | 08/02/16 19:49 | 50 |

## Method: 8015B - Gasoline Range Organics - (GC) (Continued)

**Lab Sample ID: MB 400-316988/1-A**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 111 | | 65 - 125 | 08/02/16 11:00 | 08/02/16 19:49 | 50 |

**Lab Sample ID: LCS 400-316988/2-A**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 50.0 | 62.6 | | mg/Kg | | 125 | 62 - 141 |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 106 | | 65 - 125 |

**Lab Sample ID: 400-125215-C-1-C MS**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 23 | | 54.2 | 95.5 | | mg/Kg | ☼ | 135 | 10 - 150 |

| Surrogate | MS %Recovery | MS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 100 | | 65 - 125 |

**Lab Sample ID: 400-125215-C-1-D MSD**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 23 | | 54.2 | 95.7 | | mg/Kg | ☼ | 135 | 10 - 150 | 0 | 32 |

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 105 | | 65 - 125 |

## Method: 8021B - Volatile Organic Compounds (GC)

**Lab Sample ID: MB 400-316865/1-A**
**Matrix: Solid**
**Analysis Batch: 316772**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | MB Result | MB Qualifier | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0010 | mg/Kg | | 08/01/16 12:00 | 08/01/16 12:53 | 1 |
| Ethylbenzene | <0.0010 | | 0.0010 | mg/Kg | | 08/01/16 12:00 | 08/01/16 12:53 | 1 |
| Toluene | <0.0050 | | 0.0050 | mg/Kg | | 08/01/16 12:00 | 08/01/16 12:53 | 1 |
| Xylenes, Total | <0.0050 | | 0.0050 | mg/Kg | | 08/01/16 12:00 | 08/01/16 12:53 | 1 |

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

**Lab Sample ID: MB 400-316865/1-A**
**Matrix: Solid**
**Analysis Batch: 316772**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 104 | | 40 - 150 | 08/01/16 12:00 | 08/01/16 12:53 | 1 |

**Lab Sample ID: LCS 400-316865/2-A**
**Matrix: Solid**
**Analysis Batch: 316772**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0500 | 0.0597 | | mg/Kg | | 119 | 74 - 127 |
| Ethylbenzene | 0.0500 | 0.0583 | | mg/Kg | | 117 | 79 - 131 |
| Toluene | 0.0500 | 0.0600 | | mg/Kg | | 120 | 76 - 127 |
| Xylenes, Total | 0.150 | 0.175 | | mg/Kg | | 116 | 80 - 129 |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 103 | | 40 - 150 |

**Lab Sample ID: 400-125243-3 MS**
**Matrix: Solid**
**Analysis Batch: 316772**

**Client Sample ID: MW-12 (17-18)**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0514 | 0.0589 | | mg/Kg | ☼ | 115 | 10 - 150 |
| Ethylbenzene | <0.0010 | | 0.0514 | 0.0579 | | mg/Kg | ☼ | 113 | 10 - 150 |
| Toluene | <0.0051 | | 0.0514 | 0.0596 | | mg/Kg | ☼ | 116 | 10 - 150 |
| Xylenes, Total | <0.0051 | | 0.154 | 0.174 | | mg/Kg | ☼ | 113 | 50 - 150 |

| Surrogate | MS %Recovery | MS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 101 | | 40 - 150 |

**Lab Sample ID: 400-125243-3 MSD**
**Matrix: Solid**
**Analysis Batch: 316772**

**Client Sample ID: MW-12 (17-18)**
**Prep Type: Total/NA**
**Prep Batch: 316865**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0523 | 0.0600 | | mg/Kg | ☼ | 115 | 10 - 150 | 2 | 34 |
| Ethylbenzene | <0.0010 | | 0.0523 | 0.0590 | | mg/Kg | ☼ | 113 | 10 - 150 | 2 | 66 |
| Toluene | <0.0051 | | 0.0523 | 0.0602 | | mg/Kg | ☼ | 115 | 10 - 150 | 1 | 44 |
| Xylenes, Total | <0.0051 | | 0.157 | 0.177 | | mg/Kg | ☼ | 113 | 50 - 150 | 2 | 46 |

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 101 | | 40 - 150 |

**Lab Sample ID: MB 400-316993/1-A**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.050 | | 0.050 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

**Lab Sample ID: MB 400-316993/1-A**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | <0.050 | | 0.050 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |
| Toluene | <0.25 | | 0.25 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |
| Xylenes, Total | <0.25 | | 0.25 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *103* | | *40 - 150* | *08/02/16 13:00* | *08/02/16 19:49* | *50* |

**Lab Sample ID: LCS 400-316993/2-A**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 2.50 | 2.67 | | mg/Kg | | 107 | 74 - 127 | | |
| Ethylbenzene | | | 2.50 | 2.62 | | mg/Kg | | 105 | 79 - 131 | | |
| Toluene | | | 2.50 | 2.69 | | mg/Kg | | 107 | 76 - 127 | | |
| Xylenes, Total | | | 7.50 | 7.87 | | mg/Kg | | 105 | 80 - 129 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *102* | | *40 - 150* |

## Method: 8015B - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 400-316714/24-A**
**Matrix: Solid**
**Analysis Batch: 316807**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316714**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | <0.099 | | 0.099 | | mg/Kg | | 08/01/16 08:48 | 08/01/16 15:18 | 1 |
| C28-C35 | <0.099 | | 0.099 | | mg/Kg | | 08/01/16 08:48 | 08/01/16 15:18 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *82* | | *27 - 151* | *08/01/16 08:48* | *08/01/16 15:18* | *1* |

**Lab Sample ID: LCS 400-316714/23-A**
**Matrix: Solid**
**Analysis Batch: 316807**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316714**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | | | 323 | 265 | | mg/Kg | | 82 | 63 - 153 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *92* | | *27 - 151* |

## Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

**Lab Sample ID: 400-125210-A-1-B MS**
**Matrix: Solid**
**Analysis Batch: 316895**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 316714**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 11000 | | 367 | 12300 | 4 | mg/Kg | ☼ | 316 | 62 - 204 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *770* | *X* | *27 - 151* |

**Lab Sample ID: 400-125210-A-1-C MSD**
**Matrix: Solid**
**Analysis Batch: 316895**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 316714**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 11000 | | 357 | 9140 | 4 | mg/Kg | ☼ | -549 | 62 - 204 | 29 | 30 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *672* | *X* | *27 - 151* |

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-316967/1-A**
**Matrix: Solid**
**Analysis Batch: 317269**

**Client Sample ID: Method Blank**
**Prep Type: Soluble**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <20 | | 20 | | mg/Kg | | | 08/03/16 19:22 | 1 |

**Lab Sample ID: LCS 400-316967/2-A**
**Matrix: Solid**
**Analysis Batch: 317269**

**Client Sample ID: Lab Control Sample**
**Prep Type: Soluble**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 100 | 106 | | mg/Kg | | 106 | 80 - 120 |

**Lab Sample ID: LCSD 400-316967/3-A**
**Matrix: Solid**
**Analysis Batch: 317269**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Soluble**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 100 | 107 | | mg/Kg | | 107 | 80 - 120 | 1 | 15 |

**Lab Sample ID: 400-125243-1 MS**
**Matrix: Solid**
**Analysis Batch: 317269**

**Client Sample ID: MW-11 (20-20.5)**
**Prep Type: Soluble**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 108 | 111 | | mg/Kg | ☼ | 96 | 80 - 120 |

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 400-125243-1 MSD**
**Matrix: Solid**
**Analysis Batch: 317269**

**Client Sample ID: MW-11 (20-20.5)**
**Prep Type: Soluble**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 107 | 114 | | mg/Kg | ☼ | 99 | 80 - 120 | 3 | 15 |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

## Client Sample ID: MW-11 (20-20.5)
**Date Collected: 07/27/16 11:00**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-1
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317238 | 08/03/16 17:33 | JLB | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-11 (20-20.5)
**Date Collected: 07/27/16 11:00**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-1
**Matrix: Solid**
**Percent Solids: 91.8**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.31 g | 5.0 g | 316865 | 08/01/16 12:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | 5 mL | 5 mL | 316774 | 08/01/16 17:51 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.31 g | 5.0 g | 316865 | 08/01/16 12:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 316772 | 08/01/16 17:51 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.38 g | 2.0 mL | 316714 | 08/01/16 08:48 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 316807 | 08/01/16 17:14 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.54 g | 50 mL | 316967 | 08/02/16 12:08 | TAJ | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 317269 | 08/03/16 21:16 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: MW-8 (22-23)
**Date Collected: 07/27/16 17:30**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-2
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317238 | 08/03/16 17:33 | JLB | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-8 (22-23)
**Date Collected: 07/27/16 17:30**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-2
**Matrix: Solid**
**Percent Solids: 92.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 7.09 g | 5.0 g | 316988 | 08/02/16 11:00 | SAB | TAL PEN |
| Total/NA | Analysis | 8015B | | 100 | 5 mL | 5 mL | 316986 | 08/02/16 21:13 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 4.30 g | 5.0 g | 316865 | 08/01/16 12:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 316772 | 08/01/16 21:06 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 7.09 g | 5.0 g | 316993 | 08/02/16 13:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 50 | 5 mL | 5 mL | 317073 | 08/02/16 22:08 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

## Client Sample ID: MW-8 (22-23)

**Date Collected: 07/27/16 17:30**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-2

**Matrix: Solid**
**Percent Solids: 92.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3546 | | | 15.39 g | 2.0 mL | 316714 | 08/01/16 08:48 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 316807 | 08/01/16 17:24 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.50 g | 50 mL | 316967 | 08/02/16 12:08 | TAJ | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 317269 | 08/03/16 22:25 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: MW-12 (17-18)

**Date Collected: 07/28/16 17:00**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-3

**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317238 | 08/03/16 17:33 | JLB | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-12 (17-18)

**Date Collected: 07/28/16 17:00**
**Date Received: 07/30/16 09:22**

## Lab Sample ID: 400-125243-3

**Matrix: Solid**
**Percent Solids: 95.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.12 g | 5.0 g | 316865 | 08/01/16 12:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | 5 mL | 5 mL | 316774 | 08/01/16 17:24 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.12 g | 5.0 g | 316865 | 08/01/16 12:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 316772 | 08/01/16 17:24 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.26 g | 2.0 mL | 316714 | 08/01/16 08:48 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 316807 | 08/01/16 17:35 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.48 g | 50 mL | 316967 | 08/02/16 12:08 | TAJ | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 317269 | 08/03/16 22:48 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Certification Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

## Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alabama | State Program | 4 | 40150 | 06-30-17 |
| Arizona | State Program | 9 | AZ0710 | 01-11-17 |
| Arkansas DEQ | State Program | 6 | 88-0689 | 09-01-16 |
| California | ELAP | 9 | 2510 | 03-31-18 |
| Florida | NELAP | 4 | E81010 | 06-30-17 |
| Georgia | State Program | 4 | N/A | 06-30-17 |
| Illinois | NELAP | 5 | 200041 | 10-09-16 |
| Iowa | State Program | 7 | 367 | 07-31-16 * |
| Kansas | NELAP | 7 | E-10253 | 10-31-16 |
| Kentucky (UST) | State Program | 4 | 53 | 06-30-17 |
| Kentucky (WW) | State Program | 4 | 98030 | 12-31-16 |
| Louisiana | NELAP | 6 | 30976 | 06-30-17 |
| Maryland | State Program | 3 | 233 | 09-30-17 |
| Massachusetts | State Program | 1 | M-FL094 | 06-30-17 |
| Michigan | State Program | 5 | 9912 | 05-06-17 |
| New Jersey | NELAP | 2 | FL006 | 06-30-17 |
| North Carolina (WW/SW) | State Program | 4 | 314 | 12-31-16 |
| Oklahoma | State Program | 6 | 9810 | 08-31-16 |
| Pennsylvania | NELAP | 3 | 68-00467 | 01-31-17 |
| Rhode Island | State Program | 1 | LAO00307 | 12-30-16 |
| South Carolina | State Program | 4 | 96026 | 06-30-16 * |
| Tennessee | State Program | 4 | TN02907 | 06-30-17 |
| Texas | NELAP | 6 | T104704286-15-9 | 09-30-16 |
| USDA | Federal | | P330-16-00172 | 05-24-19 |
| Virginia | NELAP | 3 | 460166 | 06-14-17 |
| Washington | State Program | 10 | C915 | 05-15-17 |
| West Virginia DEP | State Program | 3 | 136 | 08-31-16 |

* Certification renewal pending - certification considered valid.

# Method Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125243-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8015B | Gasoline Range Organics - (GC) | SW846 | TAL PEN |
| 8021B | Volatile Organic Compounds (GC) | SW846 | TAL PEN |
| 8015B | Diesel Range Organics (DRO) (GC) | SW846 | TAL PEN |
| 300.0 | Anions, Ion Chromatography | MCAWW | TAL PEN |
| Moisture | Percent Moisture | EPA | TAL PEN |

**Protocol References:**

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

# Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

| Client Information | Sampler: Brad Barton | Lab PM: Edwards, Marty P | Carrier Tracking No(s): | COC No: 400-56724-24603.1 |
|---|---|---|---|---|
| Client Contact: Clint Oberbroeckling | Phone: 316 805 2789 | E-Mail: marty.edwards@testamericainc.com | | Page: Page 1 of 3 |
| Company: MWH Americas Inc | | Analysis Requested | | Job #: |
| Address: 11153 Aurora Avenue | Due Date Requested: Per ARF | | | Preservation Codes: |
| City: Des Moines | TAT Requested (days): Per ARF | | | A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify) |
| State, Zip: IA, 50322-7904 | PO #: Purchase Order Requested | | | |
| Phone: 303-291-2239(Tel) | WO#: ARF# ERG-MWH-06-29-16-CWO-01 | | | Other: |
| Email: clint.w.oberbroeckling@mwhglobal.com | Project #: 40005479 | | | |
| Project Name: James F Bell #1E | SSOW#: | | | |

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Preservation Code | 8015B_DRO - DRO C10-C28 / ORO, Chloride | 8015B_GRO, 8021B | | | | | | | | | | | | | | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-11 (20-20.5) | 7/27/16 | 1100 | G | S | | N | N | 1 | 1 | | | | | | | | | | | | 2 | |
| MW-8 (22-23) | 7/27/16 | 1730 | G | S | | N | N | 1 | 1 | | | | | | | | | | | | 2 | |
| MW-12 (17-18) | 7/28/16 | 1700 | G | S | | N | N | 1 | 1 | | | | | | | | | | | | 2 | |

400-125243 COC

| Possible Hazard Identification | Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) |
|---|---|
| [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological | [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months |
| Deliverable Requested: I, II, III, IV, Other (specify) Per ARF | Special Instructions/QC Requirements: Per ARF |

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|

| Relinquished by | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| Relinquished by: Brad Bat | Date/Time: 7/29/16 1015 | Company MWH | Received by: Fed Ex office | Date/Time: 7/29/16 1015 | Company Fed Ex |
| Relinquished by: Fed Ex | Date/Time: 7/30/16 — | Company Fed Ex | Received by: | Date/Time: 7/30/16 0922 | Company TA |

| Custody Seals Intact: [ ] Yes [ ] No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1.0 & IR-4 |
|---|---|---|

Page 23 of 24

8/10/2016

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-125243-1

**Login Number: 125243**
**List Number: 1**
**Creator: Benforado, Jessica L**

**List Source: TestAmerica Pensacola**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 1.0°C IR-6 |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-125431-1
Client Project/Site: James F Bell #1E
Revision: 1

For:
MWH Americas Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner

*Authorized for release by:*
*8/17/2016 10:07:09 AM*
Carol Webb, Project Manager II
(850)471-6250
carol.webb@testamericainc.com

Designee for

Marty Edwards, Manager of Project Management
(850)471-6227
marty.edwards@testamericainc.com

# Table of Contents

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Qualifiers

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| F1 | MS and/or MSD Recovery is outside acceptance limits. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

## Job ID: 400-125431-1

### Laboratory: TestAmerica Pensacola

**Narrative**

**Job Narrative**
**400-125431-1**

**Comments**
No additional comments.

**Receipt**
The samples were received on 8/4/2016 9:04 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7º C.

**HPLC/IC**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC VOA**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**GC Semi VOA**
Method 8015B: The method blank for preparation batch 400-317438 and analytical batch 400-317556 contained C10-C28 above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

**Organic Prep**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**Lab Admin**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Detection Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: MW-9 (19-20) — Lab Sample ID: 400-125431-1

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 1.9 | | 0.10 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| Ethylbenzene | 0.0024 | | 0.0010 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 0.018 | | 0.0051 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| C10-C28 | 37 | | 10 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: MW-10 (19-20) — Lab Sample ID: 400-125431-2

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0011 | | 0.0011 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |

## Client Sample ID: MW-7 (21-22) — Lab Sample ID: 400-125431-3

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 0.23 | | 0.11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| Benzene | 0.0013 | | 0.0011 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 0.0024 | | 0.0011 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 0.015 | | 0.0056 | | mg/Kg | 1 | ☼ | 8021B | Total/NA |
| C10-C28 | 15 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: MW-6 (9-10) — Lab Sample ID: 400-125431-4

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 1300 | | 52 | | mg/Kg | 500 | ☼ | 8015B | Total/NA |
| Benzene | 0.19 | | 0.10 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 8.7 | | 0.10 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Toluene | 5.5 | | 0.52 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 77 | | 0.52 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| C10-C28 | 370 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 20 | | 11 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: MW-5 (17-18) — Lab Sample ID: 400-125431-5

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 980 | | 48 | | mg/Kg | 500 | ☼ | 8015B | Total/NA |
| Ethylbenzene | 7.2 | | 0.097 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Toluene | 7.4 | | 0.48 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 69 | | 0.48 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| C10-C28 | 350 | | 10 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 22 | | 10 | | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: SB-1 (7-8) — Lab Sample ID: 400-125431-6

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 920 | | 51 | | mg/Kg | 500 | ☼ | 8015B | Total/NA |
| Benzene | 0.28 | | 0.10 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 6.5 | | 0.10 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Toluene | 12 | | 0.51 | | mg/Kg | 100 | ☼ | 8021B | Total/NA |

This Detection Summary does not include radiochemical test results.

## Client Sample ID: SB-1 (7-8) (Continued) — Lab Sample ID: 400-125431-6

| Analyte | Result | Qualifier | RL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|
| Xylenes, Total | 59 | | 0.51 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| C10-C28 | 570 | | 10 | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 51 | | 10 | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: SB-1 (12-13) — Lab Sample ID: 400-125431-7

| Analyte | Result | Qualifier | RL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 650 | | 23 | mg/Kg | 250 | ☼ | 8015B | Total/NA |
| Benzene | 0.42 | | 0.091 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 6.3 | | 0.091 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Toluene | 13 | | 0.45 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 56 | | 0.45 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| C10-C28 | 210 | | 11 | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 12 | | 11 | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: SB-1 (16-17) — Lab Sample ID: 400-125431-8

| Analyte | Result | Qualifier | RL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 480 | | 22 | mg/Kg | 250 | ☼ | 8015B | Total/NA |
| Benzene | 0.27 | | 0.090 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 3.6 | | 0.090 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Toluene | 6.8 | | 0.45 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 33 | | 0.45 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| C10-C28 | 150 | | 11 | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 16 | | 11 | mg/Kg | 1 | ☼ | 8015B | Total/NA |

## Client Sample ID: SB-1 (20-21) — Lab Sample ID: 400-125431-9

| Analyte | Result | Qualifier | RL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 900 | | 50 | mg/Kg | 500 | ☼ | 8015B | Total/NA |
| Benzene | 0.53 | | 0.10 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Ethylbenzene | 6.8 | | 0.10 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Toluene | 14 | | 0.50 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| Xylenes, Total | 61 | | 0.50 | mg/Kg | 100 | ☼ | 8021B | Total/NA |
| C10-C28 | 160 | | 10 | mg/Kg | 1 | ☼ | 8015B | Total/NA |
| C28-C35 | 12 | | 10 | mg/Kg | 1 | ☼ | 8015B | Total/NA |

This Detection Summary does not include radiochemical test results.

# Sample Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Solid | 07/29/16 13:30 | 08/04/16 09:04 |
| 400-125431-2 | MW-10 (19-20) | Solid | 07/30/16 08:45 | 08/04/16 09:04 |
| 400-125431-3 | MW-7 (21-22) | Solid | 08/01/16 09:30 | 08/04/16 09:04 |
| 400-125431-4 | MW-6 (9-10) | Solid | 08/01/16 15:15 | 08/04/16 09:04 |
| 400-125431-5 | MW-5 (17-18) | Solid | 08/02/16 11:15 | 08/04/16 09:04 |
| 400-125431-6 | SB-1 (7-8) | Solid | 08/02/16 17:00 | 08/04/16 09:04 |
| 400-125431-7 | SB-1 (12-13) | Solid | 08/02/16 17:05 | 08/04/16 09:04 |
| 400-125431-8 | SB-1 (16-17) | Solid | 08/02/16 17:10 | 08/04/16 09:04 |
| 400-125431-9 | SB-1 (20-21) | Solid | 08/02/16 17:15 | 08/04/16 09:04 |

## Client Sample ID: MW-9 (19-20)

**Date Collected: 07/29/16 13:30**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-1

**Matrix: Solid**
**Percent Solids: 96.0**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Gasoline Range Organics (GRO) C6--C10** | **1.9** | | 0.10 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:23 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *107* | | *65 - 125* | *08/08/16 11:00* | *08/08/16 18:23* | *1* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0010 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:23 | 1 |
| **Ethylbenzene** | **0.0024** | | 0.0010 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:23 | 1 |
| Toluene | <0.0051 | | 0.0051 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:23 | 1 |
| **Xylenes, Total** | **0.018** | | 0.0051 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:23 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *104* | | *40 - 150* | *08/08/16 11:00* | *08/08/16 18:23* | *1* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **C10-C28** | **37** | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:16 | 1 |
| C28-C35 | <10 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:16 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *74* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 19:16* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 13:46 | 1 |

# Client Sample Results

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

**Client Sample ID: MW-10 (19-20)**
**Date Collected: 07/30/16 08:45**
**Date Received: 08/04/16 09:04**

**Lab Sample ID: 400-125431-2**
**Matrix: Solid**
**Percent Solids: 92.6**

## Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.11 | | 0.11 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 13:41 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *111* | | *65 - 125* | *08/08/16 11:00* | *08/08/16 13:41* | *1* |

## Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **0.0011** | | 0.0011 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 13:41 | 1 |
| Ethylbenzene | <0.0011 | | 0.0011 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 13:41 | 1 |
| Toluene | <0.0053 | | 0.0053 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 13:41 | 1 |
| Xylenes, Total | <0.0053 | | 0.0053 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 13:41 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *105* | | *40 - 150* | *08/08/16 11:00* | *08/08/16 13:41* | *1* |

## Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | <11 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:26 | 1 |
| C28-C35 | <11 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:26 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *82* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 19:26* | *1* |

## Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <22 | | 22 | | mg/Kg | ☼ | | 08/10/16 14:54 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: MW-7 (21-22)

**Date Collected: 08/01/16 09:30**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-3

**Matrix: Solid**
**Percent Solids: 92.0**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 0.23 | | 0.11 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:50 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *109* | | *65 - 125* | *08/08/16 11:00* | *08/08/16 18:50* | *1* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0013 | | 0.0011 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:50 | 1 |
| Ethylbenzene | 0.0024 | | 0.0011 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:50 | 1 |
| Toluene | <0.0056 | | 0.0056 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:50 | 1 |
| Xylenes, Total | 0.015 | | 0.0056 | | mg/Kg | ☼ | 08/08/16 11:00 | 08/08/16 18:50 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *107* | | *40 - 150* | *08/08/16 11:00* | *08/08/16 18:50* | *1* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 15 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:37 | 1 |
| C28-C35 | <11 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:37 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *69* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 19:37* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 15:17 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: MW-6 (9-10)

**Date Collected: 08/01/16 15:15**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-4

**Matrix: Solid**
**Percent Solids: 94.1**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 1300 | | 52 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/10/16 14:37 | 500 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *99* | | *65 - 125* | *08/09/16 11:40* | *08/10/16 14:37* | *500* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.19 | | 0.10 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 23:28 | 100 |
| Ethylbenzene | 8.7 | | 0.10 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 23:28 | 100 |
| Toluene | 5.5 | | 0.52 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 23:28 | 100 |
| Xylenes, Total | 77 | | 0.52 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 23:28 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *105* | | *40 - 150* | *08/09/16 11:40* | *08/09/16 23:28* | *100* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 370 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:47 | 1 |
| C28-C35 | 20 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:47 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *80* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 19:47* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 15:40 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

**Client Sample ID: MW-5 (17-18)**
**Date Collected: 08/02/16 11:15**
**Date Received: 08/04/16 09:04**

**Lab Sample ID: 400-125431-5**
**Matrix: Solid**
**Percent Solids: 94.4**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 980 | | 48 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/10/16 12:20 | 500 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *100* | | *65 - 125* | *08/09/16 11:40* | *08/10/16 12:20* | *500* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.097 | | 0.097 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:22 | 100 |
| Ethylbenzene | 7.2 | | 0.097 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:22 | 100 |
| Toluene | 7.4 | | 0.48 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:22 | 100 |
| Xylenes, Total | 69 | | 0.48 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:22 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *105* | | *40 - 150* | *08/09/16 11:40* | *08/09/16 19:22* | *100* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 350 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:58 | 1 |
| C28-C35 | 22 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 19:58 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *75* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 19:58* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 16:03 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

**Client Sample ID: SB-1 (7-8)**
**Date Collected: 08/02/16 17:00**
**Date Received: 08/04/16 09:04**

**Lab Sample ID: 400-125431-6**
**Matrix: Solid**
**Percent Solids: 96.0**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 920 | | 51 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/10/16 12:47 | 500 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *101* | | *65 - 125* | *08/09/16 11:40* | *08/10/16 12:47* | *500* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.28 | | 0.10 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:49 | 100 |
| Ethylbenzene | 6.5 | | 0.10 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:49 | 100 |
| Toluene | 12 | | 0.51 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:49 | 100 |
| Xylenes, Total | 59 | | 0.51 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 19:49 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *104* | | *40 - 150* | *08/09/16 11:40* | *08/09/16 19:49* | *100* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 570 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:08 | 1 |
| C28-C35 | 51 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:08 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *83* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 20:08* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 17:11 | 1 |

## Client Sample ID: SB-1 (12-13)

**Date Collected: 08/02/16 17:05**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-7

**Matrix: Solid**
**Percent Solids: 92.4**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 650 | | 23 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/10/16 13:15 | 250 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *98* | | *65 - 125* | *08/09/16 11:40* | *08/10/16 13:15* | *250* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.42 | | 0.091 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 21:38 | 100 |
| Ethylbenzene | 6.3 | | 0.091 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 21:38 | 100 |
| Toluene | 13 | | 0.45 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 21:38 | 100 |
| Xylenes, Total | 56 | | 0.45 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 21:38 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *103* | | *40 - 150* | *08/09/16 11:40* | *08/09/16 21:38* | *100* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 210 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:19 | 1 |
| C28-C35 | 12 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:19 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *65* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 20:19* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 17:34 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

**Client Sample ID: SB-1 (16-17)**
**Date Collected: 08/02/16 17:10**
**Date Received: 08/04/16 09:04**

**Lab Sample ID: 400-125431-8**
**Matrix: Solid**
**Percent Solids: 94.2**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 480 | | 22 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/10/16 13:42 | 250 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *101* | | *65 - 125* | *08/09/16 11:40* | *08/10/16 13:42* | *250* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.27 | | 0.090 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:06 | 100 |
| Ethylbenzene | 3.6 | | 0.090 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:06 | 100 |
| Toluene | 6.8 | | 0.45 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:06 | 100 |
| Xylenes, Total | 33 | | 0.45 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:06 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *105* | | *40 - 150* | *08/09/16 11:40* | *08/09/16 22:06* | *100* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 150 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:40 | 1 |
| C28-C35 | 16 | | 11 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:40 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *40* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 20:40* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 17:57 | 1 |

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

**Client Sample ID: SB-1 (20-21)**
**Date Collected: 08/02/16 17:15**
**Date Received: 08/04/16 09:04**

**Lab Sample ID: 400-125431-9**
**Matrix: Solid**
**Percent Solids: 93.2**

### Method: 8015B - Gasoline Range Organics - (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 900 | | 50 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/10/16 14:09 | 500 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *99* | | *65 - 125* | *08/09/16 11:40* | *08/10/16 14:09* | *500* |

### Method: 8021B - Volatile Organic Compounds (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.53 | | 0.10 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:33 | 100 |
| Ethylbenzene | 6.8 | | 0.10 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:33 | 100 |
| Toluene | 14 | | 0.50 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:33 | 100 |
| Xylenes, Total | 61 | | 0.50 | | mg/Kg | ☼ | 08/09/16 11:40 | 08/09/16 22:33 | 100 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *103* | | *40 - 150* | *08/09/16 11:40* | *08/09/16 22:33* | *100* |

### Method: 8015B - Diesel Range Organics (DRO) (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | 160 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:51 | 1 |
| C28-C35 | 12 | | 10 | | mg/Kg | ☼ | 08/05/16 08:11 | 08/05/16 20:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *42* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 20:51* | *1* |

### Method: 300.0 - Anions, Ion Chromatography - Soluble

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 21 | | mg/Kg | ☼ | | 08/10/16 18:20 | 1 |

## GC VOA

### Analysis Batch: 316986

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | 8015B | 316988 |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | 8015B | 316988 |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | 8015B | 316988 |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | 8015B | 316988 |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | 8015B | 316988 |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | 8015B | 316988 |
| MB 400-316988/1-A | Method Blank | Total/NA | Solid | 8015B | 316988 |
| LCS 400-316988/2-A | Lab Control Sample | Total/NA | Solid | 8015B | 316988 |
| 400-125215-C-1-C MS | Matrix Spike | Total/NA | Solid | 8015B | 316988 |
| 400-125215-C-1-D MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B | 316988 |

### Prep Batch: 316988

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | 5035 | |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | 5035 | |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | 5035 | |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | 5035 | |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | 5035 | |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | 5035 | |
| MB 400-316988/1-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 400-316988/2-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| 400-125215-C-1-C MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 400-125215-C-1-D MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Prep Batch: 316993

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | 5035 | |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | 5035 | |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | 5035 | |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | 5035 | |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | 5035 | |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | 5035 | |
| MB 400-316993/1-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 400-316993/2-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| 400-125243-B-2-E MS | Matrix Spike | Total/NA | Solid | 5035 | |
| 400-125243-B-2-F MSD | Matrix Spike Duplicate | Total/NA | Solid | 5035 | |

### Analysis Batch: 317073

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | 8021B | 316993 |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | 8021B | 316993 |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | 8021B | 316993 |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | 8021B | 316993 |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | 8021B | 316993 |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | 8021B | 316993 |
| MB 400-316993/1-A | Method Blank | Total/NA | Solid | 8021B | 316993 |
| LCS 400-316993/2-A | Lab Control Sample | Total/NA | Solid | 8021B | 316993 |
| 400-125243-B-2-E MS | Matrix Spike | Total/NA | Solid | 8021B | 316993 |
| 400-125243-B-2-F MSD | Matrix Spike Duplicate | Total/NA | Solid | 8021B | 316993 |

## GC VOA (Continued)

### Analysis Batch: 317655

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Total/NA | Solid | 8021B | 317686 |
| 400-125431-2 | MW-10 (19-20) | Total/NA | Solid | 8021B | 317686 |
| 400-125431-3 | MW-7 (21-22) | Total/NA | Solid | 8021B | 317686 |
| MB 400-317686/1-A | Method Blank | Total/NA | Solid | 8021B | 317686 |
| LCS 400-317686/2-A | Lab Control Sample | Total/NA | Solid | 8021B | 317686 |
| 400-125431-2 MS | MW-10 (19-20) | Total/NA | Solid | 8021B | 317686 |
| 400-125431-2 MSD | MW-10 (19-20) | Total/NA | Solid | 8021B | 317686 |

### Analysis Batch: 317656

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Total/NA | Solid | 8015B | 317686 |
| 400-125431-2 | MW-10 (19-20) | Total/NA | Solid | 8015B | 317686 |
| 400-125431-3 | MW-7 (21-22) | Total/NA | Solid | 8015B | 317686 |
| MB 400-317686/1-A | Method Blank | Total/NA | Solid | 8015B | 317686 |
| LCS 400-317686/3-A | Lab Control Sample | Total/NA | Solid | 8015B | 317686 |
| 400-125431-2 MS | MW-10 (19-20) | Total/NA | Solid | 8015B | 317686 |
| 400-125431-2 MSD | MW-10 (19-20) | Total/NA | Solid | 8015B | 317686 |

### Prep Batch: 317686

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Total/NA | Solid | 5035 | |
| 400-125431-2 | MW-10 (19-20) | Total/NA | Solid | 5035 | |
| 400-125431-3 | MW-7 (21-22) | Total/NA | Solid | 5035 | |
| MB 400-317686/1-A | Method Blank | Total/NA | Solid | 5035 | |
| LCS 400-317686/2-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| LCS 400-317686/3-A | Lab Control Sample | Total/NA | Solid | 5035 | |
| 400-125431-2 MS | MW-10 (19-20) | Total/NA | Solid | 5035 | |
| 400-125431-2 MS | MW-10 (19-20) | Total/NA | Solid | 5035 | |
| 400-125431-2 MSD | MW-10 (19-20) | Total/NA | Solid | 5035 | |
| 400-125431-2 MSD | MW-10 (19-20) | Total/NA | Solid | 5035 | |

## GC Semi VOA

### Prep Batch: 317438

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Total/NA | Solid | 3546 | |
| 400-125431-2 | MW-10 (19-20) | Total/NA | Solid | 3546 | |
| 400-125431-3 | MW-7 (21-22) | Total/NA | Solid | 3546 | |
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | 3546 | |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | 3546 | |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | 3546 | |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | 3546 | |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | 3546 | |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | 3546 | |
| MB 400-317438/23-A | Method Blank | Total/NA | Solid | 3546 | |
| LCS 400-317438/19-A | Lab Control Sample | Total/NA | Solid | 3546 | |
| 400-125432-A-1-B MS | Matrix Spike | Total/NA | Solid | 3546 | |
| 400-125432-A-1-C MSD | Matrix Spike Duplicate | Total/NA | Solid | 3546 | |

## GC Semi VOA (Continued)

### Analysis Batch: 317556

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-2 | MW-10 (19-20) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-3 | MW-7 (21-22) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | 8015B | 317438 |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | 8015B | 317438 |
| MB 400-317438/23-A | Method Blank | Total/NA | Solid | 8015B | 317438 |
| LCS 400-317438/19-A | Lab Control Sample | Total/NA | Solid | 8015B | 317438 |
| 400-125432-A-1-B MS | Matrix Spike | Total/NA | Solid | 8015B | 317438 |
| 400-125432-A-1-C MSD | Matrix Spike Duplicate | Total/NA | Solid | 8015B | 317438 |

## HPLC/IC

### Leach Batch: 317959

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Soluble | Solid | DI Leach | |
| 400-125431-2 | MW-10 (19-20) | Soluble | Solid | DI Leach | |
| 400-125431-3 | MW-7 (21-22) | Soluble | Solid | DI Leach | |
| 400-125431-4 | MW-6 (9-10) | Soluble | Solid | DI Leach | |
| 400-125431-5 | MW-5 (17-18) | Soluble | Solid | DI Leach | |
| 400-125431-6 | SB-1 (7-8) | Soluble | Solid | DI Leach | |
| 400-125431-7 | SB-1 (12-13) | Soluble | Solid | DI Leach | |
| 400-125431-8 | SB-1 (16-17) | Soluble | Solid | DI Leach | |
| 400-125431-9 | SB-1 (20-21) | Soluble | Solid | DI Leach | |
| MB 400-317959/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 400-317959/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 400-317959/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |
| 400-125431-1 MS | MW-9 (19-20) | Soluble | Solid | DI Leach | |
| 400-125431-1 MSD | MW-9 (19-20) | Soluble | Solid | DI Leach | |

### Analysis Batch: 318183

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-2 | MW-10 (19-20) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-3 | MW-7 (21-22) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-4 | MW-6 (9-10) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-5 | MW-5 (17-18) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-6 | SB-1 (7-8) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-7 | SB-1 (12-13) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-8 | SB-1 (16-17) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-9 | SB-1 (20-21) | Soluble | Solid | 300.0 | 317959 |
| MB 400-317959/1-A | Method Blank | Soluble | Solid | 300.0 | 317959 |
| LCS 400-317959/2-A | Lab Control Sample | Soluble | Solid | 300.0 | 317959 |
| LCSD 400-317959/3-A | Lab Control Sample Dup | Soluble | Solid | 300.0 | 317959 |
| 400-125431-1 MS | MW-9 (19-20) | Soluble | Solid | 300.0 | 317959 |
| 400-125431-1 MSD | MW-9 (19-20) | Soluble | Solid | 300.0 | 317959 |

# QC Association Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## General Chemistry

### Analysis Batch: 317663

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-125431-1 | MW-9 (19-20) | Total/NA | Solid | Moisture | |
| 400-125431-2 | MW-10 (19-20) | Total/NA | Solid | Moisture | |
| 400-125431-3 | MW-7 (21-22) | Total/NA | Solid | Moisture | |
| 400-125431-4 | MW-6 (9-10) | Total/NA | Solid | Moisture | |
| 400-125431-5 | MW-5 (17-18) | Total/NA | Solid | Moisture | |
| 400-125431-6 | SB-1 (7-8) | Total/NA | Solid | Moisture | |
| 400-125431-7 | SB-1 (12-13) | Total/NA | Solid | Moisture | |
| 400-125431-8 | SB-1 (16-17) | Total/NA | Solid | Moisture | |
| 400-125431-9 | SB-1 (20-21) | Total/NA | Solid | Moisture | |
| 400-125508-A-6 MS | Matrix Spike | Total/NA | Solid | Moisture | |
| 400-125508-A-6 MSD | Matrix Spike Duplicate | Total/NA | Solid | Moisture | |
| 400-125433-A-10 DU | Duplicate | Total/NA | Solid | Moisture | |

## Method: 8015B - Gasoline Range Organics - (GC)

**Lab Sample ID: MB 400-316988/1-A**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <5.0 | | 5.0 | | mg/Kg | | 08/02/16 11:00 | 08/02/16 19:49 | 50 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *111* | | *65 - 125* | *08/02/16 11:00* | *08/02/16 19:49* | *50* |

**Lab Sample ID: LCS 400-316988/2-A**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | | | 50.0 | 62.6 | | mg/Kg | | 125 | 62 - 141 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *106* | | *65 - 125* |

**Lab Sample ID: 400-125215-C-1-C MS**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 23 | | 54.2 | 95.5 | | mg/Kg | ☼ | 135 | 10 - 150 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *100* | | *65 - 125* |

**Lab Sample ID: 400-125215-C-1-D MSD**
**Matrix: Solid**
**Analysis Batch: 316986**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 316988**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | 23 | | 54.2 | 95.7 | | mg/Kg | ☼ | 135 | 10 - 150 | 0 | 32 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (fid)* | *105* | | *65 - 125* |

**Lab Sample ID: MB 400-317686/1-A**
**Matrix: Solid**
**Analysis Batch: 317656**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.10 | | 0.10 | | mg/Kg | | 08/08/16 11:00 | 08/08/16 11:52 | 1 |

## Method: 8015B - Gasoline Range Organics - (GC) (Continued)

**Lab Sample ID: MB 400-317686/1-A**
**Matrix: Solid**
**Analysis Batch: 317656**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 109 | | 65 - 125 | 08/08/16 11:00 | 08/08/16 11:52 | 1 |

**Lab Sample ID: LCS 400-317686/3-A**
**Matrix: Solid**
**Analysis Batch: 317656**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | | | 1.00 | 1.03 | | mg/Kg | | 103 | 62 - 141 | | |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 104 | | 65 - 125 |

**Lab Sample ID: 400-125431-2 MS**
**Matrix: Solid**
**Analysis Batch: 317656**

**Client Sample ID: MW-10 (19-20)**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.11 | | 1.04 | 1.06 | | mg/Kg | ☼ | 96 | 10 - 150 | | |

| Surrogate | MS %Recovery | MS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 107 | | 65 - 125 |

**Lab Sample ID: 400-125431-2 MSD**
**Matrix: Solid**
**Analysis Batch: 317656**

**Client Sample ID: MW-10 (19-20)**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) C6--C10 | <0.11 | | 1.04 | 1.07 | | mg/Kg | ☼ | 97 | 10 - 150 | 1 | 32 |

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (fid) | 109 | | 65 - 125 |

## Method: 8021B - Volatile Organic Compounds (GC)

**Lab Sample ID: MB 400-316993/1-A**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.050 | | 0.050 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |
| Ethylbenzene | <0.050 | | 0.050 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |
| Toluene | <0.25 | | 0.25 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |
| Xylenes, Total | <0.25 | | 0.25 | | mg/Kg | | 08/02/16 13:00 | 08/02/16 19:49 | 50 |

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

**Lab Sample ID: MB 400-316993/1-A**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 103 | | 40 - 150 | 08/02/16 13:00 | 08/02/16 19:49 | 50 |

**Lab Sample ID: LCS 400-316993/2-A**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 2.50 | 2.67 | | mg/Kg | | 107 | 74 - 127 |
| Ethylbenzene | 2.50 | 2.62 | | mg/Kg | | 105 | 79 - 131 |
| Toluene | 2.50 | 2.69 | | mg/Kg | | 107 | 76 - 127 |
| Xylenes, Total | 7.50 | 7.87 | | mg/Kg | | 105 | 80 - 129 |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 102 | | 40 - 150 |

**Lab Sample ID: 400-125243-B-2-E MS**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.038 | | 1.91 | 2.16 | | mg/Kg | ☼ | 113 | 10 - 150 |
| Ethylbenzene | 0.40 | | 1.91 | 2.72 | | mg/Kg | ☼ | 121 | 10 - 150 |
| Toluene | <0.19 | | 1.91 | 2.48 | | mg/Kg | ☼ | 126 | 10 - 150 |
| Xylenes, Total | 3.0 | | 5.73 | 9.58 | | mg/Kg | ☼ | 114 | 50 - 150 |

| Surrogate | MS %Recovery | MS Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 101 | | 40 - 150 |

**Lab Sample ID: 400-125243-B-2-F MSD**
**Matrix: Solid**
**Analysis Batch: 317073**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 316993**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.038 | | 1.91 | 2.18 | | mg/Kg | ☼ | 114 | 10 - 150 | 1 | 34 |
| Ethylbenzene | 0.40 | | 1.91 | 2.78 | | mg/Kg | ☼ | 124 | 10 - 150 | 2 | 66 |
| Toluene | <0.19 | | 1.91 | 2.40 | | mg/Kg | ☼ | 121 | 10 - 150 | 4 | 44 |
| Xylenes, Total | 3.0 | | 5.73 | 9.67 | | mg/Kg | ☼ | 116 | 50 - 150 | 1 | 46 |

| Surrogate | MSD %Recovery | MSD Qualifier | Limits |
|---|---|---|---|
| a,a,a-Trifluorotoluene (pid) | 99 | | 40 - 150 |

**Lab Sample ID: MB 400-317686/1-A**
**Matrix: Solid**
**Analysis Batch: 317655**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.0010 | | 0.0010 | | mg/Kg | | 08/08/16 11:00 | 08/08/16 11:52 | 1 |

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

### Lab Sample ID: MB 400-317686/1-A
**Matrix: Solid**
**Analysis Batch: 317655**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | <0.0010 | | 0.0010 | | mg/Kg | | 08/08/16 11:00 | 08/08/16 11:52 | 1 |
| Toluene | <0.0050 | | 0.0050 | | mg/Kg | | 08/08/16 11:00 | 08/08/16 11:52 | 1 |
| Xylenes, Total | <0.0050 | | 0.0050 | | mg/Kg | | 08/08/16 11:00 | 08/08/16 11:52 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *104* | | *40 - 150* | *08/08/16 11:00* | *08/08/16 11:52* | *1* |

### Lab Sample ID: LCS 400-317686/2-A
**Matrix: Solid**
**Analysis Batch: 317655**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 0.0500 | 0.0507 | | mg/Kg | | 101 | 74 - 127 | | |
| Ethylbenzene | | | 0.0500 | 0.0498 | | mg/Kg | | 100 | 79 - 131 | | |
| Toluene | | | 0.0500 | 0.0507 | | mg/Kg | | 101 | 76 - 127 | | |
| Xylenes, Total | | | 0.150 | 0.149 | | mg/Kg | | 99 | 80 - 129 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *102* | | *40 - 150* |

### Lab Sample ID: 400-125431-2 MS
**Matrix: Solid**
**Analysis Batch: 317655**

**Client Sample ID: MW-10 (19-20)**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0011 | | 0.0528 | 0.0586 | | mg/Kg | ☼ | 109 | 10 - 150 | | |
| Ethylbenzene | <0.0011 | | 0.0528 | 0.0576 | | mg/Kg | ☼ | 109 | 10 - 150 | | |
| Toluene | <0.0053 | | 0.0528 | 0.0583 | | mg/Kg | ☼ | 110 | 10 - 150 | | |
| Xylenes, Total | <0.0053 | | 0.158 | 0.172 | | mg/Kg | ☼ | 109 | 50 - 150 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *103* | | *40 - 150* |

### Lab Sample ID: 400-125431-2 MSD
**Matrix: Solid**
**Analysis Batch: 317655**

**Client Sample ID: MW-10 (19-20)**
**Prep Type: Total/NA**
**Prep Batch: 317686**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0011 | | 0.0526 | 0.0563 | | mg/Kg | ☼ | 105 | 10 - 150 | 4 | 34 |
| Ethylbenzene | <0.0011 | | 0.0526 | 0.0547 | | mg/Kg | ☼ | 104 | 10 - 150 | 5 | 66 |
| Toluene | <0.0053 | | 0.0526 | 0.0553 | | mg/Kg | ☼ | 105 | 10 - 150 | 5 | 44 |
| Xylenes, Total | <0.0053 | | 0.158 | 0.163 | | mg/Kg | ☼ | 103 | 50 - 150 | 5 | 46 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *104* | | *40 - 150* |

## Method: 8015B - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 400-317438/23-A**
**Matrix: Solid**
**Analysis Batch: 317556**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 317438**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | <10 | | 10 | | mg/Kg | | 08/05/16 08:11 | 08/05/16 17:42 | 1 |
| C28-C35 | <10 | | 10 | | mg/Kg | | 08/05/16 08:11 | 08/05/16 17:42 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *89* | | *27 - 151* | *08/05/16 08:11* | *08/05/16 17:42* | *1* |

**Lab Sample ID: LCS 400-317438/19-A**
**Matrix: Solid**
**Analysis Batch: 317556**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 317438**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | | | 323 | 304 | | mg/Kg | | 94 | 63 - 153 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *108* | | *27 - 151* |

**Lab Sample ID: 400-125432-A-1-B MS**
**Matrix: Solid**
**Analysis Batch: 317556**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**
**Prep Batch: 317438**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | <12 | F1 | 374 | 224 | F1 | mg/Kg | ☼ | 57 | 62 - 204 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *79* | | *27 - 151* |

**Lab Sample ID: 400-125432-A-1-C MSD**
**Matrix: Solid**
**Analysis Batch: 317556**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**
**Prep Batch: 317438**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C10-C28 | <12 | F1 | 368 | 246 | | mg/Kg | ☼ | 64 | 62 - 204 | 9 | 30 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *89* | | *27 - 151* |

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-317959/1-A**
**Matrix: Solid**
**Analysis Batch: 318183**

**Client Sample ID: Method Blank**
**Prep Type: Soluble**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <20 | | 20 | | mg/Kg | | | 08/10/16 12:37 | 1 |

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 400-317959/2-A**
**Matrix: Solid**
**Analysis Batch: 318183**

**Client Sample ID: Lab Control Sample**
**Prep Type: Soluble**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 100 | 103 | | mg/Kg | | 103 | 80 - 120 | | |

**Lab Sample ID: LCSD 400-317959/3-A**
**Matrix: Solid**
**Analysis Batch: 318183**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Soluble**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | | | 101 | 104 | | mg/Kg | | 103 | 80 - 120 | 0 | 15 |

**Lab Sample ID: 400-125431-1 MS**
**Matrix: Solid**
**Analysis Batch: 318183**

**Client Sample ID: MW-9 (19-20)**
**Prep Type: Soluble**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 104 | 109 | | mg/Kg | ☼ | 104 | 80 - 120 | | |

**Lab Sample ID: 400-125431-1 MSD**
**Matrix: Solid**
**Analysis Batch: 318183**

**Client Sample ID: MW-9 (19-20)**
**Prep Type: Soluble**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <21 | | 105 | 106 | | mg/Kg | ☼ | 100 | 80 - 120 | 3 | 15 |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: MW-9 (19-20)
**Date Collected: 07/29/16 13:30**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-1
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-9 (19-20)
**Date Collected: 07/29/16 13:30**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-1
**Matrix: Solid**
**Percent Solids: 96.0**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.09 g | 5.0 g | 317686 | 08/08/16 11:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | 5 mL | 5 mL | 317656 | 08/08/16 18:23 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.09 g | 5.0 g | 317686 | 08/08/16 11:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 317655 | 08/08/16 18:23 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.14 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 19:16 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.52 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 13:46 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: MW-10 (19-20)
**Date Collected: 07/30/16 08:45**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-2
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-10 (19-20)
**Date Collected: 07/30/16 08:45**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-2
**Matrix: Solid**
**Percent Solids: 92.6**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.13 g | 5.0 g | 317686 | 08/08/16 11:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | 5 mL | 5 mL | 317656 | 08/08/16 13:41 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.13 g | 5.0 g | 317686 | 08/08/16 11:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 317655 | 08/08/16 13:41 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.42 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 19:26 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |

## Client Sample ID: MW-10 (19-20)

**Lab Sample ID: 400-125431-2**
**Date Collected: 07/30/16 08:45**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**
**Percent Solids: 92.6**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Soluble | Leach | DI Leach | | | 2.51 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 14:54 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: MW-7 (21-22)

**Lab Sample ID: 400-125431-3**
**Date Collected: 08/01/16 09:30**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-7 (21-22)

**Lab Sample ID: 400-125431-3**
**Date Collected: 08/01/16 09:30**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**
**Percent Solids: 92.0**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 4.86 g | 5.0 g | 317686 | 08/08/16 11:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | 5 mL | 5 mL | 317656 | 08/08/16 18:50 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 4.86 g | 5.0 g | 317686 | 08/08/16 11:00 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 317655 | 08/08/16 18:50 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.03 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 19:37 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.55 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 15:17 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: MW-6 (9-10)

**Lab Sample ID: 400-125431-4**
**Date Collected: 08/01/16 15:15**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-6 (9-10)

**Lab Sample ID: 400-125431-4**

**Date Collected: 08/01/16 15:15**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**
**Percent Solids: 94.1**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.16 g | 5.0 g | 316988 | 08/09/16 11:40 | SAB | TAL PEN |
| Total/NA | Analysis | 8015B | | 500 | 5 mL | 5 mL | 316986 | 08/10/16 14:37 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.16 g | 5.0 g | 316993 | 08/09/16 11:40 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 100 | 5 mL | 5 mL | 317073 | 08/09/16 23:28 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.16 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 19:47 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.53 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 15:40 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: MW-5 (17-18)

**Lab Sample ID: 400-125431-5**

**Date Collected: 08/02/16 11:15**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: MW-5 (17-18)

**Lab Sample ID: 400-125431-5**

**Date Collected: 08/02/16 11:15**
**Matrix: Solid**
**Date Received: 08/04/16 09:04**
**Percent Solids: 94.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.48 g | 5.0 g | 316988 | 08/09/16 11:40 | SAB | TAL PEN |
| Total/NA | Analysis | 8015B | | 500 | 5 mL | 5 mL | 316986 | 08/10/16 12:20 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.48 g | 5.0 g | 316993 | 08/09/16 11:40 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 100 | 5 mL | 5 mL | 317073 | 08/09/16 19:22 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.22 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 19:58 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.49 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 16:03 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: SB-1 (7-8)
**Date Collected: 08/02/16 17:00**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-6
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SB-1 (7-8)
**Date Collected: 08/02/16 17:00**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-6
**Matrix: Solid**
**Percent Solids: 96.0**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.13 g | 5.0 g | 316988 | 08/09/16 11:40 | SAB | TAL PEN |
| Total/NA | Analysis | 8015B | | 500 | 5 mL | 5 mL | 316986 | 08/10/16 12:47 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.13 g | 5.0 g | 316993 | 08/09/16 11:40 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 100 | 5 mL | 5 mL | 317073 | 08/09/16 19:49 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.20 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 20:08 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.48 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 17:11 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: SB-1 (12-13)
**Date Collected: 08/02/16 17:05**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-7
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SB-1 (12-13)
**Date Collected: 08/02/16 17:05**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-7
**Matrix: Solid**
**Percent Solids: 92.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.97 g | 5.0 g | 316988 | 08/09/16 11:40 | SAB | TAL PEN |
| Total/NA | Analysis | 8015B | | 250 | 5 mL | 5 mL | 316986 | 08/10/16 13:15 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.97 g | 5.0 g | 316993 | 08/09/16 11:40 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 100 | 5 mL | 5 mL | 317073 | 08/09/16 21:38 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.13 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 20:19 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.53 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: SB-1 (12-13)
**Date Collected: 08/02/16 17:05**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-7
**Matrix: Solid**
**Percent Solids: 92.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 17:34 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: SB-1 (16-17)
**Date Collected: 08/02/16 17:10**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-8
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SB-1 (16-17)
**Date Collected: 08/02/16 17:10**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-8
**Matrix: Solid**
**Percent Solids: 94.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.90 g | 5.0 g | 316988 | 08/09/16 11:40 | SAB | TAL PEN |
| Total/NA | Analysis | 8015B | | 250 | 5 mL | 5 mL | 316986 | 08/10/16 13:42 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.90 g | 5.0 g | 316993 | 08/09/16 11:40 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 100 | 5 mL | 5 mL | 317073 | 08/09/16 22:06 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.16 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 20:40 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.47 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 17:57 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

## Client Sample ID: SB-1 (20-21)
**Date Collected: 08/02/16 17:15**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-9
**Matrix: Solid**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | Moisture | | 1 | | | 317663 | 08/08/16 09:09 | NTH | TAL PEN |
| | Instrument ID: NOEQUIP | | | | | | | | | |

## Client Sample ID: SB-1 (20-21)
**Date Collected: 08/02/16 17:15**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-9
**Matrix: Solid**
**Percent Solids: 93.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.35 g | 5.0 g | 316988 | 08/09/16 11:40 | SAB | TAL PEN |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Client Sample ID: SB-1 (20-21)

**Date Collected: 08/02/16 17:15**
**Date Received: 08/04/16 09:04**

## Lab Sample ID: 400-125431-9

**Matrix: Solid**
**Percent Solids: 93.2**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8015B | | 500 | 5 mL | 5 mL | 316986 | 08/10/16 14:09 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 5035 | | | 5.35 g | 5.0 g | 316993 | 08/09/16 11:40 | GRK | TAL PEN |
| Total/NA | Analysis | 8021B | | 100 | 5 mL | 5 mL | 317073 | 08/09/16 22:33 | GRK | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |
| Total/NA | Prep | 3546 | | | 15.37 g | 2.0 mL | 317438 | 08/05/16 08:11 | RDT | TAL PEN |
| Total/NA | Analysis | 8015B | | 1 | | | 317556 | 08/05/16 20:51 | TJB | TAL PEN |
| | Instrument ID: Eva | | | | | | | | | |
| Soluble | Leach | DI Leach | | | 2.54 g | 50 mL | 317959 | 08/10/16 08:49 | TJB | TAL PEN |
| Soluble | Analysis | 300.0 | | 1 | | | 318183 | 08/10/16 18:20 | TAJ | TAL PEN |
| | Instrument ID: IC2 | | | | | | | | | |

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Certification Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

## Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alabama | State Program | 4 | 40150 | 06-30-17 |
| Arizona | State Program | 9 | AZ0710 | 01-11-17 |
| Arkansas DEQ | State Program | 6 | 88-0689 | 09-01-16 |
| California | ELAP | 9 | 2510 | 03-31-18 |
| Florida | NELAP | 4 | E81010 | 06-30-17 |
| Georgia | State Program | 4 | N/A | 06-30-17 |
| Illinois | NELAP | 5 | 200041 | 10-09-16 |
| Iowa | State Program | 7 | 367 | 07-31-16 * |
| Kansas | NELAP | 7 | E-10253 | 10-31-16 |
| Kentucky (UST) | State Program | 4 | 53 | 06-30-17 |
| Kentucky (WW) | State Program | 4 | 98030 | 12-31-16 |
| Louisiana | NELAP | 6 | 30976 | 06-30-17 |
| Maryland | State Program | 3 | 233 | 09-30-17 |
| Massachusetts | State Program | 1 | M-FL094 | 06-30-17 |
| Michigan | State Program | 5 | 9912 | 05-06-17 |
| New Jersey | NELAP | 2 | FL006 | 06-30-17 |
| North Carolina (WW/SW) | State Program | 4 | 314 | 12-31-16 |
| Oklahoma | State Program | 6 | 9810 | 08-31-16 |
| Pennsylvania | NELAP | 3 | 68-00467 | 01-31-17 |
| Rhode Island | State Program | 1 | LAO00307 | 12-30-16 |
| South Carolina | State Program | 4 | 96026 | 06-30-16 * |
| Tennessee | State Program | 4 | TN02907 | 06-30-17 |
| Texas | NELAP | 6 | T104704286-15-9 | 09-30-16 |
| USDA | Federal | | P330-16-00172 | 05-24-19 |
| Virginia | NELAP | 3 | 460166 | 06-14-17 |
| Washington | State Program | 10 | C915 | 05-15-17 |
| West Virginia DEP | State Program | 3 | 136 | 08-31-16 |

* Certification renewal pending - certification considered valid.

# Method Summary

Client: MWH Americas Inc
Project/Site: James F Bell #1E

TestAmerica Job ID: 400-125431-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8015B | Gasoline Range Organics - (GC) | SW846 | TAL PEN |
| 8021B | Volatile Organic Compounds (GC) | SW846 | TAL PEN |
| 8015B | Diesel Range Organics (DRO) (GC) | SW846 | TAL PEN |
| 300.0 | Anions, Ion Chromatography | MCAWW | TAL PEN |
| Moisture | Percent Moisture | EPA | TAL PEN |

**Protocol References:**

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

# Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

| Client Information | Sampler: Brad Bartlett | Lab PM: Edwards, Marty P | Carrier Tracking No(s): | COC No: 400-56724-24603.2 |
|---|---|---|---|---|
| Client Contact: Clint Oberbroeckling | Phone: 316 305 2789 | E-Mail: marty.edwards@testamericainc.com | | Page: Page 1 of 1 |
| Company: MWH Americas Inc | | Analysis Requested | | Job #: |
| Address: 11153 Aurora Avenue | Due Date Requested: Per ARF | | | Preservation Codes: |
| City: Des Moines | TAT Requested (days): Per ARF | | | A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify) |
| State, Zip: IA, 50322-7904 | PO #: Purchase Order Requested | | | |
| Phone: 303-291-2239(Tel) | ~~PO#~~ ARF # ERG-MWH-06-29-16-CW0-01 | | | Other: |
| Email: clint.w.oberbroeckling@mwhglobal.com | | | | |
| Project Name: James F Bell #1E | Project #: 40005479 | | | |
| Site: | SSOW#: | | | |

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 8015B_DRO - DRO C10-C28 / ORO, Chloride | 8015B_GRO, 8021B | | | | | | | | | | | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-9 (19-20) | 7/29/16 | 1330 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| MW-10 (19-20) | 7/30/16 | 0845 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| MW-7 (21-22) | 8/1/16 | 0930 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| MW-6 (9-10) | 8/1/16 | 1515 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| MW-5 (17-18) | 8/2/16 | 1115 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| SB-1 (7-8) | 8/2/16 | 1700 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| SB-1 (12-13) | 8/2/16 | 1705 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| SB-1 (16-17) | 8/2/16 | 1710 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |
| SB-1 (20-21) | 8/2/16 | 1715 | G | S | N | N | 1 | 1 | | | | | | | | | | | 2 |

400-125431 COC

**Possible Hazard Identification**
X Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

**Sample Disposal** ( A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client X Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Per ARF

Special Instructions/QC Requirements: Per ARF

| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
|---|---|---|---|
| | | | |

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| Relinquished by: Brad Bartlett | Date/Time: 8/3/16 1230 | Company: MWH | Received by: FedEx office | Date/Time: 8/3/16 1230 | Company: FedEx |
| Relinquished by: FedEx | Date/Time: 8/4/16 - | Company: FedEx | Received by: | Date/Time: 8/4/16 9:04 | Company: TA |

Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.7°C IR6

Page 35 of 36

8/17/2016

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-125431-1

**Login Number: 125431**
**List Number: 1**
**Creator: Hughes, Nicholas T**

**List Source: TestAmerica Pensacola**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 2.7°C - IR6 |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# APPENDIX C

envirotech

# Bill of Lading

MANIFEST # 54942
GENERATOR El Paso
POINT OF ORIGIN James F. Bell 1E
TRANSPORTER Sierra
DATE 8-9-16 JOB # 14073-0017

PHONE: (505) 632-0615 • 5796 U.S. HIGHWAY 64 • FARMINGTON, NEW MEXICO 87401

| LOAD NO. | COMPLETE DESCRIPTION OF SHIPMENT | | | | | TRANSPORTING COMPANY | | | |
|---|---|---|---|---|---|---|---|---|---|
| | DESTINATION | MATERIAL | GRID | YDS | BBLS | TKT# | TRK# | TIME | DRIVER SIGNATURE |
| 1 | LF II | soil cont | ~~K~~3 | | 9 | | 22 | 1515 | Jeremy Kelly |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| RESULTS | | | LANDFARM EMPLOYEE | NOTES |
|---|---|---|---|---|
| <305 | CHLORIDE TEST | 1 | Cory Robinson | all in Drums. JV |
| | PAINT FILTER TEST | 1 | Certification of above receival & placement | |

**By signing as the driver/transporter, I certify the material hauled from the above location has not been added to or tampered with. I certify the material is from the above mentioned Generator/Point of Origin and that no additional material has been added or mixed into the load.**

Generator Onsite Contact _____ Phone _____

*Signatures required prior to distribution of the legal document.* DISTRIBUTION: **White** - Company Records, **Yellow** - Billing, **Pink** - Customer, **Goldenrod** - LF Copy

MWH

1050936605

BASIN DISPOSAL

200 MONTANA, BLOOMFIELD, NM
505-632-8936 or 505-334-3013
Open 24 Hours per Day

NO. 667959

NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 8-9-16

DEL. TKT#.

GENERATOR: El Paso

BILL TO: ~~El Paso~~ Sierra Oilfield

HAULING CO. Sierra Oilfield

DRIVER: Juan Medrano
(Print Full Name)

ORDERED BY: Joseph Wiley

CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☐ Produced Water ☒ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☒ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

| NO. | TRUCK | LOCATION(S) | VOLUME | COST | H2S | COST | TOTAL | TIME |
|---|---|---|---|---|---|---|---|---|
| 1 | 54 | James F. Bell #1E | 24 | $75 | | | 16AUG 9 | 3:25PM |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |

I, Juan Medrano representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt, Oil field wastes generated from oil and gas exploration and production operations and not mixed with non-exempt waste.

☒ Approved ☐ Denied

ATTENDANT SIGNATURE

san juan reproduction 168-6

30 Years of Environmental Health and Safety Excellence

# BASIN DISPOSAL

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 675546

NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 12-5-16
GENERATOR: El Paso
HAULING CO. Sierra
ORDERED BY: Joseph Wiley

DEL. TKT#.
BILL TO: El Paso
DRIVER: Juan
(Print Full Name)
CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☐ Produced Water ☑ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

| NO. | TRUCK | LOCATION(S) | VOLUME | COST | H2S | COST | TOTAL | TIME |
|---|---|---|---|---|---|---|---|---|
| 1 | 54 | Various onsites | 2 | 25 | | | 50 | |
| 2 | | James F Bell #1E | | | | | '16 DEC 5 12:58PM | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | Ojo Mesa | | | | | | |

I, _____ representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt, Oil field wastes generated from oil and gas exploration and production operations and not mixed with non-exempt waste.

☑ Approved ☐ Denied

ATTENDANT SIGNATURE _____

san juan reproduction 168-6

# APPENDIX D

**MDPE VAPOR MASS REMOVAL SUMMARY**
**JAMES F. BELL #1E - MW-1**
**SAN JAUN COUNTY, NEW MEXICO**

| DATE | | MASS REMOVAL | | | | |
|---|---|---|---|---|---|---|
| | TPH (lbs) | Benzene (lbs) | Toluene (lbs) | Ethylbenzene (lbs) | Xylenes (lbs) | Total BTEX (lbs) |
| December 2, 2016 | 89 | 1.27 | 5.16 | 0.33 | 5.63 | 12.39 |
| **CUMULATIVE TOTAL** | **89** | **1.27** | **5.16** | **0.33** | **5.63** | **12.39** |

**TPH MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-1**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/2/16 7:30 AM | 0.0 | 10.30 | 175,174 | | 41,000 | 6.8 | 162 | 29.6 | | |
| 12/2/16 8:00 AM | 0.0 | 13.68 | 174,619 | | 40,870 | 9.0 | 215 | 39.2 | 4 | 0.7 |
| 12/2/16 9:00 AM | 0.0 | 15.62 | 179,746 | | 42,070 | 10.5 | 252 | 46.1 | 10 | 1.6 |
| 12/2/16 10:00 AM | 0.0 | 13.99 | 131,893 | | 30,870 | 6.9 | 166 | 30.3 | 9 | 1.5 |
| 12/2/16 11:00 AM | 0.0 | 19.51 | 159,708 | | 37,380 | 11.7 | 280 | 51.1 | 9 | 1.5 |
| 12/2/16 12:00 PM | 0.0 | 19.51 | 168,125 | | 39,350 | 12.3 | 295 | 53.8 | 12 | 2.0 |
| 12/2/16 1:00 PM | 0.0 | 19.51 | 190,000 | | 44,470 | 13.9 | 333 | 60.8 | 13 | 2.2 |
| 12/2/16 2:00 PM | 0.0 | 19.51 | 176,371 | | 41,280 | 12.9 | 309 | 56.5 | 13 | 2.2 |
| 12/2/16 3:00 PM | 0.0 | 19.51 | 172,354 | | 40,340 | 12.6 | 302 | 55.2 | 13 | 2.1 |
| 12/2/16 3:30 PM | 0.0 | 19.51 | 170,902 | | 40,000 | 12.5 | 300 | 54.7 | 6 | 1.0 |
| | | | | | | | | **CUMULATIVE TOTAL** | **89** | **14.9** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 6.0 lbs/gal

**BENZENE MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-1**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/2/16 7:30 AM | 0.0 | 10.30 | 2,489 | | 41,000 | 0.1 | 2 | 0.4 | | |
| 12/2/16 8:00 AM | 0.0 | 13.68 | 2,481 | | 40,870 | 0.1 | 3 | 0.6 | 0 | 0.0 |
| 12/2/16 9:00 AM | 0.0 | 15.62 | 2,554 | | 42,070 | 0.1 | 4 | 0.7 | 0 | 0.0 |
| 12/2/16 10:00 AM | 0.0 | 13.99 | 1,874 | | 30,870 | 0.1 | 2 | 0.4 | 0 | 0.0 |
| 12/2/16 11:00 AM | 0.0 | 19.51 | 2,270 | | 37,380 | 0.2 | 4 | 0.7 | 0 | 0.0 |
| 12/2/16 12:00 PM | 0.0 | 19.51 | 2,389 | | 39,350 | 0.2 | 4 | 0.8 | 0 | 0.0 |
| 12/2/16 1:00 PM | 0.0 | 19.51 | 2,700 | | 44,470 | 0.2 | 5 | 0.9 | 0 | 0.0 |
| 12/2/16 2:00 PM | 0.0 | 19.51 | 2,506 | | 41,280 | 0.2 | 4 | 0.8 | 0 | 0.0 |
| 12/2/16 3:00 PM | 0.0 | 19.51 | 2,449 | | 40,340 | 0.2 | 4 | 0.8 | 0 | 0.0 |
| 12/2/16 3:30 PM | 0.0 | 19.51 | 2,429 | | 40,000 | 0.2 | 4 | 0.8 | 0 | 0.0 |
| | | | | | | | | **CUMULATIVE TOTAL** | **1.27** | **0.17** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.33 lbs/gal

**TOLUENE MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-1**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/2/16 7:30 AM | 0.0 | 10.30 | 10,142 | | 41,000 | 0.4 | 9 | 1.7 | | |
| 12/2/16 8:00 AM | 0.0 | 13.68 | 10,110 | | 40,870 | 0.5 | 12 | 2.3 | 0 | 0.0 |
| 12/2/16 9:00 AM | 0.0 | 15.62 | 10,406 | | 42,070 | 0.6 | 15 | 2.7 | 1 | 0.1 |
| 12/2/16 10:00 AM | 0.0 | 13.99 | 7,636 | | 30,870 | 0.4 | 10 | 1.8 | 1 | 0.1 |
| 12/2/16 11:00 AM | 0.0 | 19.51 | 9,246 | | 37,380 | 0.7 | 16 | 3.0 | 1 | 0.1 |
| 12/2/16 12:00 PM | 0.0 | 19.51 | 9,734 | | 39,350 | 0.7 | 17 | 3.1 | 1 | 0.1 |
| 12/2/16 1:00 PM | 0.0 | 19.51 | 11,000 | | 44,470 | 0.8 | 19 | 3.5 | 1 | 0.1 |
| 12/2/16 2:00 PM | 0.0 | 19.51 | 10,211 | | 41,280 | 0.7 | 18 | 3.3 | 1 | 0.1 |
| 12/2/16 3:00 PM | 0.0 | 19.51 | 9,978 | | 40,340 | 0.7 | 18 | 3.2 | 1 | 0.1 |
| 12/2/16 3:30 PM | 0.0 | 19.51 | 9,894 | | 40,000 | 0.7 | 17 | 3.2 | 0 | 0.1 |
| | | | | | | | **CUMULATIVE TOTAL** | | **5.16** | **0.72** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.20 lbs/gal

**ETHYLBENZENE MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-1**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/2/16 7:30 AM | 0.0 | 10.30 | 655 | | 41,000 | 0.0 | 1 | 0.1 | | |
| 12/2/16 8:00 AM | 0.0 | 13.68 | 653 | | 40,870 | 0.0 | 1 | 0.1 | 0 | 0.0 |
| 12/2/16 9:00 AM | 0.0 | 15.62 | 672 | | 42,070 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| 12/2/16 10:00 AM | 0.0 | 13.99 | 493 | | 30,870 | 0.0 | 1 | 0.1 | 0 | 0.0 |
| 12/2/16 11:00 AM | 0.0 | 19.51 | 597 | | 37,380 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| 12/2/16 12:00 PM | 0.0 | 19.51 | 628 | | 39,350 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| 12/2/16 1:00 PM | 0.0 | 19.51 | 710 | | 44,470 | 0.1 | 1 | 0.2 | 0 | 0.0 |
| 12/2/16 2:00 PM | 0.0 | 19.51 | 659 | | 41,280 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| 12/2/16 3:00 PM | 0.0 | 19.51 | 644 | | 40,340 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| 12/2/16 3:30 PM | 0.0 | 19.51 | 639 | | 40,000 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| | | | | | | | | **CUMULATIVE TOTAL** | **0.33** | **0.046** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.19 lbs/gal

**XYLENES MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-1**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/2/16 7:30 AM | 0.0 | 10.30 | 11,064 | | 41,000 | 0.4 | 10 | 1.9 | | |
| 12/2/16 8:00 AM | 0.0 | 13.68 | 11,029 | | 40,870 | 0.6 | 14 | 2.5 | 0 | 0.0 |
| 12/2/16 9:00 AM | 0.0 | 15.62 | 11,352 | | 42,070 | 0.7 | 16 | 2.9 | 0.61 | 0.08 |
| 12/2/16 10:00 AM | 0.0 | 13.99 | 8,330 | | 30,870 | 0.4 | 10 | 1.9 | 0.55 | 0.08 |
| 12/2/16 11:00 AM | 0.0 | 19.51 | 10,087 | | 37,380 | 0.7 | 18 | 3.2 | 0.59 | 0.08 |
| 12/2/16 12:00 PM | 0.0 | 19.51 | 10,618 | | 39,350 | 0.8 | 19 | 3.4 | 0.76 | 0.10 |
| 12/2/16 1:00 PM | 0.0 | 19.51 | 12,000 | | 44,470 | 0.9 | 21 | 3.8 | 0.83 | 0.11 |
| 12/2/16 2:00 PM | 0.0 | 19.51 | 11,139 | | 41,280 | 0.8 | 20 | 3.6 | 0.85 | 0.12 |
| 12/2/16 3:00 PM | 0.0 | 19.51 | 10,886 | | 40,340 | 0.8 | 19 | 3.5 | 0.81 | 0.11 |
| 12/2/16 3:30 PM | 0.0 | 19.51 | 10,794 | | 40,000 | 0.8 | 19 | 3.5 | 0.40 | 0.05 |
| | | | | | | | **CUMULATIVE TOTAL** | | **5.63** | **0.78** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.24 lbs/gal

**MDPE VAPOR MASS REMOVAL SUMMARY**
**JAMES F. BELL #1E - MW-8**
**SAN JAUN COUNTY, NEW MEXICO**

| DATE | | MASS REMOVAL | | | | |
|---|---|---|---|---|---|---|
| | TPH (lbs) | Benzene (lbs) | Toluene (lbs) | Ethylbenzene (lbs) | Xylenes (lbs) | Total BTEX (lbs) |
| December 3, 2016 | 48 | 0.31 | 1.91 | 0.30 | 4.43 | 6.94 |
| **CUMULATIVE TOTAL** | **48** | **0.31** | **1.91** | **0.30** | **4.43** | **6.94** |

**TPH MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-8**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/3/16 7:00 AM | 0.0 | 30.87 | 12,979 | | 2,810 | 1.5 | 36 | 6.6 | | |
| 12/3/16 7:30 AM | 0.0 | 30.87 | 12,979 | | 2,810 | 1.5 | 36 | 6.6 | 1 | 0.1 |
| 12/3/16 8:30 AM | 0.0 | 46.21 | 24,249 | | 5,250 | 4.2 | 101 | 18.4 | 3 | 0.5 |
| 12/3/16 9:30 AM | 0.0 | 46.21 | 60,554 | | 13,110 | 10.5 | 252 | 45.9 | 7 | 1.2 |
| 12/3/16 10:30 AM | 0.0 | 10.05 | 149,423 | | 32,350 | 5.6 | 135 | 24.6 | 8 | 1.3 |
| 12/3/16 12:30 PM | 0.0 | 10.77 | 140,000 | | 30,310 | 5.6 | 136 | 24.7 | 11 | 1.9 |
| 12/3/16 2:30 PM | 0.0 | 11.44 | 182,956 | | 39,610 | 7.8 | 188 | 34.3 | 13 | 2.2 |
| 12/3/16 3:00 PM | 0.0 | 11.44 | 182,956 | | 39,610 | 7.8 | 188 | 34.3 | 4 | 0.7 |
| | | | | | | | | **CUMULATIVE TOTAL** | **48** | **7.9** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 6.0 lbs/gal

**BENZENE MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-8**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/3/16 7:00 AM | 0.0 | 30.87 | 83 | | 2,810 | 0.0 | 0 | 0.0 | | |
| 12/3/16 7:30 AM | 0.0 | 30.87 | 83 | | 2,810 | 0.0 | 0 | 0.0 | 0.00 | 0.00 |
| 12/3/16 8:30 AM | 0.0 | 46.21 | 156 | | 5,250 | 0.0 | 1 | 0.1 | 0.02 | 0.00 |
| 12/3/16 9:30 AM | 0.0 | 46.21 | 389 | | 13,110 | 0.1 | 2 | 0.3 | 0.05 | 0.01 |
| 12/3/16 10:30 AM | 0.0 | 10.05 | 961 | | 32,350 | 0.0 | 1 | 0.2 | 0.05 | 0.01 |
| 12/3/16 12:30 PM | 0.0 | 10.77 | 900 | | 30,310 | 0.0 | 1 | 0.2 | 0.07 | 0.01 |
| 12/3/16 2:30 PM | 0.0 | 11.44 | 1,176 | | 39,610 | 0.1 | 1 | 0.2 | 0.09 | 0.01 |
| 12/3/16 3:00 PM | 0.0 | 11.44 | 1,176 | | 39,610 | 0.1 | 1 | 0.2 | 0.03 | 0.00 |
| | | | | | | | | **CUMULATIVE TOTAL** | **0.31** | **0.04** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.33 lbs/gal

**TOLUENE MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-8**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/3/16 7:00 AM | 0.0 | 30.87 | 519 | | 2,810 | 0.1 | 1 | 0.3 | | |
| 12/3/16 7:30 AM | 0.0 | 30.87 | 519 | | 2,810 | 0.1 | 1 | 0.3 | 0.0 | 0.00 |
| 12/3/16 8:30 AM | 0.0 | 46.21 | 970 | | 5,250 | 0.2 | 4 | 0.7 | 0.1 | 0.02 |
| 12/3/16 9:30 AM | 0.0 | 46.21 | 2,422 | | 13,110 | 0.4 | 10 | 1.8 | 0.3 | 0.04 |
| 12/3/16 10:30 AM | 0.0 | 10.05 | 5,977 | | 32,350 | 0.2 | 5 | 1.0 | 0.3 | 0.04 |
| 12/3/16 12:30 PM | 0.0 | 10.77 | 5,600 | | 30,310 | 0.2 | 5 | 1.0 | 0.5 | 0.06 |
| 12/3/16 2:30 PM | 0.0 | 11.44 | 7,318 | | 39,610 | 0.3 | 8 | 1.4 | 0.5 | 0.07 |
| 12/3/16 3:00 PM | 0.0 | 11.44 | 7,318 | | 39,610 | 0.3 | 8 | 1.4 | 0.2 | 0.02 |
| | | | | | | | | **CUMULATIVE TOTAL** | **1.9** | **0.26** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.20 lbs/gal

**ETHYLBENZENE MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-8**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/3/16 7:00 AM | 0.0 | 30.87 | 82 | | 2,810 | 0.0 | 0 | 0.0 | | |
| 12/3/16 7:30 AM | 0.0 | 30.87 | 82 | | 2,810 | 0.0 | 0 | 0.0 | 0.00 | 0.00 |
| 12/3/16 8:30 AM | 0.0 | 46.21 | 152 | | 5,250 | 0.0 | 1 | 0.1 | 0.02 | 0.00 |
| 12/3/16 9:30 AM | 0.0 | 46.21 | 381 | | 13,110 | 0.1 | 2 | 0.3 | 0.05 | 0.01 |
| 12/3/16 10:30 AM | 0.0 | 10.05 | 939 | | 32,350 | 0.0 | 1 | 0.2 | 0.05 | 0.01 |
| 12/3/16 12:30 PM | 0.0 | 10.77 | 880 | | 30,310 | 0.0 | 1 | 0.2 | 0.07 | 0.01 |
| 12/3/16 2:30 PM | 0.0 | 11.44 | 1,150 | | 39,610 | 0.0 | 1 | 0.2 | 0.08 | 0.01 |
| 12/3/16 3:00 PM | 0.0 | 11.44 | 1,150 | | 39,610 | 0.0 | 1 | 0.2 | 0.02 | 0.00 |
| | | | | | | | | **CUMULATIVE TOTAL** | **0.30** | **0.04** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.19 lbs/gal

**XYLENES MASS REMOVAL CALCULATIONS**

**JAMES F. BELL #1E - MW-8**

**SAN JAUN COUNTY, NEW MEXICO**

| DATE | Days Down | Flow Rate (scfm) | TPH ($mg/m^3$) | or | TPH (ppmv) | MASS REMOVAL (lbs/hr) | (lbs/day) | (tons/yr) | (lbs/period) | (gal/period) |
|---|---|---|---|---|---|---|---|---|---|---|
| 12/3/16 7:00 AM | 0.0 | 30.87 | 1,205 | | 2,810 | 0.1 | 3 | 0.6 | | |
| 12/3/16 7:30 AM | 0.0 | 30.87 | 1,205 | | 2,810 | 0.1 | 3 | 0.6 | 0 | 0.0 |
| 12/3/16 8:30 AM | 0.0 | 46.21 | 2,252 | | 5,250 | 0.4 | 9 | 1.7 | 0.26 | 0.04 |
| 12/3/16 9:30 AM | 0.0 | 46.21 | 5,623 | | 13,110 | 1.0 | 23 | 4.3 | 0.68 | 0.09 |
| 12/3/16 10:30 AM | 0.0 | 10.05 | 13,875 | | 32,350 | 0.5 | 13 | 2.3 | 0.75 | 0.10 |
| 12/3/16 12:30 PM | 0.0 | 10.77 | 13,000 | | 30,310 | 0.5 | 13 | 2.3 | 1.05 | 0.14 |
| 12/3/16 2:30 PM | 0.0 | 11.44 | 16,989 | | 39,610 | 0.7 | 17 | 3.2 | 1.25 | 0.17 |
| 12/3/16 3:00 PM | 0.0 | 11.44 | 16,989 | | 39,610 | 0.7 | 17 | 3.2 | 0.36 | 0.05 |
| | | | | | | | | **CUMULATIVE TOTAL** | **4.43** | **0.61** |

Notes:

1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114

2) Gallon/period conversion assumes a liquid density of: 7.24 lbs/gal

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-36528-1
Client Project/Site: James F. Bell #1E
Revision: 1

For:
MWH Americas Inc
11153 Aurora Avenue
Des Moines, Iowa 50322-7904

Attn: Clint Oberbroeckling

*Authorized for release by:*
*12/30/2016 12:42:13 PM*

Carol Webb, Project Manager II
(850)471-6250
carol.webb@testamericainc.com

# Table of Contents

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

## Job ID: 200-36528-1

### Laboratory: TestAmerica Burlington

**Narrative**

**Job Narrative**
**200-36528-1**

**Comments**
No additional comments.

**Receipt**
The samples were received on 12/6/2016 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

**Receipt Exceptions**
During the canister pressure check performed upon receipt, it was observed that the following sample(s) was received at an elevated residual vacuum level: MW-1, MW-8. The samples are grabs and there are no flow controllers to check. The client was contacted, and the laboratory was instructed to proceed with analysis.

**Air Toxics**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Detection Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

## Client Sample ID: MW-1 — Lab Sample ID: 200-36528-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 2700 | | 110 | | mg/m3 | 167000 | | TO-15 | Total/NA |
| Toluene | 11000 | | 130 | | mg/m3 | 167000 | | TO-15 | Total/NA |
| Ethylbenzene | 710 | | 150 | | mg/m3 | 167000 | | TO-15 | Total/NA |
| m,p-Xylene | 10000 | | 360 | | mg/m3 | 167000 | | TO-15 | Total/NA |
| Xylene, o- | 2200 | | 150 | | mg/m3 | 167000 | | TO-15 | Total/NA |
| Xylene (total) | 12000 | | 510 | | mg/m3 | 167000 | | TO-15 | Total/NA |

| Analyte | Result | Qualifier | RL | RL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| TPH GRO as Octane (C5-C10) | 190000 | | 9600 | | mg/m3 | 167000 | | TO3 | Total/NA |

## Client Sample ID: MW-8 — Lab Sample ID: 200-36528-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 900 | | 28 | | mg/m3 | 43200 | | TO-15 | Total/NA |
| Toluene | 5600 | | 33 | | mg/m3 | 43200 | | TO-15 | Total/NA |
| Ethylbenzene | 880 | | 38 | | mg/m3 | 43200 | | TO-15 | Total/NA |
| m,p-Xylene | 11000 | | 94 | | mg/m3 | 43200 | | TO-15 | Total/NA |
| Xylene, o- | 1900 | | 38 | | mg/m3 | 43200 | | TO-15 | Total/NA |
| Xylene (total) | 13000 | | 130 | | mg/m3 | 43200 | | TO-15 | Total/NA |

| Analyte | Result | Qualifier | RL | RL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| TPH GRO as Octane (C5-C10) | 140000 | | 2500 | | mg/m3 | 43200 | | TO3 | Total/NA |

This Detection Summary does not include radiochemical test results.

# Client Sample Results

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

## Client Sample ID: MW-1

**Lab Sample ID: 200-36528-1**
**Matrix: Air**
**Date Collected: 12/02/16 13:00**
**Date Received: 12/06/16 10:30**
**Sample Container: Summa Canister 6L**

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 2700 | | 110 | | mg/m3 | | | 12/14/16 23:43 | 167000 |
| Toluene | 11000 | | 130 | | mg/m3 | | | 12/14/16 23:43 | 167000 |
| Ethylbenzene | 710 | | 150 | | mg/m3 | | | 12/14/16 23:43 | 167000 |
| m,p-Xylene | 10000 | | 360 | | mg/m3 | | | 12/14/16 23:43 | 167000 |
| Xylene, o- | 2200 | | 150 | | mg/m3 | | | 12/14/16 23:43 | 167000 |
| Xylene (total) | 12000 | | 510 | | mg/m3 | | | 12/14/16 23:43 | 167000 |

### Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| TPH GRO as Octane (C5-C10) | 190000 | | 9600 | | mg/m3 | | | 12/14/16 23:43 | 167000 |

## Client Sample ID: MW-8

**Lab Sample ID: 200-36528-2**
**Matrix: Air**
**Date Collected: 12/03/16 12:30**
**Date Received: 12/06/16 10:30**
**Sample Container: Summa Canister 6L**

### Method: TO-15 - Volatile Organic Compounds in Ambient Air

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 900 | | 28 | | mg/m3 | | | 12/15/16 01:30 | 43200 |
| Toluene | 5600 | | 33 | | mg/m3 | | | 12/15/16 01:30 | 43200 |
| Ethylbenzene | 880 | | 38 | | mg/m3 | | | 12/15/16 01:30 | 43200 |
| m,p-Xylene | 11000 | | 94 | | mg/m3 | | | 12/15/16 01:30 | 43200 |
| Xylene, o- | 1900 | | 38 | | mg/m3 | | | 12/15/16 01:30 | 43200 |
| Xylene (total) | 13000 | | 130 | | mg/m3 | | | 12/15/16 01:30 | 43200 |

### Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

| Analyte | Result | Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| TPH GRO as Octane (C5-C10) | 140000 | | 2500 | | mg/m3 | | | 12/15/16 01:30 | 43200 |

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

**Lab Sample ID: MB 200-112389/5**
**Matrix: Air**
**Analysis Batch: 112389**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00064 | | 0.00064 | | mg/m3 | | | 12/14/16 13:43 | 1 |
| Toluene | <0.00075 | | 0.00075 | | mg/m3 | | | 12/14/16 13:43 | 1 |
| Ethylbenzene | <0.00087 | | 0.00087 | | mg/m3 | | | 12/14/16 13:43 | 1 |
| m,p-Xylene | <0.0022 | | 0.0022 | | mg/m3 | | | 12/14/16 13:43 | 1 |
| Xylene, o- | <0.00087 | | 0.00087 | | mg/m3 | | | 12/14/16 13:43 | 1 |
| Xylene (total) | <0.0030 | | 0.0030 | | mg/m3 | | | 12/14/16 13:43 | 1 |

**Lab Sample ID: LCS 200-112389/4**
**Matrix: Air**
**Analysis Batch: 112389**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0319 | 0.0335 | | mg/m3 | | 105 | 67 - 127 |
| Toluene | 0.0377 | 0.0391 | | mg/m3 | | 104 | 67 - 127 |
| Ethylbenzene | 0.0434 | 0.0449 | | mg/m3 | | 103 | 68 - 128 |
| m,p-Xylene | 0.0868 | 0.0886 | | mg/m3 | | 102 | 68 - 128 |
| Xylene, o- | 0.0434 | 0.0436 | | mg/m3 | | 100 | 67 - 127 |

## Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

**Lab Sample ID: MB 200-112441/5**
**Matrix: Air**
**Analysis Batch: 112441**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | RL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| TPH GRO as Octane (C5-C10) | <0.057 | | 0.057 | | mg/m3 | | | 12/14/16 13:43 | 1 |

**Lab Sample ID: LCS 200-112441/4**
**Matrix: Air**
**Analysis Batch: 112441**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| n-Octane | 0.0467 | 0.0506 | | mg/m3 | | 108 | 70 - 130 |

# QC Association Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

## Air - GC/MS VOA

### Analysis Batch: 112389

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 200-36528-1 | MW-1 | Total/NA | Air | TO-15 | |
| 200-36528-2 | MW-8 | Total/NA | Air | TO-15 | |
| MB 200-112389/5 | Method Blank | Total/NA | Air | TO-15 | |
| LCS 200-112389/4 | Lab Control Sample | Total/NA | Air | TO-15 | |

### Analysis Batch: 112441

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 200-36528-1 | MW-1 | Total/NA | Air | TO3 | |
| 200-36528-2 | MW-8 | Total/NA | Air | TO3 | |
| MB 200-112441/5 | Method Blank | Total/NA | Air | TO3 | |
| LCS 200-112441/4 | Lab Control Sample | Total/NA | Air | TO3 | |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

## Client Sample ID: MW-1

**Lab Sample ID: 200-36528-1**

**Date Collected: 12/02/16 13:00**

**Matrix: Air**

**Date Received: 12/06/16 10:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | TO-15 | | 167000 | 112389 | 12/14/16 23:43 | PAD | TAL BUR |
| Total/NA | Analysis | TO3 | | 167000 | 112441 | 12/14/16 23:43 | PAD | TAL BUR |

## Client Sample ID: MW-8

**Lab Sample ID: 200-36528-2**

**Date Collected: 12/03/16 12:30**

**Matrix: Air**

**Date Received: 12/06/16 10:30**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | TO-15 | | 43200 | 112389 | 12/15/16 01:30 | PAD | TAL BUR |
| Total/NA | Analysis | TO3 | | 43200 | 112441 | 12/15/16 01:30 | PAD | TAL BUR |

**Laboratory References:**

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

# Certification Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

## Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Connecticut | State Program | 1 | PH-0751 | 09-30-17 |
| DE Haz. Subst. Cleanup Act (HSCA) | State Program | 3 | NA | 02-02-17 |
| Florida | NELAP | 4 | E87467 | 06-30-17 |
| L-A-B | DoD ELAP | | L2336 | 02-26-17 |
| Maine | State Program | 1 | VT00008 | 04-17-17 |
| Minnesota | NELAP | 5 | 050-999-436 | 12-31-17 |
| New Hampshire | NELAP | 1 | 2006 | 12-18-16 * |
| New Jersey | NELAP | 2 | VT972 | 06-30-17 |
| New York | NELAP | 2 | 10391 | 04-01-17 |
| Pennsylvania | NELAP | 3 | 68-00489 | 04-30-17 |
| Rhode Island | State Program | 1 | LAO00298 | 12-30-16 * |
| US Fish & Wildlife | Federal | | LE-058448-0 | 10-31-17 |
| USDA | Federal | | P330-11-00093 | 12-05-19 |
| Vermont | State Program | 1 | VT-4000 | 12-31-17 |
| Virginia | NELAP | 3 | 460209 | 12-14-17 |

## Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alabama | State Program | 4 | 40150 | 06-30-17 |
| Arizona | State Program | 9 | AZ0710 | 01-11-18 |
| Arkansas DEQ | State Program | 6 | 88-0689 | 09-01-17 |
| California | ELAP | 9 | 2510 | 03-31-18 |
| Florida | NELAP | 4 | E81010 | 06-30-17 |
| Georgia | State Program | 4 | N/A | 06-30-17 |
| Illinois | NELAP | 5 | 200041 | 10-09-17 |
| Iowa | State Program | 7 | 367 | 08-01-18 |
| Kansas | NELAP | 7 | E-10253 | 10-31-17 |
| Kentucky (UST) | State Program | 4 | 53 | 06-30-17 |
| Kentucky (WW) | State Program | 4 | 98030 | 12-31-16 |
| Louisiana | NELAP | 6 | 30976 | 06-30-17 |
| Louisiana (DW) | NELAP Secondary AB | 6 | LA170005 | 12-31-17 |
| Maryland | State Program | 3 | 233 | 09-30-17 |
| Massachusetts | State Program | 1 | M-FL094 | 06-30-17 |
| Michigan | State Program | 5 | 9912 | 05-06-17 |
| New Jersey | NELAP | 2 | FL006 | 06-30-17 |
| North Carolina (WW/SW) | State Program | 4 | 314 | 12-31-17 |
| Oklahoma | State Program | 6 | 9810 | 08-31-17 |
| Pennsylvania | NELAP | 3 | 68-00467 | 01-31-17 |
| Rhode Island | State Program | 1 | LAO00307 | 12-30-16 |
| South Carolina | State Program | 4 | 96026 | 06-30-17 |
| Tennessee | State Program | 4 | TN02907 | 06-30-17 |
| Texas | NELAP | 6 | T104704286-16-10 | 09-30-17 |
| USDA | Federal | | P330-16-00172 | 05-24-19 |
| Virginia | NELAP | 3 | 460166 | 06-14-17 |
| Washington | State Program | 10 | C915 | 05-15-17 |
| West Virginia DEP | State Program | 3 | 136 | 06-30-17 |

* Certification renewal pending - certification considered valid.

# Method Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| TO-15 | Volatile Organic Compounds in Ambient Air | EPA | TAL BUR |
| TO3 | Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC) | EPA | TAL BUR |

**Protocol References:**

EPA = US Environmental Protection Agency

**Laboratory References:**

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

# Sample Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 200-36528-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 200-36528-1 | MW-1 | Air | 12/02/16 13:00 | 12/06/16 10:30 |
| 200-36528-2 | MW-8 | Air | 12/03/16 12:30 | 12/06/16 10:30 |

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

# Canister Samples Chain of Custody Record & TO-15 Field Test Data Sheet

*TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.*

| | | | |
|---|---|---|---|
| **Client Contact Information** | Project Manager: Steve Varga | Carrier: Fed Ex | 1 of 1 COCs |
| Company: MWH Americas, Inc. | Phone: (515) 251-1020 | Sampled By: Brad Barta (316)305 2789 | |
| Address: 11153 Aurora Ave. | E-mail: Steve.Varga@mwhglobal.com | Analyze for TO-15 BTEX, TO-3 TPH | |
| City/State/Zip: Des Moines, IA 50322 | Site Contact: Brad Barta | ARF # ERG-MWH-11-10-16-CWO-01 | |
| Phone: (515) 253-0830 | TA Contact: Carol Webb | | |
| FAX: | | | |
| Project Name: Pit GW: JF Bell #1E | **Analysis Turnaround Time** | | |
| Site: JF Bell #1E | Standard (Specify) ✓ | | |
| PO # | Rush (Specify) | | |

| Sample Identification | Sample Date(s) | Time Start (24 hr clock) | Time Stop (24 hr clock) | Canister Pressure in Field ("Hg) (Start) | Canister Pressure in Field ("Hg) (Stop) | Interior Temp. (F) (Start) | Interior Temp. (F) (Stop) | Outgoing Canister Pressure ("Hg) (Lab) | Incoming Canister Pressure ("Hg) (Lab) | Flow Reg. ID | Can ID | Can Size (L) | Flow Controller Readout (ml/min) | Can Cert ID | Analysis: TO-15 BTEX | NJDEP LL-TO-15 | EPA 3C | EPA 25C | ASTM D-1946 | Other (Please specify in notes section) TO-3 TPH | Matrix: Indoor /Ambient Air | Soil Gas | Landfill Gas | Helium Prefill for High Methane (LF Gas) | Other (Please specify in notes section) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 12/2/16 | 1300 | 1300 | -29.8 | -8.4 | N/A | N/A | | | N/A | 2885 | 6L | N/A | 0.04 Batch | X | | | | | X | | X | | | |
| MW-8 | 12/3/16 | 1230 | 1230 | -29.8 | -8.9 | N/A | N/A | | | N/A | 4286 | 6L | N/A | 0.04 Batch | X | | | | | X | | X | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

| Temperature (Fahrenheit) | Ambient | Maximum | Minimum | |
|---|---|---|---|---|
| Start | | | | |
| Stop | | | | |

| Pressure (inches of Hg) | Ambient | Maximum | Minimum | |
|---|---|---|---|---|
| Start | | | | |
| Stop | | | | |

GC/MS Analyst Signature (TO-15)

200-36528 Chain of Custody

**Special Instructions/QC Requirements & Comments:**
Per ARF Analyze for TO-15 BTEX & TO-3 TPH
(MW-1 Field TPH = 44,470 ppm) (MW-8 Field TPH = 30,310 ppm)

| | | | |
|---|---|---|---|
| Canisters Shipped by: | Date/Time: | Canisters Received by: | Date/Time: |
| Samples Relinquished by: Brad Barta | Date/Time: 12/5/16 | Received by: Fed Ex | Date/Time: 12/5/16 |
| Relinquished by: Fed Ex | Date/Time: 12/6/16 | Received by: TA Box | Date/Time: 12/6/16 10:30 |

Lab Use Only Shipper Name: Opened by: Condition:

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 200-36528-1

**Login Number: 36528**
**List Number: 1**
**Creator: Lavigne III, Scott M**

**List Source: TestAmerica Burlington**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | Lab does not accept radioactive samples. |
| The cooler's custody seal, if present, is intact. | True | Not present |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | N/A | Thermal preservation not required. |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | N/A | Thermal preservation not required. |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | N/A | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# Pre-Shipment Clean Canister Certification Report

## Canister Cleaning & Pre-Shipment Leak Test

| System ID | # Cycles | Cleaning Date | Technician | Canister Size | Certification Type: |
|---|---|---|---|---|---|
| GC 11.9.16 ~~Oven 3/4~~ B-Xtherm | 20 | 11/9/2016 | EJE | 1L 6L | Batch Individual |

| Port | Can ID | Initial[1] ("Hg) | Final ("Hg) | Adj. Initial[2] ("Hg) | Diff.[3] | Initial Reading Gauge: | Initial Reading Date: | Initial Reading Time: | Initial Reading Tech: | Initial Reading BP: | Initial Reading Temp: | Final Reading Gauge: | Final Reading Date: | Final Reading Time: | Final Reading Tech: | Final Reading BP: | Final Reading Temp: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ~~4286~~ | -29.5 | leak | -29.5 | leak | G9 | 11.10.16 | 10:00 | CC | 29.5 | 21 | G9 | 11.14.16 | 15:30 | CC | 29.5 | 21 |
| 2 | 4074 | | -29.5 | | +0.2 | | | | | | | | | | | | |
| 3 | 2780 | | -29.7 | | -0.2 | | | | | | | | | | | | |
| 4 | 3518 | | -29.9 | | -0.4 | | | | | | | | | | | | |
| 5 | ~~2985~~ | | leak | | leak | | | | | | | | | | | | |
| 6 | 3351 | | -29.9 | | -0.4 | | | | | | | | | | | | |
| 7 | 5617 | | -29.6 | | -0.1 | | | | | | | | | | | | |
| 8 | 3604 | | -29.5 | | +0.3 | | | | | | | | | | | | |
| 9 | 2844 | | -29.7 | | -0.2 | | | | | | | | | | | | |
| 10 | 2973 | -29.7 | -29.8 | -29.7 | -0.1 | G9 | 11.15.16 | 13:00 | CC | 29.5 | 20 | G9 | 11.17.16 | 8:15 | CC | 29.5 | 21 |
| 11 | 3086 | -29.5 | -29.7 | -29.6 | -0.2 | G9 | 11.10.16 | 10:00 | CC | 29.5 | 21 | G9 | 11.14.16 | 15:30 | CC | 29.5 | 21 |
| 12 | 3885 | | -29.7 | | -0.2 | | | | | | | | | | | | |

[1] Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.

[2] Adjusted Initial Pressure = Initial Pressure + (Initial BP - Final BP).

[3] Difference = Final Pressure - Adjusted Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.5. (2) Pressure readings must be at least 24 hours apart.

**If time frame was not met, the PM must authorize shipment of canister** **PM Authorization Signature:** **Date:**

## Clean Canister Certification Analysis & Authorization of Release to Inventory

**Test Method:** ~~TO15 Routine~~ ≤ TO15 LL ≤ NJDEP-LL TO15

| Can ID | Date | Sequence | Analyst | Inventory Level 1 | 2 | 3 | 4 | Limited | Secondary Review: Review Date | Review |
|---|---|---|---|---|---|---|---|---|---|---|
| 2973 | 11/16/16 | 22622 | GGG | | XXXX | | | | 11/14/16 | ANT |

**Inventory Level 1:** Individual Canister Certification (TO15LL 0.01).

**Inventory Level 2:** Individual or Batch Certification (TO15 0.04 ppbv).

**Inventory Level 3:** Individual or Batch Certification (TO15 0.2 ppbv).

**Inventory Level 4:** Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

**Inventory Level Limited:** Canisters may only be used for certain projects.

**Comments:**

Bottle: Summa Canister 6L
Sampled: 11/9/2016 12:00 AM 200-991168

200-36123-A-10
2973

Loc: 200
36123
#10
A





FAI023:04.13.16:9
TestAmerica Burlington

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington  Job No.: 200-36123-1

SDG No.:

Client Sample ID: 2973  Lab Sample ID: 200-36123-10

Matrix: Air  Lab File ID: 22622_06.d

Analysis Method: TO-15  Date Collected: 11/09/2016 00:00

Sample wt/vol: 1000(mL)  Date Analyzed: 11/10/2016 14:16

Soil Aliquot Vol:  Dilution Factor: 0.2

Soil Extract Vol.:  GC Column: RTX-624  ID: 0.32(mm)

% Moisture:  Level: (low/med) Low

Analysis Batch No.: 111207  Units: ppb v/v

| CAS NO. | COMPOUND NAME | RESULT | Q | RL | RL |
|---|---|---|---|---|---|
| 115-07-1 | Propylene | 1.0 | U * | 1.0 | 1.0 |
| 75-71-8 | Dichlorodifluoromethane | 0.10 | U | 0.10 | 0.10 |
| 75-45-6 | Freon 22 | 0.10 | U | 0.10 | 0.10 |
| 76-14-2 | 1,2-Dichlorotetrafluoroethane | 0.040 | U | 0.040 | 0.040 |
| 74-87-3 | Chloromethane | 0.10 | U * | 0.10 | 0.10 |
| 106-97-8 | n-Butane | 0.10 | U | 0.10 | 0.10 |
| 75-01-4 | Vinyl chloride | 0.040 | U | 0.040 | 0.040 |
| 106-99-0 | 1,3-Butadiene | 0.040 | U | 0.040 | 0.040 |
| 74-83-9 | Bromomethane | 0.040 | U | 0.040 | 0.040 |
| 75-00-3 | Chloroethane | 0.10 | U | 0.10 | 0.10 |
| 593-60-2 | Bromoethene(Vinyl Bromide) | 0.040 | U | 0.040 | 0.040 |
| 75-69-4 | Trichlorofluoromethane | 0.040 | U | 0.040 | 0.040 |
| 64-17-5 | Ethanol | 1.0 | U | 1.0 | 1.0 |
| 76-13-1 | Freon TF | 0.040 | U | 0.040 | 0.040 |
| 75-35-4 | 1,1-Dichloroethene | 0.040 | U | 0.040 | 0.040 |
| 67-64-1 | Acetone | 1.0 | U | 1.0 | 1.0 |
| 67-63-0 | Isopropyl alcohol | 1.0 | U | 1.0 | 1.0 |
| 75-15-0 | Carbon disulfide | 0.10 | U | 0.10 | 0.10 |
| 107-05-1 | 3-Chloropropene | 0.10 | U | 0.10 | 0.10 |
| 75-09-2 | Methylene Chloride | 0.10 | U | 0.10 | 0.10 |
| 75-65-0 | tert-Butyl alcohol | 1.0 | U | 1.0 | 1.0 |
| 1634-04-4 | Methyl tert-butyl ether | 0.040 | U | 0.040 | 0.040 |
| 156-60-5 | trans-1,2-Dichloroethene | 0.040 | U | 0.040 | 0.040 |
| 110-54-3 | n-Hexane | 0.040 | U | 0.040 | 0.040 |
| 75-34-3 | 1,1-Dichloroethane | 0.040 | U | 0.040 | 0.040 |
| 108-05-4 | Vinyl acetate | 1.0 | U | 1.0 | 1.0 |
| 141-78-6 | Ethyl acetate | 1.0 | U | 1.0 | 1.0 |
| 78-93-3 | Methyl Ethyl Ketone | 0.10 | U | 0.10 | 0.10 |
| 156-59-2 | cis-1,2-Dichloroethene | 0.040 | U | 0.040 | 0.040 |
| 540-59-0 | 1,2-Dichloroethene, Total | 0.080 | U | 0.080 | 0.080 |
| 67-66-3 | Chloroform | 0.040 | U | 0.040 | 0.040 |
| 109-99-9 | Tetrahydrofuran | 1.0 | U | 1.0 | 1.0 |
| 71-55-6 | 1,1,1-Trichloroethane | 0.040 | U | 0.040 | 0.040 |
| 110-82-7 | Cyclohexane | 0.040 | U | 0.040 | 0.040 |
| 56-23-5 | Carbon tetrachloride | 0.040 | U | 0.040 | 0.040 |
| 540-84-1 | 2,2,4-Trimethylpentane | 0.040 | U | 0.040 | 0.040 |

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington  Job No.: 200-36123-1

SDG No.:

Client Sample ID: 2973  Lab Sample ID: 200-36123-10

Matrix: Air  Lab File ID: 22622_06.d

Analysis Method: TO-15  Date Collected: 11/09/2016 00:00

Sample wt/vol: 1000(mL)  Date Analyzed: 11/10/2016 14:16

Soil Aliquot Vol:  Dilution Factor: 0.2

Soil Extract Vol.:  GC Column: RTX-624  ID: 0.32(mm)

% Moisture:  Level: (low/med) Low

Analysis Batch No.: 111207  Units: ppb v/v

| CAS NO. | COMPOUND NAME | RESULT | Q | RL | RL |
|---|---|---|---|---|---|
| 71-43-2 | Benzene | 0.040 | U | 0.040 | 0.040 |
| 107-06-2 | 1,2-Dichloroethane | 0.040 | U | 0.040 | 0.040 |
| 142-82-5 | n-Heptane | 0.040 | U | 0.040 | 0.040 |
| 79-01-6 | Trichloroethene | 0.040 | U | 0.040 | 0.040 |
| 80-62-6 | Methyl methacrylate | 0.10 | U | 0.10 | 0.10 |
| 78-87-5 | 1,2-Dichloropropane | 0.040 | U | 0.040 | 0.040 |
| 123-91-1 | 1,4-Dioxane | 1.0 | U | 1.0 | 1.0 |
| 75-27-4 | Bromodichloromethane | 0.040 | U | 0.040 | 0.040 |
| 10061-01-5 | cis-1,3-Dichloropropene | 0.040 | U | 0.040 | 0.040 |
| 108-10-1 | methyl isobutyl ketone | 0.10 | U | 0.10 | 0.10 |
| 108-88-3 | Toluene | 0.040 | U | 0.040 | 0.040 |
| 10061-02-6 | trans-1,3-Dichloropropene | 0.040 | U | 0.040 | 0.040 |
| 79-00-5 | 1,1,2-Trichloroethane | 0.040 | U | 0.040 | 0.040 |
| 127-18-4 | Tetrachloroethene | 0.040 | U | 0.040 | 0.040 |
| 591-78-6 | Methyl Butyl Ketone (2-Hexanone) | 0.10 | U | 0.10 | 0.10 |
| 124-48-1 | Dibromochloromethane | 0.040 | U | 0.040 | 0.040 |
| 106-93-4 | 1,2-Dibromoethane | 0.040 | U | 0.040 | 0.040 |
| 108-90-7 | Chlorobenzene | 0.040 | U | 0.040 | 0.040 |
| 100-41-4 | Ethylbenzene | 0.040 | U | 0.040 | 0.040 |
| 179601-23-1 | m,p-Xylene | 0.10 | U | 0.10 | 0.10 |
| 95-47-6 | Xylene, o- | 0.040 | U | 0.040 | 0.040 |
| 1330-20-7 | Xylene (total) | 0.14 | U | 0.14 | 0.14 |
| 100-42-5 | Styrene | 0.040 | U | 0.040 | 0.040 |
| 75-25-2 | Bromoform | 0.040 | U | 0.040 | 0.040 |
| 98-82-8 | Cumene | 0.040 | U | 0.040 | 0.040 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 0.040 | U | 0.040 | 0.040 |
| 103-65-1 | n-Propylbenzene | 0.040 | U | 0.040 | 0.040 |
| 622-96-8 | 4-Ethyltoluene | 0.040 | U | 0.040 | 0.040 |
| 108-67-8 | 1,3,5-Trimethylbenzene | 0.040 | U | 0.040 | 0.040 |
| 95-49-8 | 2-Chlorotoluene | 0.040 | U | 0.040 | 0.040 |
| 98-06-6 | tert-Butylbenzene | 0.040 | U | 0.040 | 0.040 |
| 95-63-6 | 1,2,4-Trimethylbenzene | 0.040 | U | 0.040 | 0.040 |
| 135-98-8 | sec-Butylbenzene | 0.040 | U | 0.040 | 0.040 |
| 99-87-6 | 4-Isopropyltoluene | 0.040 | U | 0.040 | 0.040 |
| 541-73-1 | 1,3-Dichlorobenzene | 0.040 | U | 0.040 | 0.040 |
| 106-46-7 | 1,4-Dichlorobenzene | 0.040 | U | 0.040 | 0.040 |

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington  Job No.: 200-36123-1

SDG No.:

Client Sample ID: 2973  Lab Sample ID: 200-36123-10

Matrix: Air  Lab File ID: 22622_06.d

Analysis Method: TO-15  Date Collected: 11/09/2016 00:00

Sample wt/vol: 1000(mL)  Date Analyzed: 11/10/2016 14:16

Soil Aliquot Vol:  Dilution Factor: 0.2

Soil Extract Vol.:  GC Column: RTX-624  ID: 0.32(mm)

% Moisture:  Level: (low/med) Low

Analysis Batch No.: 111207  Units: ppb v/v

| CAS NO. | COMPOUND NAME | RESULT | Q | RL | RL |
|---|---|---|---|---|---|
| 100-44-7 | Benzyl chloride | 0.040 | U | 0.040 | 0.040 |
| 104-51-8 | n-Butylbenzene | 0.040 | U | 0.040 | 0.040 |
| 95-50-1 | 1,2-Dichlorobenzene | 0.040 | U | 0.040 | 0.040 |
| 120-82-1 | 1,2,4-Trichlorobenzene | 0.10 | U | 0.10 | 0.10 |
| 87-68-3 | Hexachlorobutadiene | 0.040 | U | 0.040 | 0.040 |
| 91-20-3 | Naphthalene | 0.10 | U | 0.10 | 0.10 |

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\CHW.i\20161110-22622.b\22622_06.d
Lims ID: 200-36123-A-10
Client ID: 2973
Sample Type: Client
Inject. Date: 10-Nov-2016 14:16:30 ALS Bottle#: 5 Worklist Smp#: 6
Purge Vol: 200.000 mL Dil. Factor: 0.2000
Sample Info: 200-0022622-006
Misc. Info.: 36123-10
Operator ID: ggg Instrument ID: CHW.i

Method: \\ChromNA\Burlington\ChromData\CHW.i\20161110-22622.b\TO15_MasterMethod_(v1).m
Limit Group: AI_TO15_ICAL
Last Update: 11-Nov-2016 13:36:51 Calib Date: 23-Sep-2016 04:18:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Burlington\ChromData\CHW.i\20160922-21892.b\21892_13.d

Column 1 : RTX-624 ( 0.32 mm) Det: MS SCAN
Process Host: XAWRK021

First Level Reviewer: guazzonig Date: 11-Nov-2016 13:33:07

| | Compound | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q | Response | OnCol Amt ppb v/v | Flags |
|---|---|---|---|---|---|---|---|---|---|
| | 1 Propene | 41 | | 5.260 | | | | ND | |
| | 2 Dichlorodifluoromethane | 85 | | 5.377 | | | | ND | |
| | 3 Chlorodifluoromethane | 51 | | 5.458 | | | | ND | |
| | 4 1,2-Dichloro-1,1,2,2-tetra | 85 | | 5.784 | | | | ND | |
| | 5 Chloromethane | 50 | | 5.977 | | | | ND | |
| | 6 Butane | 43 | | 6.255 | | | | ND | |
| | 7 Vinyl chloride | 62 | | 6.308 | | | | ND | |
| | 8 Butadiene | 54 | | 6.405 | | | | ND | |
| | 10 Bromomethane | 94 | | 7.212 | | | | ND | |
| | 11 Chloroethane | 64 | | 7.458 | | | | ND | |
| | 13 Vinyl bromide | 106 | | 7.870 | | | | ND | |
| | 14 Trichlorofluoromethane | 101 | | 7.967 | | | | ND | |
| | 17 Ethanol | 45 | | 8.464 | | | | ND | |
| | 20 1,1,2-Trichloro-1,2,2-trif | 101 | | 8.972 | | | | ND | |
| | 21 1,1-Dichloroethene | 96 | | 9.042 | | | | ND | |
| | 22 Acetone | 43 | | 9.235 | | | | ND | |
| | 24 Isopropyl alcohol | 45 | 9.438 | 9.433 | 0.006 | 96 | 3514 | 0.0957 | |
| | 23 Carbon disulfide | 76 | | 9.433 | | | | ND | |
| | 25 3-Chloro-1-propene | 41 | | 9.737 | | | | ND | |
| | 27 Methylene Chloride | 49 | | 10.000 | | | | ND | |
| | 28 2-Methyl-2-propanol | 59 | | 10.123 | | | | ND | |
| S | 30 1,2-Dichloroethene, Total | 61 | | 10.200 | | | | ND | |
| | 29 Methyl tert-butyl ether | 73 | | 10.342 | | | | ND | |
| | 31 trans-1,2-Dichloroethene | 61 | | 10.401 | | | | ND | |
| | 33 Hexane | 57 | | 10.732 | | | | ND | |
| | 34 1,1-Dichloroethane | 63 | | 11.203 | | | | ND | |
| | 35 Vinyl acetate | 43 | | 11.230 | | | | ND | |
| | 37 cis-1,2-Dichloroethene | 96 | | 12.220 | | | | ND | |
| | 38 2-Butanone (MEK) | 72 | | 12.236 | | | | ND | |
| | 39 Ethyl acetate | 88 | | 12.241 | | | | ND | |
| * | 40 Chlorobromomethane | 128 | 12.642 | 12.642 | 0.000 | 78 | 296034 | 10.0 | |

| | Compound | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q | Response | OnCol Amt ppb v/v | Flags |
|---|---|---|---|---|---|---|---|---|---|
| | 41 Tetrahydrofuran | 42 | | 12.642 | | | | ND | |
| | 42 Chloroform | 83 | | 12.733 | | | | ND | |
| | 43 Cyclohexane | 84 | | 13.006 | | | | ND | |
| | 44 1,1,1-Trichloroethane | 97 | | 13.022 | | | | ND | |
| | 45 Carbon tetrachloride | 117 | | 13.247 | | | | ND | |
| | 46 Isooctane | 57 | | 13.600 | | | | ND | |
| | 47 Benzene | 78 | | 13.664 | | | | ND | |
| | 48 1,2-Dichloroethane | 62 | | 13.814 | | | | ND | |
| | 49 n-Heptane | 43 | | 13.916 | | | | ND | |
| * | 50 1,4-Difluorobenzene | 114 | 14.360 | 14.360 | 0.000 | 92 | 1398514 | 10.0 | |
| | 53 Trichloroethene | 95 | | 14.788 | | | | ND | |
| | 54 1,2-Dichloropropane | 63 | | 15.285 | | | | ND | |
| | 55 Methyl methacrylate | 69 | | 15.365 | | | | ND | |
| | 56 1,4-Dioxane | 88 | | 15.451 | | | | ND | |
| | 57 Dibromomethane | 174 | | 15.515 | | | | ND | |
| | 58 Dichlorobromomethane | 83 | | 15.745 | | | | ND | |
| | 60 cis-1,3-Dichloropropene | 75 | | 16.574 | | | | ND | |
| | 61 4-Methyl-2-pentanone (MIBK | 43 | | 16.810 | | | | ND | |
| | 65 Toluene | 92 | | 17.125 | | | | ND | |
| | 66 trans-1,3-Dichloropropene | 75 | | 17.644 | | | | ND | |
| | 67 1,1,2-Trichloroethane | 83 | | 18.003 | | | | ND | |
| | 68 Tetrachloroethene | 166 | | 18.120 | | | | ND | |
| | 69 2-Hexanone | 43 | | 18.393 | | | | ND | |
| | 71 Chlorodibromomethane | 129 | | 18.730 | | | | ND | |
| | 72 Ethylene Dibromide | 107 | | 19.008 | | | | ND | |
| * | 74 Chlorobenzene-d5 | 117 | 19.854 | 19.848 | 0.006 | 82 | 1215776 | 10.0 | |
| | 75 Chlorobenzene | 112 | | 19.907 | | | | ND | |
| | 76 Ethylbenzene | 91 | | 20.036 | | | | ND | |
| S | 73 Xylenes, Total | 106 | | 20.100 | | | | ND | |
| | 78 m-Xylene & p-Xylene | 106 | | 20.266 | | | | ND | |
| | 79 o-Xylene | 106 | | 21.015 | | | | ND | |
| | 80 Styrene | 104 | | 21.057 | | | | ND | |
| | 81 Bromoform | 173 | | 21.437 | | | | ND | |
| | 82 Isopropylbenzene | 105 | | 21.603 | | | | ND | |
| | 84 1,1,2,2-Tetrachloroethane | 83 | | 22.186 | | | | ND | |
| | 85 N-Propylbenzene | 91 | | 22.261 | | | | ND | |
| | 88 4-Ethyltoluene | 105 | | 22.438 | | | | ND | |
| | 89 2-Chlorotoluene | 91 | | 22.459 | | | | ND | |
| | 90 1,3,5-Trimethylbenzene | 105 | | 22.534 | | | | ND | |
| | 92 tert-Butylbenzene | 119 | | 23.005 | | | | ND | |
| | 93 1,2,4-Trimethylbenzene | 105 | | 23.090 | | | | ND | |
| | 94 sec-Butylbenzene | 105 | | 23.320 | | | | ND | |
| | 95 4-Isopropyltoluene | 119 | | 23.518 | | | | ND | |
| | 96 1,3-Dichlorobenzene | 146 | | 23.572 | | | | ND | |
| | 97 1,4-Dichlorobenzene | 146 | | 23.711 | | | | ND | |
| | 98 Benzyl chloride | 91 | | 23.920 | | | | ND | |
| | 100 n-Butylbenzene | 91 | | 24.128 | | | | ND | |
| | 101 1,2-Dichlorobenzene | 146 | | 24.289 | | | | ND | |
| | 103 1,2,4-Trichlorobenzene | 180 | | 27.038 | | | | ND | |
| | 104 Hexachlorobutadiene | 225 | | 27.236 | | | | ND | |
| | 105 Naphthalene | 128 | | 27.595 | | | | ND | |

## Reagents:

ATTO15WISs_00004 Amount Added: 20.00 Units: mL Run Reagent

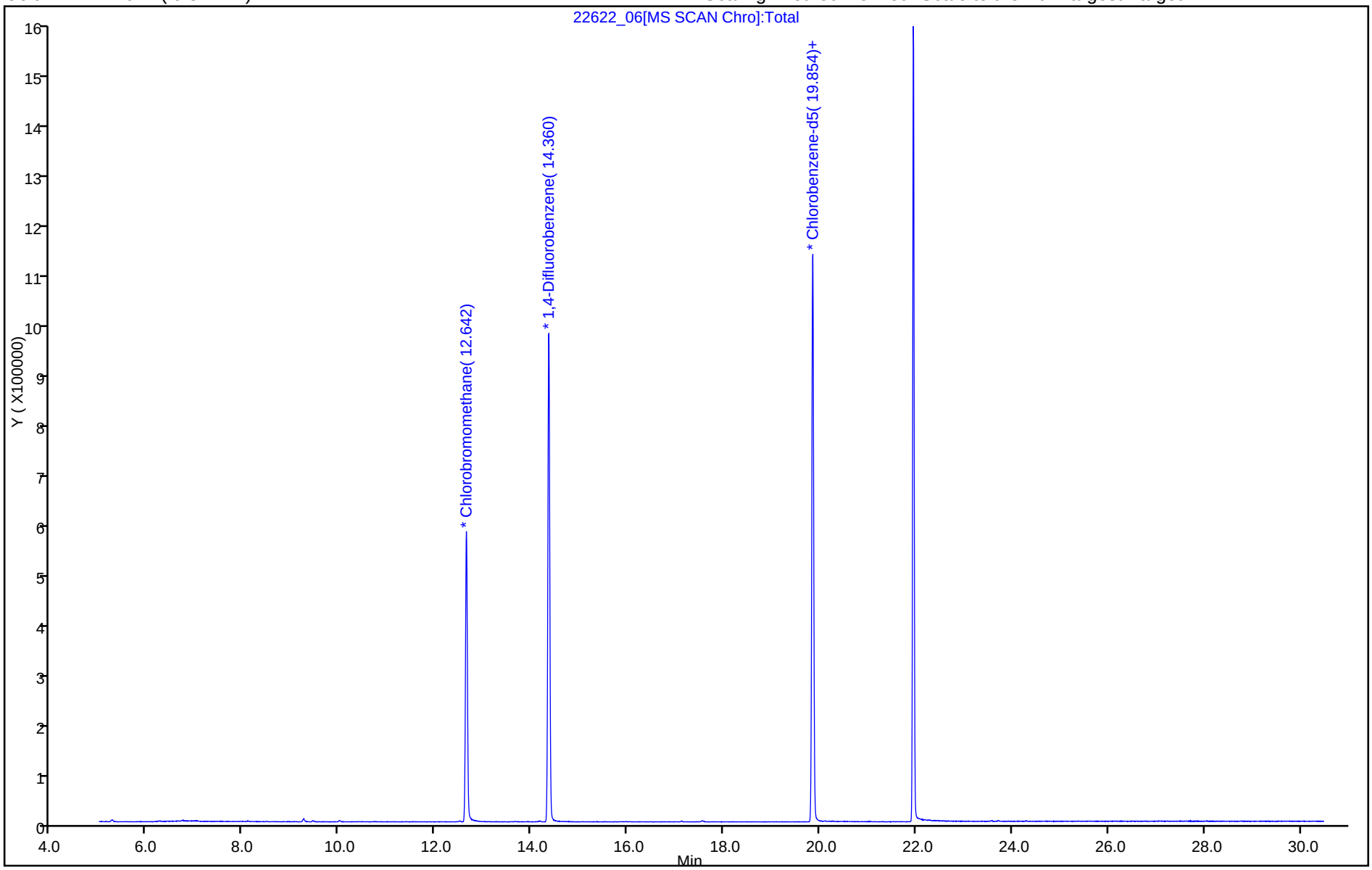
Report Date: 11-Nov-2016 13:38:24 Chrom Revision: 2.2 01-Nov-2016 11:37:52

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\CHW.i\20161110-22622.b\22622_06.d

| | | | | | |
|---|---|---|---|---|---|
| Injection Date: | 10-Nov-2016 14:16:30 | Instrument ID: | CHW.i | Operator ID: | ggg |
| Lims ID: | 200-36123-A-10 | Lab Sample ID: | 200-36123-10 | Worklist Smp#: | 6 |
| Client ID: | 2973 | | | | |
| Purge Vol: | 200.000 mL | Dil. Factor: | 0.2000 | ALS Bottle#: | 5 |
| Method: | TO15_MasterMethod_(v1) | Limit Group: | AI_TO15_ICAL | | |

Column: RTX-624 ( 0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



# APPENDIX E

AcuVac Remediation, LLC
1656-H Townhurst, Houston, Texas 77043
713.468.6688 • www.acuvac.com

December 22, 2016

Mr. Stephen Varsa
Supervising Hydrogeologist
MWH Americas, Inc.
11153 Aurora Avenue
Des Moines, IA 50322

Dear Stephen:

Re: James F. Bell #1E, San Juan County, NM

At your request, we performed two 8.0-hour Mobile Dual Phase Extraction (MDPE) Events; #1A on well MW-1, and Event #1B on well MW-8, at the above referenced site on December 2 and 3, 2016, respectively. Following is the Report and a copy of the Operating Data collected during Event #1. Additionally, Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

The purpose of the MDPE events was to maximize recovery of Phase Separated Hydrocarbons (PSH). PSH is referred to as Non-Aqueous Phase Liquids (NAPL) which includes Light Non-Aqueous Phase Liquids (LNAPL). The source of the NAPL is a historical release of natural gas condensate.

## OBJECTIVES

The Objectives of the MDPE Events are to:

- Evaluate the potential for removing liquid and vapor phase NAPL from the groundwater (GW) and soils in the subsurface formations within the influence of the extraction well.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the vapor-phase and liquid NAPL specific yields with high induced vacuums.
- Provide an induced hydraulic gradient (IHG) to gain hydraulic control of the area surrounding the extraction well during the event periods.
- Select the groundwater depression and pump rates to accomplish the above objectives.

## METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform MDPE events. No third party equipment is utilized. The events at the above referenced site were conducted using the AcuVac I-6 System, with Roots RAI-33 blower used as a vacuum pump and Roots RAI-22 positive displacement blower. The following table lists equipment and instrumentation employed in these events and the data element captured by each.

| Data Element | Measurement Equipment |
|---|---|
| Extraction Well Vacuum | Dwyer Magnehelic Gauges |
| Extractions Well Vapor Flow | Dwyer Averaging Pitot Tubes / Magnehelic Gauges |
| Observation Wells Induced Vacuum | Dwyer Digital Manometer |
| Extraction Well Non-Diluted Vapor Samples | V-1 vacuum box |
| Extraction Well Vapor TPH Content | HORIBA® Analyzer Model Mexa 554GE |
| Extraction Well Vapor Oxygen Content | Lumidor MicroMax Pro $O_2$ Monitor |
| Depth to NAPL and Depth to groundwater | Solinst Interface Probes Model 122 |
| Liquid Flow and Total Volume | Blancett 1100 Turbine Flow Meter |
| Liquid Flow and Total Volume | Blancett B3000 Flow Monitor |
| Liquid Column in Extraction and Observation Wells | In-Situ Level Troll 700 Data Logger |
| Equalize Well Vacuum/Pressure | In-Situ Vented Cable with Chamber |
| Capture Readings from Data Logger Trolls | In-Situ Rugged Reader Data Logger Interface |
| In-Well Pump | Grundfos Redi-Flo 2 Total Fluids Pump |
| Pump Speed, Other Diagnostics | Grundfos/Baldor Electronic Pump Controller |
| Relative and Absolute Barometric Pressure | Testo Model 511 |

The vacuum extraction portion of the AcuVac System consists of a vacuum pump driven by an internal combustion (IC) engine. The vacuum pump is connected to the extraction well and the vacuum created on the extraction well causes light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC Engine where they are burned as part of the normal combustion process. Propane is used as auxiliary fuel to help power the engine if the well vapors do not provide the required energy.

The AcuVac IC Engine is fully loaded for the maximum power necessary to achieve and maintain high induced vacuums and/or high well vapor flows required to maximize the vacuum radius of influence for pilot tests and short term event remediation.

Emissions from the engine are passed through three catalytic converters to maximize destruction of removed hydrocarbon vapors. The engine's fuel to air ratio can be adjusted to maintain efficient combustion. Because the engine is the power source for the equipment, the systems stop when the engine stops. This prevents an uncontrolled release of hydrocarbons. Since the AcuVac System is held entirely under vacuum, any leaks in the seals or connections are leaked into the System and not emitted into the atmosphere. The engine is automatically shut down by vacuum loss, low oil pressure, over speed or overheating.

Groundwater extraction is provided by an in-well, Redi-Flo 2 total fluids pump that has the discharge line connected to a total volume meter. The discharge line from the volume meter is then connected to the stand-by tank. The electrical power for the groundwater pump was supplied from a 120v Honda generator. The groundwater flow rate can be adjusted to maintain a target level. Interface meters are used to collect depth to groundwater and depth to NAPL measurements. Groundwater samples were taken periodically in a graduated cylinder to determine the average NAPL percentages and volume.

The design of the AcuVac System enables independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team can control the IHG to increase exposure of the formation to SVE. The ability to separate the vacuum and liquid flows within the extraction well improves the NAPL recovery rates, and enables the AcuVac team to record data specific to each media.

## SUMMARY OF MDPE EVENT #1A- WELL MW-1

- The total time for Event #1A was 8.0 hours. Event #1A was conducted on December 2, 2016. This was the first event completed from well MW-1, and therefore there was no comparative data from this well.
- The total liquid volume recovered was 20.75 gals with no measureable liquid NAPL recovered.
- Based on the HORIBA® analytical data, the total vapor NAPL burned as IC engine fuel was 12.19 gals, for a total liquid and vapor NAPL recovery of 12.19 gals, or 1.52 gals per hour.
- Average HORIBA® analytical data from the influent vapor samples was:

  Total Petroleum Hydrocarbons (TPH) = 40,204 ppmv, Carbon dioxide ($CO_2$) = 3.57%, Carbon monoxide (CO) = 0.66%, Oxygen ($O_2$) = 10.8% and Hydrogen sulfide ($H_2S$) = 0 ppm.
- The maximum HORIBA® analytical data from the influent vapor samples for TPH was 46,280 ppmv.
- The average extraction well induced vacuum was 137.65 inches of water ("$H_2O$) with a maximum vacuum of 150.00"$H_2O$.
- The average extraction well vapor flow was 17.54 scfm with a maximum well vapor flow of 19.51 scfm.
- The groundwater pump inlet was set at 31.0 ft below top of casing (BTOC) in well MW-1. The groundwater pump was cycled on and off during the course of Event #1A. The total liquid volume recovered was 20.75 gals.
- A NAPL thickness in well MW-1 of 0.05 ft was recorded prior to the start of Event #1A and a NAPL thickness in well MW-1 of 0.30 ft was recorded at the conclusion of Event #1A. The NAPL present at the conclusion of Event #1A was most likely the result of NAPL being drawn into the well and an overall insufficient volume of liquid being evacuated by the groundwater pump.

**The total NAPL removed, including liquid and vapor, during the 8.0 hour Event #1A, well MW-1, was 12.19 gals.**

## ADDITIONAL INFORMATION

- For the first 2.5 hours of the event, there was no groundwater pumping, and SVE only was conducted. This was done to determine the degree of upwelling the liquid in the extraction well due to SVE. Based on the in-well data logger, a relatively low amount of upwelling was observed under a high induced well vacuum.
- No measurable liquid NAPL was recovered. The quantifiable NAPL recovery was the result of the TPH in the recovered well vapors burned as engine fuel.

- TPH vapor concentrations were mostly steady during the course of the Event #1A indicating a significant amount hydrocarbon mass present near the extraction well.
- Well MW-5, 18.5 ft from the extraction well MW-1, was capped with a manifold that held a data logger and could accept a digital manometer. During the course of Event #1A, the vacuum influence of the extraction well on the observation well was measured with a digital manometer. The average vacuum influence was 12.24"$H_2O$ (7.42% of the extraction well vacuum), and the maximum vacuum influence was 17.59"$H_2O$ (11.73% of the extraction well vacuum). Based upon the recorded vacuum influence being greater than1% of the extraction well vacuum, well MW-5 appears to be within the SVE radius of influence of extraction well MW-1.
- During the course of Event #1A, the liquid level in well MW-5, 18.5 ft from the extraction well, was monitored. A data logger was positioned approximately 1.0 ft above the well bottom. The initial data logger reading was a head of 11.81 ft and the ending data logger reading was 11.95 ft indicating that the liquid was being mounded in the well. The mounding in the well could be the result of the falling barometric pressure during Event #1A. Based upon the recorded amounts, well MW-5 was not significantly influenced by the groundwater pumping during Event #1A to the extent to be considered in the radius of influence of well MW-1.

## SUMMARY OF MDPE EVENT #1B- WELL MW-8

- The total time for Event #1B was 8.0 hours. The Event was conducted on December 3, 2016. This was the first event completed from well MW-8, and therefore there was no comparative data from this well.
- The total liquid volume recovered was 45 gals with no measureable liquid NAPL recovered.
- Based on the HORIBA® analytical data, total vapor NAPL burned as IC engine fuel was 8.07 gals, for a total liquid and vapor NAPL recovery of 8.07 gals, or 1.01 gals per hour.
- Average HORIBA® analytical data from the influent vapor samples was:
  TPH = 20,580 ppmv, $CO_2$ = 1.47%, CO = 0.20%, $O_2$ = 15.1% and $H_2S$ = 0 ppm.
- The maximum HORIBA® analytical data from the influent vapor samples for TPH was 39,610 ppmv.
- The average extraction well induced vacuum was 98.82"$H_2O$ with a maximum vacuum of 150.00"$H_2O$.
- The average extraction well vapor flow was 22.69 scfm with a maximum well vapor flow of 46.21 scfm.
- The groundwater pump inlet was set at 38.5 ft BTOC. The groundwater pump was cycled on and off during the course of Event #1B. The total liquid volume recovered was 45 gals.
- A NAPL thickness of 0.55 ft in well MW-8 was recorded prior to the start of Event #1B and a NAPL thickness of 0.01 ft in well MW-8 was recorded at the conclusion of the Event #1B.

**The total NAPL removed, including liquid and vapor, during the 8.0 hour Event #1B, well MW-8, was 8.07 gals.**

## ADDITIONAL INFORMATION

- For the first 3.0 hours of the event there was no groundwater pumping, and SVE only was conducted. This was done to determine the degree of upwelling the liquid in the extraction well due to SVE. Based on the in-well data logger, a relatively low amount of upwelling was observed under a high induced well vacuum.
- No measurable liquid NAPL was recovered. The quantifiable NAPL recovery was the result of the TPH in recovered well vapors being burned as engine fuel.
- Well MW-10, 59.5 ft from the extraction well MW-8, was capped with a manifold that held a data logger and could accept a digital manometer. During the course of Event #1B, the vacuum influence of the extraction well on the observation well was measured with a digital manometer. The average vacuum influence was 0.69"$H_2O$ (0.63% of the extraction well vacuum), and the maximum vacuum influence was 1.20"$H_2O$ (0.83% of the extraction well vacuum). Based upon the recorded vacuum influence being less than1% of the extraction well induced vacuum, well MW-10 was slightly influenced by the induced vacuum, but not to the extent to be considered in the radius of influence of well MW-8.
- During the course of Event #1B, the liquid level in well MW-10, 59.5 ft from the extraction well, was monitored. A data logger was positioned approximately 1.0 ft above the well bottom. The initial data logger reading was a head of 14.53 ft, and the ending data logger reading was a head of 14.57 ft. Based upon the recorded amounts, well MW-10 was not significantly influenced by the groundwater pumping during Event #1B to the extent to be considered within the radius of influence of well MW-8 during Event #1B.

## METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and $CO_2$. The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7}\ \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

## INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Recorded Data
- Photographs of the MDPE System and extraction wells MW-1 and MW-8.

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide this service.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
Vice President, Operations

## Summary Well Data
## Table #1

| Event | | 1A | 1B |
|---|---|---|---|
| **WELL NO.** | | **MW-1** | **MW-8** |
| Total Event Hours | | 8.0 | 8.0 |
| Total Depth | ft BGS | 32.50 | 40.00 |
| Well Screen | ft BGS | 19.7 – 29.7 | 25.0 – 40.0 |
| Well Size | in | 4.0 | 2.0 |
| **Well Data** | | | |
| DTGW - Static - Start Event | ft BTOC | 26.84 | 23.44 |
| DTNAPL - Static - Start Event | ft BTOC | 26.79 | 22.89 |
| NAPL | ft BTOC | 0.05 | 0.55 |
| Hydro-Equivalent- Beginning | ft BTOC | 26.80 | 23.03 |
| DTGW - End Event | ft BTOC | 28.63 | 32.66 |
| DTNAPL - End Event | ft BTOC | 28.33 | 32.65 |
| NAPL | ft BTOC | 0.30 | 0.01 |
| Hydro-Equivalent- Ending | ft BTOC | 28.41 | 32.65 |
| **Extraction Data** | | | |
| Average Extraction Well Vacuum | "$H_2O$ | 137.65 | 98.82 |
| Maximum Extraction Well Vacuum | "$H_2O$ | 150.00 | 150.00 |
| Average Extraction Well Vapor Flow | scfm | 17.54 | 22.69 |
| Maximum Extraction Well Vapor Flow | scfm | 19.51 | 46.21 |
| Average GW / NAPL Pump Rate | gpm | - | - |
| Maximum GW / NAPL Pump Rate | gpm | - | - |
| **Influent Data** | | | |
| Maximum TPH | ppmv | 46,280 | 39,610 |
| Average TPH | ppmv | 40,204 | 20,580 |
| Average $CO_2$ | % | 3.57 | 1.47 |
| Average CO | % | 0.66 | 0.20 |
| Average $O_2$ | % | 10.8 | 15.1 |
| Average $H_2S$ | ppm | 0 | 0 |

## Summary Recovery Data
## Table #2

| Event | | 1A | 1B |
|---|---|---|---|
| **WELL NO.** | | **MW-1** | **MW-8** |
| **Recovery Data- Current Event** | | | |
| Total Liquid Volume Recovered | gals | 21 | 45 |
| Total Liquid NAPL Recovered | gals | 0 | 0 |
| Total Liquid NAPL Recovered / Total Liquid | % | 0 | 0 |
| Total Liquid NAPL Recovered / Total NAPL | % | 0 | 0 |
| Total Vapor NAPL Recovered | gals | 12.19 | 8.07 |
| Total Vapor NAPL Recovered / Total NAPL | % | 100.00 | 100.00 |
| Total Vapor and Liquid NAPL Recovered | gals | 12.19 | 8.07 |
| Average NAPL Recovery | gals/hr | 1.52 | 1.01 |
| Total NAPL Recovered | lbs | 85 | 57 |
| Total Volume of Well Vapors | cu. ft | 8,419 | 10,891 |
| **Recovery Data- Cumulative** | | | |
| Total Liquid Volume Recovered | gals | 21 | 45 |
| Total Liquid NAPL Recovered | gals | 0 | 0 |
| Total Vapor NAPL Recovered | gals | 12.19 | 8.07 |
| Total Vapor and Liquid NAPL Recovered | gals | 12.19 | 8.07 |
| Average NAPL Recovery | gals/hr | 1.52 | 1.01 |
| Total NAPL Recovered | lbs | 85 | 57 |
| Total Volume of Well Vapors | cu. ft | 8,419 | 10,891 |

AcuVac Remediation

**OPERATING DATA – EVENT # 1A** **PAGE # 1** **ACUVAC MDP SYSTEM**

**Location: James F Bell #1E, San Juan County, NM** **Project Managers: Faucher / George**

ELEVATION 5807

**Well #** MW-1

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | 12/2/16 | | | | | |
| | | Time | 0730 | 0800 | 0830 | 0900 | 0930 | 1006 |
| | | Hr Meter | 7692.5 | 7693.0 | 7693.5 | 7694.0 | 7694.5 | 7695.0 |
| ENGINE / BLOWER | Engine Speed | RPM | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 |
| | Oil Pressure | psi | 50 | 50 | 50 | 50 | 50 | 50 |
| | Water Temp | °F | 120 | 120 | 120 | 120 | 120 | 120 |
| | Alternator | Volts | 14 | 14 | 14 | 14 | 14 | 14 |
| | Intake Vacuum | "Hg | 18 | 18 | 18 | 18 | 18 | 18 |
| | Gas Flow Fuel/Propane | cfh | 100 | 50 | 40 | 40 | 20 | 0 |
| ATMOSPHERE VACUUM / AIR | Extraction Well Vac. | "$H_2O$ | 80 | 100 | 120 | 120 | 120 | 150 |
| | Extraction Well Flow | scfm | 10.30 | 13.68 | 15.62 | 15.62 | 15.62 | 13.99 |
| | Influent Vapor Temp. | °F | 50 | 50 | 50 | 50 | 50 | 50 |
| | Air Temp | °F | 27 | 27 | 27 | 29 | 30 | 32 |
| | Barometric Pressure | "Hg | 30.24 | 30.24 | 30.24 | 30.24 | 30.24 | 30.25 |
| VAPOR / INFLUENT | TPH | ppmv | – | 40,870 | – | 42,070 | – | 30,870 |
| | $CO_2$ | % | – | 4.76 | – | 3.62 | – | 3.06 |
| | CO | % | – | 0.74 | – | .81 | – | .39 |
| | $O_2$ | % | – | 10.1 | – | 10.2 | – | 12.9 |
| | $H_2S$ | ppm | – | 0 | – | 0 | – | 0 |
| NOTES | SEE PAGE 2 FOR FIELD NOTES | | | | | | | |
| | | | STATIC | | | | | |
| | MW-5 DL HEAD | | 11.81 | 11.84 | 11.85 | 11.86 | 11.87 | 11.88 |
| RECOVERY | GW Pump | ON/OFF | OFF | OFF | OFF | OFF | OFF | ON/OFF |
| | Pump Rate | gals/min | – | – | – | – | – | – |
| | Total Volume | gals | – | – | – | – | – | 5.25 |
| | NAPL | % Vol | – | – | – | – | – | SHEEN |
| | NAPL | Gals | – | – | – | – | – | – |
| EW | Data Logger Head | ft | 3.38 | 4.05 | 4.39 | 5.55 | 6.39 | 9.70 |
| | GW Depression | ft | – | – | – | – | – | – |
| | Extraction Well | DTNAPL | 26.79 | | | | | |
| | Extraction Well | DTGW | 26.84 | | | | | |

NAPL .05

AcuVac Remediation

OPERATING NOTES - EVENT # 1A PAGE # 2 ACUVAC MDP SYSTEM

Location: James F Bell #1E, San Juan County, NM Project Managers: Faucher / George

Date: 12/2/16

NOTES

0650 ARRIVED ON SITE. POSITIONED THE ACUVAC SYSTEM NEAR WELL MW-1. GAUGED WELL DTNAPL 26.75 FT BTOC, DTGW 26.84 FT BTOC NAPL THICKNESS .05 FT. POSITIONED THE GW PUMP AT APPROXIMATELY 31.0 FT BTOC WHICH IS 1.5 ABOVE THE WELL BOTTOM, TD MEASURED AT 32.5 FT BTOC.

MOBILIZED THE ACUVAC EQUIPMENT. CONNECTED THE VAC HOSE TO THE ACUVAC SYSTEM, THE LIQUID DISCHARGE LINE TO THE TOTAL VOLUME METER. AND THEN TO THE STANDBY COLLECTION TANK.

0730 EVENT STARTED. INITIAL WELL VAC 80" $H_2O$ WITH A WELL VAPOR FLOW OF 10.30 SCFM. THE WELL VAC SLOWLY STARTED TO UPWELL THE LIQUID IN THE WELL.

0800 INITIAL WELL VAPOR SAMPLE OBTAINED. TPH VAPORS RECORDED AT 40,870 PPMV

0900 WELL VAPOR SAMPLE TAKEN. TPH VAPORS 42,070 PPMV.

0930 WELL VAPOR SAMPLE TAKEN TPH VAPORS 30,870 PPMV DECREASE MOST LIKELY DUE TO DECREASE IN WELL VAC TO TAKE SAMPLE

0800 - 1000 WELL VAC INCREASED IN ORDER TO DRAW SUFFICIENT LIQUID INTO WELL. AT 1000 HRS GW PUMP STARTED. APPROXIMATELY 4.5 GALS OF LIQUID RECOVERED

AcuVac Remediation

OPERATING DATA – EVENT # 1A | PAGE # 3 | ACUVAC MDP SYSTEM

**Location: James F Bell #1E, San Juan County, NM** | **Project Managers: Faucher / George**

ELEVATION 5807

**Well #** MW-1

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | 12/2/16 | | | | | |
| | | Time | 1030 | 1100 | 1130 | 1200 | 1230 | 1300 |
| | | Hr Meter | 7695.5 | 7696.0 | 7696.5 | 7697.0 | 7697.5 | 7698.0 |
| ENGINE / BLOWER | Engine Speed | RPM | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 |
| | Oil Pressure | psi | 50 | 50 | 50 | 50 | 50 | 50 |
| | Water Temp | °F | 120 | 120 | 120 | 120 | 120 | 12 |
| | Alternator | Volts | 14 | 14 | 14 | 14 | 14 | 14 |
| | Intake Vacuum | "Hg | 18 | 18 | 18 | 18 | 18 | 18 |
| | Gas Flow Fuel/Propane | cfh | 0 | 0 | 0 | 0 | 0 | 0 |
| ATMOSPHERE VACUUM / AIR | Extraction Well Vac. | "$H_2O$ | 150 | 150 | 150 | 150 | 150 | 150 |
| | Extraction Well Flow | scfm | 18.17 | 19.51 | 19.51 | 19.51 | 19.51 | 19.51 |
| | Influent Vapor Temp. | °F | 50 | 50 | 50 | 50 | 50 | 50 |
| | Air Temp | °F | 35 | 36 | 36 | 38 | 40 | 40 |
| | Barometric Pressure | "Hg | 30.22 | 30.21 | 30.20 | 30.20 | 30.18 | 30.19 |
| VAPOR / INFLUENT | TPH | ppmv | – | 37,380 | – | 39,350 | – | 44,470 |
| | $CO_2$ | % | – | 3.22 | – | 2.58 | – | 3.70 |
| | CO | % | – | .60 | – | .46 | – | .89 |
| | $O_2$ | % | – | 10.3 | – | 12.2 | – | 10.0 |
| | $H_2S$ | ppm | – | 0 | – | 0 | – | 0 |

NOTES

WELL VAC AND WFF STEADY DURING PERIOD. WELL VAPOR SAMPLES MOSTLY STEADY.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MW-5 DL HEAD | | 11.89 | 11.90 | 11.91 | 11.91 | 11.92 | 11.92 |
| RECOVERY | GW Pump | ON/OFF | OFF | OFF | OFF | ON/OFF | OFF | OFF |
| | Pump Rate | gals/min | – | – | – | – | – | – |
| | Total Volume | gals | 5.5 | 5.5 | 5.5 | 9.75 | 9.75 | 9.25 |
| | NAPL | % Vol | – | – | – | SHEEN | – | – |
| | NAPL | Gals | – | – | – | – | – | – |
| EW | Data Logger Head | ft | 4.93 | 5.52 | 6.06 | 8.39 | 5.21 | 5.62 |
| | GW Depression | ft | – | | | | | |
| | Extraction Well | DTNAPL | | | | | | |
| | Extraction Well | DTGW | | | | | | |

AcuVac Remediation

OPERATING NOTES - EVENT # 1A PAGE # 4 ACUVAC MDP SYSTEM

Location: James F Bell #1E, San Juan County, NM Project Managers: Faucher / George

Date: 12/2/16

NOTES

1200 HRS THE INDUCED WELL VACUUM WAS REDUCED IN ORDER TO OBTAIN A WELL VAPOR SAMPLE. WHILE THE SAMPLE WAS BEING TAKEN, THE HEAD OF WATER OVER THE DATA LOGGER INCREASED. WHEN THE WELL VACUUM WAS INCREASED THE DATA LOGGER HEAD DECREASED. IT WAS DETERMINED THAT THE HIGH WELL VACUUM OF 150" $H_2O$ WAS DRAWING THE LIQUID UP IN THE WELL BORE IN A FRAGMENTED MANNER THAT WAS DECREASING THE PRESSURE ON THE DATA LOGGER AND THEREBY INDICATING THAT LESS LIQUID WAS IN THE WELL THAN WAS ACTUALLY PRESENT. WHEN THE WELL VACUUM WAS DECREASED THE LIQUID SETTLED ON THE DATA LOGGER THE PRESSURE WAS INCREASED, INDICATING A MORE REALISTIC AMOUNT OF LIQUID PRESENT IN THE WELL BORE.

IT IS POSSIBLE THAT THE AREATION OF THE IN WELL LIQUID CAUSED THE LNAPL IN THE WELL TO VIOLATIZE INCREASING THE TPH VAPORS.

1400 THE VACUUM WAS DECREASED AND THE GW PUMP WAS STARTED. APPROXIMATELY 5.5 GALLONS OF LIQUID WAS RECOVERED. NAPL WAS PRESENT IN THE LIQUID BUT THE VOLUME COULD NOT READILY BE DETERMINED

1515 THE PROCESS ABOVE WAS REPEATED. APPROXIMATELY 5.5 GAL OF LIQUID WAS RECOVERED. NAPL WAS PRESENT IN THE LIQUID, BUT THE VOLUME COULD NOT BE DETERMINED

AcuVac Remediation

OPERATING DATA – EVENT # 1A | PAGE # 5 | ACUVAC MDP SYSTEM

**Location: James F Bell #1E, San Juan County, NM** | **Project Managers: Faucher / George**

ELEVATION 5807

**Well #** MW-1

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | 12/2/16 | | | | | |
| | | Time | 1330 | 1400 | 1430 | 1500 | 1530 | |
| | | Hr Meter | 7698.5 | 7699.0 | 7699.5 | 7700.0 | 7700.5 | |
| ENGINE / BLOWER | Engine Speed | RPM | 2200 | 2200 | 2200 | 2200 | 2200 | |
| | Oil Pressure | psi | 50 | 50 | 50 | 50 | 50 | |
| | Water Temp | °F | 130 | 130 | 130 | 130 | 130 | |
| | Alternator | Volts | 14 | 14 | 14 | 14 | 14 | |
| | Intake Vacuum | "Hg | 18 | 18 | 18 | 18 | 18 | |
| | Gas Flow Fuel/Propane | cfh | 0 | 0 | 0 | 0 | 0 | |
| ATMOSPHERE VACUUM / AIR | Extraction Well Vac. | "$H_2O$ | 150 | 150 | 150 | 150 | 150 | |
| | Extraction Well Flow | scfm | 19.57 | 19.51 | 19.51 | 19.51 | 19.51 | |
| | Influent Vapor Temp. | °F | 50 | 50 | 50 | 50 | 50 | |
| | Air Temp | °F | 40 | 40 | 40 | 41 | 41 | |
| | Barometric Pressure | "Hg | 30.19 | 30.19 | 30.19 | 30.19 | 30.19 | |
| VAPOR / INFLUENT | TPH | ppmv | – | 46,280 | – | 40,340 | – | |
| | $CO_2$ | % | – | 3.60 | – | 3.58 | – | |
| | CO | % | – | .73 | – | .69 | – | |
| | $O_2$ | % | – | 10.1 | – | 10.7 | – | |
| | $H_2S$ | ppm | – | 0 | – | 0 | – | |

NOTES

ALSO SEE PAGE 4 FOR FIELD NOTES.

1530 EVENT ENDED. WELL GAUGED. 0.30 FT NAPL PRESENT MOST LIKELY DUE TO NAPL THAT WAS DRAWN INTO THE WELL VIA THE WELL VAC AND COULD NOT BE VACATED BY THE GW PUMP.

| | | | | | | |
|---|---|---|---|---|---|---|
| MW-5 DATA LOGGER HEAD | 11.93 | 11.94 | 11.95 | 11.95 | – | |

| RECOVERY | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | GW Pump | ON/OFF | OFF | ON/OFF | OFF | OFF | ON/OFF | |
| | Pump Rate | gals/min | – | – | – | – | – | |
| | Total Volume | gals | 5.75 | 15.25 | 15.25 | 15.25 | 20.75 | |
| | NAPL | % Vol | – | SHEEN | – | – | SHEEN | |
| | NAPL | Gals | – | – | – | – | – | |
| EW | Data Logger Head | ft | 7.49 | 4.26 | 3.73 | 4.30 | 4.14 | |
| | GW Depression | ft | | | | | | |
| | Extraction Well | DTNAPL | | | | | | |
| | Extraction Well | DTGW | | | | | | |

AcuVac Remediation

**OPERATING DATA – EVENT # 13** **PAGE # 1** **ACUVAC MDP SYSTEM**

**Location: James F Bell #1E, San Juan County, NM** **Project Managers: Faucher / George**

ELEVATION 5807

**Well #** MW-8

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | 12/3/16 | | | | | |
| | | Time | 0700 | 0730 | 0800 | 0830 | 0900 | 0930 |
| | | Hr Meter | 7701.0 | 7701.5 | 7702.0 | 7702.5 | 7703.0 | 7703.5 |
| ENGINE / BLOWER | Engine Speed | RPM | 2200 | 2200 | 2200 | 2200 | 2200 | 2100 |
| | Oil Pressure | psi | 50 | 50 | 50 | 50 | 50 | 50 |
| | Water Temp | °F | 120 | 120 | 120 | 120 | 120 | 120 |
| | Alternator | Volts | 14 | 14 | 14 | 14 | 14 | 14 |
| | Intake Vacuum | "Hg | 14 | 14 | 14 | 14 | 14 | 14 |
| | Gas Flow Fuel/Propane | cfh | 80 | 80 | 80 | 80 | 80 | 70 |
| ATMOSPHERE VACUUM / AIR | Extraction Well Vac. | "$H_2O$ | 20 | 20 | 20 | 30 | 30 | 30 |
| | Extraction Well Flow | scfm | 30.87 | 30.87 | 30.87 | 46.21 | 46.21 | 46.21 |
| | Influent Vapor Temp. | °F | 50 | 50 | 50 | 50 | 50 | 50 |
| | Air Temp | °F | 29 | 29 | 29 | 32 | 32 | 32 |
| | Barometric Pressure | "Hg | 30.39 | 30.39 | 30.39 | 30.42 | 30.42 | 30.39 |
| VAPOR / INFLUENT | TPH | ppmv | - | 2810 | - | 5250 | - | 13,110 |
| | $CO_2$ | % | - | .22 | - | .36 | - | .74 |
| | CO | % | - | 0 | - | 0 | - | .02 |
| | $O_2$ | % | - | 18.8 | - | 17.9 | - | 15.8 |
| | $H_2S$ | ppm | - | 0 | - | 0 | - | 0 |
| NOTES | SEE PAGE 2 FOR FIELD NOTES | | | | | | | |
| | 59.5 FT MW-10 DATALOGGER HEAD | 14.53 | 14.52 | 14.51 | 14.50 | 14.48 | 14.48 | 14.49 |
| RECOVERY | GW Pump | ON/OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| | Pump Rate | gals/min | - | - | - | - | - | - |
| | Total Volume | gals | - | - | - | - | - | - |
| | NAPL | % Vol | - | - | - | - | - | - |
| | NAPL | Gals | - | - | - | - | - | - |
| EW | Data Logger Head 14.87 STATIC | ft | 14.72 | 14.80 | 14.90 | 15.08 | 15.11 | 15.11 |
| | GW Depression | ft | - | - | - | - | - | - |
| | Extraction Well | DTNAPL | 22.89 | | | | | |
| | Extraction Well | DTGW | 23.44 | | | | | |

NAPL = 55

AcuVac Remediation

**OPERATING NOTES - EVENT # 1B** **PAGE # 2** **ACUVAC MDP SYSTEM**

**Location:** James F Bell #1E, San Juan County, NM **Project Managers:** Faucher / George

**Date:** 12/3/16

NOTES

0635 ARRIVED ON SITE. ACUVAC WAS MOBILIZED TO SITE AT 1530 HRS ON 12/2/16. GUAGED WELL MW-8. DTW/APL 22.89, DTGW 23.44. GW PUMP POSITIONED APPROXIMATELY 1.0 FT ABOVE WELL BOTTOM. CONNECTED DISHARGE HOSE TO TOTAL FLOWMETER AND THEN TO STANDBY COLLECTION TANK. CONNECTED VAC HOSE TO ACUVAC SYSTEM. OBTAINED STATIC DATA LOGGER AND MANOMETER READINGS.

0700 EVENT STARTED. GW PUMP STARTED, NO LIQUID PRODUCED. DISCHARGE LINES FROZEN DUE TO LOW TEMPERATURES - 25°F. INDUCED WELL VAC STARTED AT 20" $H_2O$ RESULTING IN A WELL VAPOR FLOW OF 30.87 SCFM. USED HEAT GUN TO THAW FROZEN DISCHARGE LINES

0715-0730 CYCLED GW PUMP ON/OFF IN AN ATTEMPT TO FLOW WARMER WATER THROUGH THE HOSE TO MELT THE ICE.

0730 INITIAL WELL VAPOR SAMPLE TAKEN. TPH VAPORS 2810 PPMV. $O_2$ VERY HIGH AT 18.8%. AMBIENT AIR ADDED TO ENGINE VERY LOW, CONFIRMING HIGH $O_2$. PROPANE USAGE MODERATE 130 CFH.

0830 WELL VAPOR SAMPLE TAKEN. TPH VAPORS @ 5250 PPMV.

AcuVac Remediation

OPERATING DATA – EVENT # 13 PAGE # 3 ACUVAC MDP SYSTEM

**Location: James F Bell #1E, San Juan County, NM** **Project Managers: Faucher / George**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Well #** MW-8 | | Date | 12/3/16 | | | | | |
| | | Time | 1000 | 1030 | 1100 | 1130 | 1200 | 1230 |
| | | Hr Meter | 7704.0 | 7704.5 | 7705.0 | 7705.5 | 7706.0 | 7706.5 |
| ENGINE / BLOWER | Engine Speed | RPM | 2100 | 2100 | 2100 | 2100 | 2100 | 2000 |
| | Oil Pressure | psi | 50 | 50 | 50 | 50 | 50 | 50 |
| | Water Temp | °F | 120 | 120 | 120 | 120 | 120 | 120 |
| | Alternator | Volts | 14 | 14 | 14 | 14 | 14 | 14 |
| | Intake Vacuum | "Hg | 14 | 14 | 14 | 14 | 14 | 14 |
| | Gas Flow Fuel/Propane | cfh | 70 | 70 | 70 | 70 | 70 | 40 |
| ATMOSPHERE VACUUM / AIR | Extraction Well Vac. | "$H_2O$ | 30 | 150 | 150 | 150 | 150 | 150 |
| | Extraction Well Flow | scfm | 46.21 | 10.09 | 10.09 | 10.09 | 10.09 | 10.77 |
| | Influent Vapor Temp. | °F | 50 | 50 | 50 | 50 | 50 | 50 |
| | Air Temp | °F | 34 | 34 | 36 | 36 | 36 | 37 |
| | Barometric Pressure | "Hg | 30.38 | 30.38 | 30.37 | 30.35 | 30.34 | 30.32 |
| VAPOR / INFLUENT | TPH | ppmv | - | 32,390 | - | - | - | 30,310 |
| | $CO_2$ | % | - | 2.52 | - | - | - | 2.54 |
| | CO | % | - | .30 | - | - | - | .36 |
| | $O_2$ | % | - | 11.8 | - | - | - | 13.6 |
| | $H_2S$ | ppm | - | 0 | - | - | - | 0 |
| NOTES | AT 1000 HRS IT WAS NOTICED THAT THE VACUUM RELIEF VALVE ON THE MOISTURE KNOCKOUT TANK WAS OPEN CAUSING THE LOW VAC AND HIGH FLOW. WHEN THE VALVE WAS CLOSED THE VACUUM ↑ 150" $H_2O$ WITH A WELL VAPOR FLOW ↓ 10.09 scfm. THE VAC AT OUTER WELL MW-10 ↑ IN RELATION TO THE INCREASE IN WELL VAC ON WELL MW-8 | | | | | | | | |
| | MW-10 595 ft DATA LOGGER HEAD | | 14.49 | 14.50 | 14.51 | 14.52 | 14.53 | 14.54 |
| RECOVERY | GW Pump | ON/OFF | ON/OFF | ON/OFF | ON/OFF | ON/OFF | ON/OFF | ON/OFF |
| | Pump Rate | gals/min | - | - | - | - | - | - |
| | Total Volume | gals | 4.5 | 10.0 | 15.00 | 20.00 | 25.00 | 30.00 |
| | NAPL | % Vol | SHEEN | SHEEN | SHEEN | SHEEN | SHEEN | SHEEN |
| | NAPL | Gals | - | - | - | - | - | - |
| EW | Data Logger Head | ft | 15.8 | 9.44 | 10.22 | 13.79 | 11.11 | 3.68 |
| | GW Depression | ft | - | - | - | - | - | - |
| | Extraction Well | DTNAPL | | | | | | |
| | Extraction Well | DTGW | | | | | | |

AcuVac Remediation

OPERATING DATA – EVENT # 13 PAGE # 4 ACUVAC MDP SYSTEM

**Location: James F Bell #1E, San Juan County, NM** **Project Managers: Faucher / George**

ELEVATION 5807.

**Well #** MW-8

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | 12/3/16 | | | | | |
| | | Time | 1300 | 1330 | 1400 | 1430 | 1500 | |
| | | Hr Meter | 7707.0 | 7707.5 | 7708.0 | 7708.5 | 7709.0 | |
| ENGINE / BLOWER | Engine Speed | RPM | 2000 | 2000 | 2000 | 2000 | 2000 | |
| | Oil Pressure | psi | 50 | 50 | 50 | 50 | 50 | |
| | Water Temp | °F | 120 | 120 | 120 | 120 | 120 | |
| | Alternator | Volts | 14 | 14 | 14 | 14 | 14 | |
| | Intake Vacuum | "Hg | 14 | 14 | 14 | 14 | 14 | |
| | Gas Flow Fuel/Propane | cfh | 40 | 40 | 40 | 40 | 40 | |
| ATMOSPHERE VACUUM / AIR | Extraction Well Vac. | "$H_2O$ | 150 | 150 | 150 | 150 | 150 | |
| | Extraction Well Flow | scfm | 11.44 | 11.44 | 11.44 | 11.44 | 11.44 | |
| | Influent Vapor Temp. | °F | 50 | 50 | 50 | 50 | 50 | |
| | Air Temp | °F | 37 | 38 | 38 | 39 | 39 | |
| | Barometric Pressure | "Hg | 30.31 | 30.28 | 30.26 | 30.25 | 30.23 | |
| VAPOR / INFLUENT | TPH | ppmv | - | - | - | 39,610 | - | |
| | $CO_2$ | % | - | - | - | 2.44 | - | |
| | CO | % | - | - | - | .53 | - | |
| | $O_2$ | % | - | - | - | 12.4 | - | |
| | $H_2S$ | ppm | - | - | - | 0 | - | |
| NOTES | AT 1300 HRS THE LIQUID RECOVERY ON A DECREASING TREND. | | | | | | | |
| | 59.5 FT DATA LOGGER HEAD MW-10 | | 14.55 | 14.56 | 14.56 | | - | |
| RECOVERY | GW Pump | ON/OFF | ON/OFF | ON/OFF | ON/OFF | ON/OFF | OFF | |
| | Pump Rate | gals/min | - | - | - | - | - | |
| | Total Volume | gals | 33.0 | 36.0 | 39.0 | 42.0 | 45.0 | |
| | NAPL | % Vol | SHEEN | SHEEN | SHEEN | SHEEN | SHEEN | |
| | NAPL | Gals | - | - | - | - | - | |
| EW | Data Logger Head | ft | 7.14 | 8.09 | 9.11 | 6.62 | 6.62 | |
| | GW Depression | ft | - | - | | | | |
| | Extraction Well | DTNAPL | | | | | | |
| | Extraction Well | DTGW | | | | | | |

AcuVac Remediation

Operating Data - Test # 1A Date 12/2/16 ACUVAC MDP SYSTEM

| Location: SFBELL #1E San Juan County, NM |
|---|
| Project Managers: Faucher / George |

## Observation Well Vacuum / Pressure

| Time | Static | 0730 | 0800 | 0830 | 0900 | 0930 |
|---|---|---|---|---|---|---|
| MW-5 18.5 ft | 0 | - | - | 5.73 | 8.77 | 8.10 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 1000 | 1030 | 1100 | 1130 | 1200 | 1230 |
|---|---|---|---|---|---|---|
| MW-5 18.5 ft | 9.70 | 13.80 | 14.67 | 14.55 | 13.57 | 14.58 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 1300 | 1330 | 1400 | 1430 | 1500 | 1530 |
|---|---|---|---|---|---|---|
| MW-5 18.5 ft | 14.89 | 14.79 | 15.74 | 16.75 | 17.59 | - |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | | | | | | |
|---|---|---|---|---|---|---|
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

AcuVac Remediation

Operating Data - Test # 1A Date 12/2/16 ACUVAC MDP SYSTEM

| | |
|---|---|
| Location: JIBELHIE | San Juan County, NM |
| Project Managers: Faucher / George | |

## Data Logger Head Information

| Time | Static | 0730 | 0800 | 0830 | 0900 | 0930 |
|---|---|---|---|---|---|---|
| MW- 1 10 ft | 3.38 | 3.38 | 4.05 | 4.39 | 5.55 | 6.39 |
| MW- 5 18.5 ft | 11.81 | 11.81 | 11.84 | 11.85 | 11.86 | 11.87 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 1000 | 1030 | 1100 | 1130 | 1200 | 1230 |
|---|---|---|---|---|---|---|
| MW- 1 10 ft | 2.37 | 4.93 | 5.52 | 6.06 | 8.39 | 5.21 |
| MW- 5 18.5 ft | 11.88 | 11.89 | 11.90 | 11.91 | 11.91 | 11.92 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 1300 | 1330 | 1400 | 1430 | 1500 | 1530 |
|---|---|---|---|---|---|---|
| MW- 1 10 ft | 5.62 | 7.49 | 4.26 | 3.73 | 4.30 | - |
| MW- 5 18.5 ft | 11.92 | 11.93 | 11.94 | 11.95 | 11.95 | - |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | | | | | | |
|---|---|---|---|---|---|---|
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

AcuVac Remediation

Operating Data - Test # 1B Date 12/3/16 ACUVAC MDP SYSTEM

Location: JOHN FEE #1E San Juan County, NM

Project Managers: Faucher / George

## Observation Well Vacuum / Pressure

| Time | Static | 0700 | 0730 | 0900 | 0830 | 0900 |
|---|---|---|---|---|---|---|
| MW-10 55.5 ft | 0.00 | .11 | .12 | .12 | .19 | .19 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 0930 | 1000 | 1030 | 1100 | 1130 | 1200 |
|---|---|---|---|---|---|---|
| MW-10 55.5 ft | .24 | .25 | .70 | 1.08 | 1.16 | 1.20 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 1230 | 1300 | 1330 | 1400 | 1430 | 1500 |
|---|---|---|---|---|---|---|
| MW-10 55.5 ft | 1.18 | 1.11 | 1.19 | 1.11 | 1.10 | - |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | | | | | | |
|---|---|---|---|---|---|---|
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

AcuVac Remediation

Operating Data - Test # 1 B  Date 12/3/16  ACUVAC MDP SYSTEM

| |
|---|
| Location: JOHN PBELL #1E San Juan County, NM |
| Project Managers: Faucher / George |

## Data Logger Head Information

| Time | Static | 0700 | 0730 | 0800 | 0830 | 0900 |
|---|---|---|---|---|---|---|
| MW-8 0 ft | 14.87 | 14.72 | 14.90 | 14.96 | 15.08 | 15.11 |
| MW-10 59.5 ft | 14.53 | 14.52 | 14.51 | 14.50 | 14.48 | 14.48 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 0930 | 1000 | 1030 | 1100 | 1130 | 1200 |
|---|---|---|---|---|---|---|
| MW-8 0 ft | 15.11 | 15.87 | 9.44 | 10.22 | 13.79 | 11.11 |
| MW-10 59.5 ft | 14.49 | 14.49 | 14.50 | 14.51 | 14.52 | 14.53 |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

| Time | 1230 | 1300 | 1330 | 1400 | 1430 | 1500 |
|---|---|---|---|---|---|---|
| MW-8 0 ft | 3.68 | 7.14 | 8.07 | 8.11 | 6.27 | – |
| MW-10 59.5 ft | 14.54 | 14.55 | 14.56 | 14.56 | 14.57 | – |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

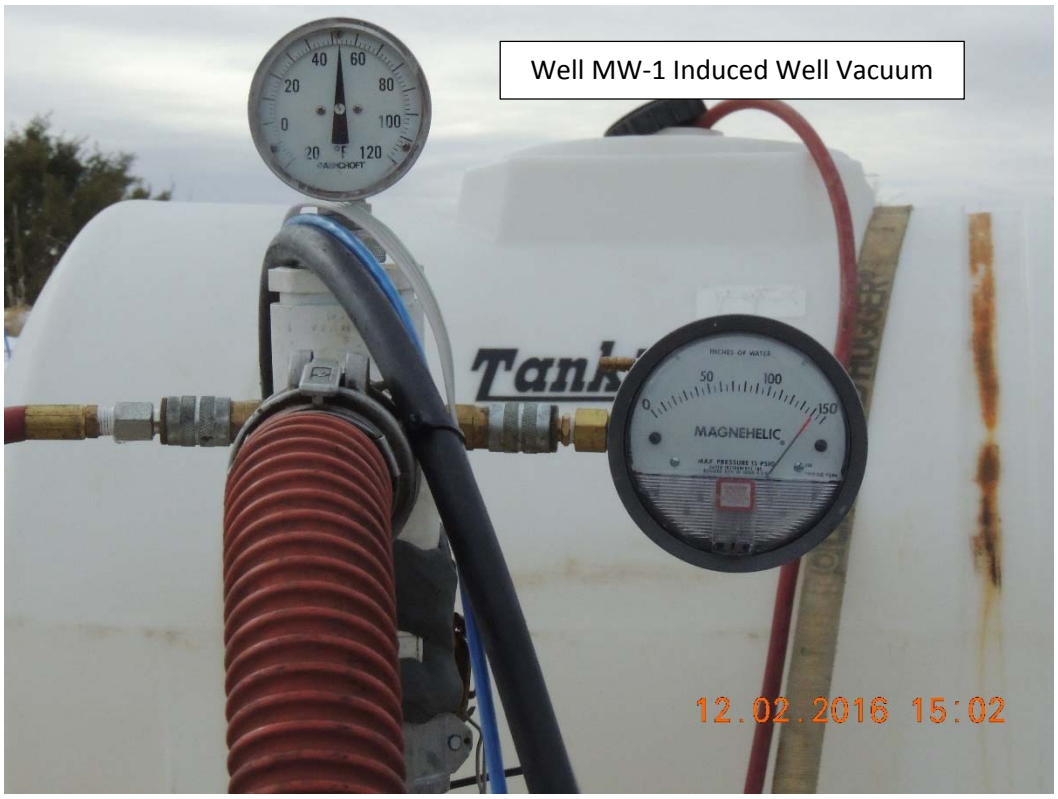
| Time | | | | | | |
|---|---|---|---|---|---|---|
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |
| MW- ft | | | | | | |

# JOHN F. BELL #1E
# SAN JUAN COUNTY, NM


AcuVac MDP System Well MW-1


AcuVac MDP System Well MW-1

# JOHN F. BELL #1E
# SAN JUAN COUNTY, NM

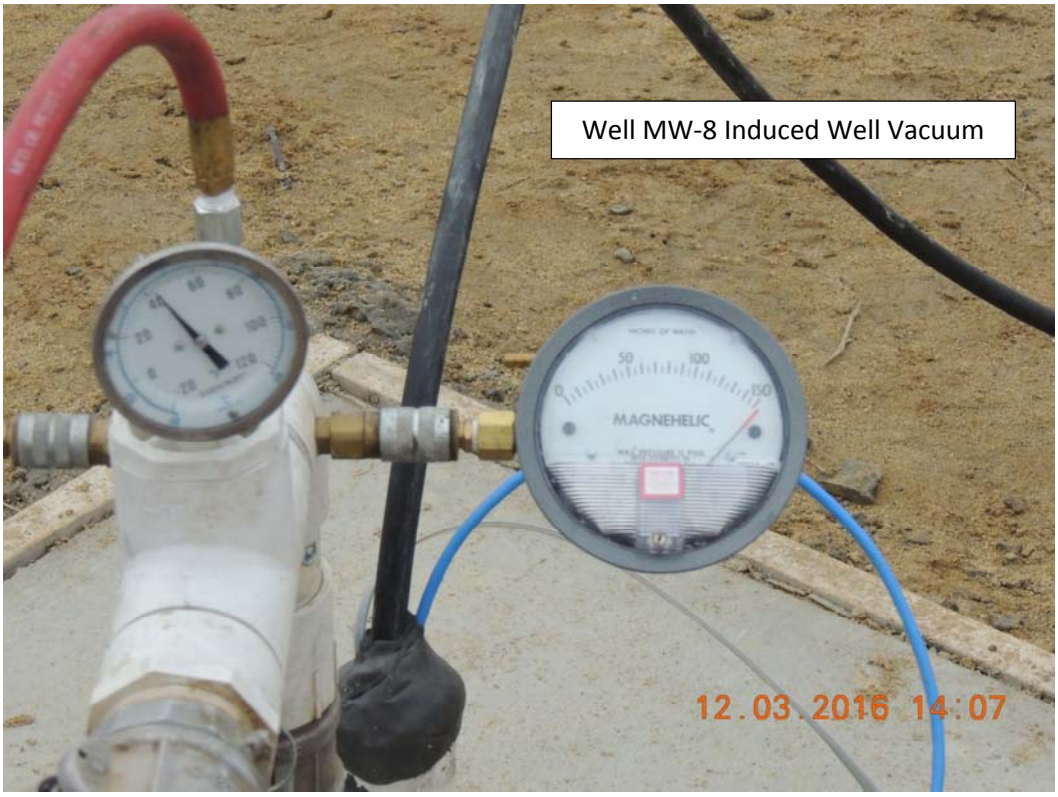
# JOHN F. BELL #1E
# SAN JUAN COUNTY, NM

AcuVac System Well MW-8


AcuVac System Well MW-8

# JOHN F. BELL #1E
# SAN JUAN COUNTY, NM


Well MW-8 and Standby Collection Tank




Well MW-8 Induced Well Vacuum

# APPENDIX F

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-120367-1
Client Project/Site: James F. Bell #1E

For:
MWH Americas Inc
11153 Aurora Avenue
Des Moines, Iowa 50322-7904

Attn: Steve Varsa

*Authorized for release by:*
*4/29/2016 9:35:15 AM*

Marty Edwards, Manager of Project Management
(850)474-1001
marty.edwards@testamericainc.com

# Table of Contents

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

# Detection Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

## Client Sample ID: TRIP BLANK — Lab Sample ID: 400-120367-1

No Detections.

## Client Sample ID: MW-2 — Lab Sample ID: 400-120367-2

No Detections.

## Client Sample ID: MW-3 — Lab Sample ID: 400-120367-3

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 36 | | 5.0 | | ug/L | 5 | | 8021B | Total/NA |
| Ethylbenzene | 290 | | 5.0 | | ug/L | 5 | | 8021B | Total/NA |
| Xylenes, Total | 89 | | 25 | | ug/L | 5 | | 8021B | Total/NA |

## Client Sample ID: MW-4 — Lab Sample ID: 400-120367-4

No Detections.

This Detection Summary does not include radiochemical test results.

# Sample Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 400-120367-1 | TRIP BLANK | Water | 04/15/16 06:00 | 04/16/16 09:09 |
| 400-120367-2 | MW-2 | Water | 04/15/16 06:55 | 04/16/16 09:09 |
| 400-120367-3 | MW-3 | Water | 04/15/16 07:00 | 04/16/16 09:09 |
| 400-120367-4 | MW-4 | Water | 04/15/16 07:05 | 04/16/16 09:09 |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

**Client Sample ID: TRIP BLANK**
**Date Collected: 04/15/16 06:00**
**Date Received: 04/16/16 09:09**

**Lab Sample ID: 400-120367-1**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 16:11 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 16:11 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 04/22/16 16:11 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 04/22/16 16:11 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *101* | | *78 - 124* | | *04/22/16 16:11* | *1* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

**Client Sample ID: MW-2**
**Date Collected: 04/15/16 06:55**
**Date Received: 04/16/16 09:09**

**Lab Sample ID: 400-120367-2**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 16:39 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 16:39 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 04/22/16 16:39 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 04/22/16 16:39 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *101* | | *78 - 124* | | *04/22/16 16:39* | *1* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

**Client Sample ID: MW-3**
**Date Collected: 04/15/16 07:00**
**Date Received: 04/16/16 09:09**

**Lab Sample ID: 400-120367-3**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **36** | | 5.0 | | ug/L | | | 04/22/16 02:37 | 5 |
| **Ethylbenzene** | **290** | | 5.0 | | ug/L | | | 04/22/16 02:37 | 5 |
| Toluene | <25 | | 25 | | ug/L | | | 04/22/16 02:37 | 5 |
| **Xylenes, Total** | **89** | | 25 | | ug/L | | | 04/22/16 02:37 | 5 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *112* | | *78 - 124* | | *04/22/16 02:37* | *5* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

**Client Sample ID: MW-4**
**Date Collected: 04/15/16 07:05**
**Date Received: 04/16/16 09:09**

**Lab Sample ID: 400-120367-4**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 18:55 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 18:55 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 04/22/16 18:55 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 04/22/16 18:55 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *103* | | *78 - 124* | | *04/22/16 18:55* | *1* |

# QC Association Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

## GC VOA

### Analysis Batch: 302837

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-120367-3 | MW-3 | Total/NA | Water | 8021B | |
| 400-120371-B-2 MS | Matrix Spike | Total/NA | Water | 8021B | |
| 400-120371-B-2 MSD | Matrix Spike Duplicate | Total/NA | Water | 8021B | |
| LCS 400-302837/1001 | Lab Control Sample | Total/NA | Water | 8021B | |
| MB 400-302837/2 | Method Blank | Total/NA | Water | 8021B | |

### Analysis Batch: 302977

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-120367-1 | TRIP BLANK | Total/NA | Water | 8021B | |
| 400-120367-2 | MW-2 | Total/NA | Water | 8021B | |
| 400-120367-2 MS | MW-2 | Total/NA | Water | 8021B | |
| 400-120367-2 MSD | MW-2 | Total/NA | Water | 8021B | |
| 400-120367-4 | MW-4 | Total/NA | Water | 8021B | |
| LCS 400-302977/1002 | Lab Control Sample | Total/NA | Water | 8021B | |
| MB 400-302977/4 | Method Blank | Total/NA | Water | 8021B | |

## Method: 8021B - Volatile Organic Compounds (GC)

**Lab Sample ID: MB 400-302837/2**
**Matrix: Water**
**Analysis Batch: 302837**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 04/21/16 11:39 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 04/21/16 11:39 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 04/21/16 11:39 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 04/21/16 11:39 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *110* | | *78 - 124* | | *04/21/16 11:39* | *1* |

**Lab Sample ID: LCS 400-302837/1001**
**Matrix: Water**
**Analysis Batch: 302837**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 50.0 | 54.4 | | ug/L | | 109 | 85 - 115 | | |
| Ethylbenzene | | | 50.0 | 54.1 | | ug/L | | 108 | 85 - 115 | | |
| Toluene | | | 50.0 | 53.9 | | ug/L | | 108 | 85 - 115 | | |
| Xylenes, Total | | | 150 | 164 | | ug/L | | 109 | 85 - 115 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *108* | | *78 - 124* |

**Lab Sample ID: 400-120371-B-2 MS**
**Matrix: Water**
**Analysis Batch: 302837**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 42.7 | | ug/L | | 85 | 44 - 150 | | |
| Ethylbenzene | <1.0 | | 50.0 | 42.8 | | ug/L | | 86 | 70 - 142 | | |
| Toluene | <5.0 | | 50.0 | 43.4 | | ug/L | | 84 | 69 - 136 | | |
| Xylenes, Total | <5.0 | | 150 | 132 | | ug/L | | 85 | 68 - 142 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *100* | | *78 - 124* |

**Lab Sample ID: 400-120371-B-2 MSD**
**Matrix: Water**
**Analysis Batch: 302837**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 41.8 | | ug/L | | 84 | 44 - 150 | 2 | 16 |
| Ethylbenzene | <1.0 | | 50.0 | 42.5 | | ug/L | | 85 | 70 - 142 | 1 | 16 |
| Toluene | <5.0 | | 50.0 | 42.5 | | ug/L | | 82 | 69 - 136 | 2 | 16 |
| Xylenes, Total | <5.0 | | 150 | 130 | | ug/L | | 84 | 68 - 142 | 2 | 15 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *100* | | *78 - 124* |

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

**Lab Sample ID: MB 400-302977/4**
**Matrix: Water**
**Analysis Batch: 302977**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 12:59 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 04/22/16 12:59 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 04/22/16 12:59 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 04/22/16 12:59 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *100* | | *78 - 124* | | *04/22/16 12:59* | *1* |

**Lab Sample ID: LCS 400-302977/1002**
**Matrix: Water**
**Analysis Batch: 302977**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 50.0 | 49.3 | | ug/L | | 99 | 85 - 115 | | |
| Ethylbenzene | | | 50.0 | 49.7 | | ug/L | | 99 | 85 - 115 | | |
| Toluene | | | 50.0 | 49.5 | | ug/L | | 99 | 85 - 115 | | |
| Xylenes, Total | | | 150 | 149 | | ug/L | | 99 | 85 - 115 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *99* | | *78 - 124* |

**Lab Sample ID: 400-120367-2 MS**
**Matrix: Water**
**Analysis Batch: 302977**

**Client Sample ID: MW-2**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 44.0 | | ug/L | | 88 | 44 - 150 | | |
| Ethylbenzene | <1.0 | | 50.0 | 44.1 | | ug/L | | 88 | 70 - 142 | | |
| Toluene | <5.0 | | 50.0 | 44.4 | | ug/L | | 89 | 69 - 136 | | |
| Xylenes, Total | <5.0 | | 150 | 132 | | ug/L | | 88 | 68 - 142 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *100* | | *78 - 124* |

**Lab Sample ID: 400-120367-2 MSD**
**Matrix: Water**
**Analysis Batch: 302977**

**Client Sample ID: MW-2**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 47.5 | | ug/L | | 95 | 44 - 150 | 8 | 16 |
| Ethylbenzene | <1.0 | | 50.0 | 47.8 | | ug/L | | 96 | 70 - 142 | 8 | 16 |
| Toluene | <5.0 | | 50.0 | 47.9 | | ug/L | | 96 | 69 - 136 | 8 | 16 |
| Xylenes, Total | <5.0 | | 150 | 144 | | ug/L | | 96 | 68 - 142 | 8 | 15 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *100* | | *78 - 124* |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

## Client Sample ID: TRIP BLANK
**Lab Sample ID: 400-120367-1**
**Date Collected: 04/15/16 06:00**
**Matrix: Water**
**Date Received: 04/16/16 09:09**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 302977 | 04/22/16 16:11 | MKA | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |

## Client Sample ID: MW-2
**Lab Sample ID: 400-120367-2**
**Date Collected: 04/15/16 06:55**
**Matrix: Water**
**Date Received: 04/16/16 09:09**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 302977 | 04/22/16 16:39 | MKA | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |

## Client Sample ID: MW-3
**Lab Sample ID: 400-120367-3**
**Date Collected: 04/15/16 07:00**
**Matrix: Water**
**Date Received: 04/16/16 09:09**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 5 | 5 mL | 5 mL | 302837 | 04/22/16 02:37 | MKA | TAL PEN |
| | Instrument ID: ETHYL | | | | | | | | | |

## Client Sample ID: MW-4
**Lab Sample ID: 400-120367-4**
**Date Collected: 04/15/16 07:05**
**Matrix: Water**
**Date Received: 04/16/16 09:09**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 302977 | 04/22/16 18:55 | MKA | TAL PEN |
| | Instrument ID: CH_RITA | | | | | | | | | |

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Certification Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

## Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alabama | State Program | 4 | 40150 | 06-30-16 |
| Arizona | State Program | 9 | AZ0710 | 01-11-17 |
| Arkansas DEQ | State Program | 6 | 88-0689 | 09-01-16 |
| California | ELAP | 9 | 2510 | 03-31-18 |
| Florida | NELAP | 4 | E81010 | 06-30-16 |
| Georgia | State Program | 4 | N/A | 06-30-16 |
| Illinois | NELAP | 5 | 200041 | 10-09-16 |
| Iowa | State Program | 7 | 367 | 07-31-16 |
| Kansas | NELAP | 7 | E-10253 | 05-31-16 * |
| Kentucky (UST) | State Program | 4 | 53 | 06-30-16 |
| Kentucky (WW) | State Program | 4 | 98030 | 12-31-16 |
| Louisiana | NELAP | 6 | 30976 | 06-30-16 |
| Maryland | State Program | 3 | 233 | 09-30-16 |
| Massachusetts | State Program | 1 | M-FL094 | 06-30-16 |
| Michigan | State Program | 5 | 9912 | 06-30-16 |
| New Jersey | NELAP | 2 | FL006 | 06-30-16 |
| North Carolina (WW/SW) | State Program | 4 | 314 | 12-31-16 |
| Oklahoma | State Program | 6 | 9810 | 08-31-16 |
| Pennsylvania | NELAP | 3 | 68-00467 | 01-31-17 |
| Rhode Island | State Program | 1 | LAO00307 | 12-30-16 |
| South Carolina | State Program | 4 | 96026 | 06-30-16 |
| Tennessee | State Program | 4 | TN02907 | 06-30-16 |
| Texas | NELAP | 6 | T104704286-15-9 | 09-30-16 |
| USDA | Federal | | P330-13-00193 | 07-01-16 |
| Virginia | NELAP | 3 | 460166 | 06-14-16 |
| West Virginia DEP | State Program | 3 | 136 | 06-30-16 |

* Certification renewal pending - certification considered valid.

# Method Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-120367-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8021B | Volatile Organic Compounds (GC) | SW846 | TAL PEN |

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

# Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

| | | | |
|---|---|---|---|
| **Client Information** | Sampler: Brad Barton / Clint Overbrook | Lab PM: Edwards, Marty P | Carrier: 400-120367 COC |
| Client Contact: Ms. Sarah Gardner | Phone: | E-Mail: marty.edwards@testamericainc.com | COC No: 400-54326-21717.1 |
| Company: MWH Americas Inc | | | Page: Page 1 of 1 |
| Address: 1560 Broadway Suite 1800 | Due Date Requested: Per ARF | Analysis Requested | Job #: |
| City: Denver | TAT Requested (days): Per ARF | | |
| State, Zip: CO, 80202 | | | |
| Phone: 303-291-2239(Tel) | PO #: Purchase Order Requested | | |
| Email: sarah.gardner@mwhglobal.com | WO#: ARF# FRG-MWH-03-30-15-CWO-01 | | |
| Project Name: James F. Bell #1E | Project #: 40005479 | | |
| Site: James F. Bell #1E | SSOW#: | | |

**Preservation Codes:**

| | |
|---|---|
| A - HCL | M - Hexane |
| B - NaOH | N - None |
| C - Zn Acetate | O - AsNaO2 |
| D - Nitric Acid | P - Na2O4S |
| E - NaHSO4 | Q - Na2SO3 |
| F - MeOH | R - Na2S2O3 |
| G - Amchlor | S - H2SO4 |
| H - Ascorbic Acid | T - TSP Dodecahydrate |
| I - Ice | U - Acetone |
| J - DI Water | V - MCAA |
| K - EDTA | W - ph 4-5 |
| L - EDA | Z - other (specify) |
| | Other: |

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air) | Field Filtered Sample (Yes or No) | 8021B - BTEX 8021 | Perform MS/MSD (Yes or No) | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|
| Preservation Code: | | | | | | | | |
| Trip Blank | 4/15/16 | 0600 | - | Water | N | N | 2 | |
| MW-2 | 4/15/16 | 0655 | G | Water | N | N | 2 | |
| MW-3 | 4/15/16 | 0700 | G | Water | N | N | 2 | |
| MW-4 | 4/15/16 | 0705 | G | Water | N | N | 2 | |

**Possible Hazard Identification**
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**
[ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify): Per ARF

Special Instructions/QC Requirements: Per ARF

| | | | |
|---|---|---|---|
| Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: |
| Relinquished by: | Date/Time: | Company | Received by: / Date/Time: / Company |
| Relinquished by: Brad Barton | Date/Time: 4/15/16 1530 | Company MWH | Received by: Fed Ex office / Date/Time: 4/15/16 1530 / Company Fed Ex |
| Relinquished by: Fed Ex | Date/Time: 4/16/16 | Company Fed Ex | Received by: / Date/Time: 4/16/16 0909 / Company TA |

Custody Seals Intact: [ ] Yes [ ] No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.1°C IR 6

Page 16 of 17

4/29/2016

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-120367-1

**Login Number: 120367**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Crawford, Lauren E**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 2.1°C IR-6 |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

TestAmerica

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# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-128682-1
Client Project/Site: James F. Bell #1E

For:
MWH Americas Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner

Madonna Myers

*Authorized for release by:*
*10/26/2016 9:46:46 AM*
Madonna Myers, Project Manager II
(615)796-1870
madonna.myers@testamericainc.com

Designee for

Carol Webb, Project Manager II
(850)471-6250
carol.webb@testamericainc.com

# Table of Contents

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative error ratio |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

## Job ID: 400-128682-1

### Laboratory: TestAmerica Pensacola

**Narrative**

**Job Narrative**
**400-128682-1**

**Comments**
No additional comments.

**Receipt**
The samples were received on 10/13/2016 9:39 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6º C.

**GC VOA**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

**VOA Prep**
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Detection Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

## Client Sample ID: MW-2 — Lab Sample ID: 400-128682-1

No Detections.

## Client Sample ID: MW-3 — Lab Sample ID: 400-128682-2

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 82 | | 10 | | ug/L | 10 | | 8021B | Total/NA |
| Ethylbenzene | 910 | | 10 | | ug/L | 10 | | 8021B | Total/NA |
| Xylenes, Total | 1400 | | 50 | | ug/L | 10 | | 8021B | Total/NA |

## Client Sample ID: MW-4 — Lab Sample ID: 400-128682-3

No Detections.

## Client Sample ID: MW-5 — Lab Sample ID: 400-128682-4

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1400 | | 20 | | ug/L | 20 | | 8021B | Total/NA |
| Ethylbenzene | 120 | | 20 | | ug/L | 20 | | 8021B | Total/NA |
| Toluene | 3300 | | 100 | | ug/L | 20 | | 8021B | Total/NA |
| Xylenes, Total | 2600 | | 100 | | ug/L | 20 | | 8021B | Total/NA |

## Client Sample ID: MW-6 — Lab Sample ID: 400-128682-5

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1200 | | 20 | | ug/L | 20 | | 8021B | Total/NA |
| Ethylbenzene | 750 | | 20 | | ug/L | 20 | | 8021B | Total/NA |
| Toluene | 4100 | | 100 | | ug/L | 20 | | 8021B | Total/NA |
| Xylenes, Total | 6200 | | 100 | | ug/L | 20 | | 8021B | Total/NA |

## Client Sample ID: MW-7 — Lab Sample ID: 400-128682-6

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1200 | | 20 | | ug/L | 20 | | 8021B | Total/NA |
| Ethylbenzene | 1300 | | 20 | | ug/L | 20 | | 8021B | Total/NA |
| Toluene | 2000 | | 100 | | ug/L | 20 | | 8021B | Total/NA |
| Xylenes, Total | 8000 | | 100 | | ug/L | 20 | | 8021B | Total/NA |

## Client Sample ID: MW-9 — Lab Sample ID: 400-128682-7

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 84 | | 2.0 | | ug/L | 2 | | 8021B | Total/NA |
| Ethylbenzene | 140 | | 2.0 | | ug/L | 2 | | 8021B | Total/NA |
| Toluene | 82 | | 10 | | ug/L | 2 | | 8021B | Total/NA |
| Xylenes, Total | 750 | | 10 | | ug/L | 2 | | 8021B | Total/NA |

## Client Sample ID: MW-11 — Lab Sample ID: 400-128682-8

| Analyte | Result | Qualifier | RL | | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 3200 | | 50 | | ug/L | 50 | | 8021B | Total/NA |
| Ethylbenzene | 950 | | 50 | | ug/L | 50 | | 8021B | Total/NA |
| Toluene | 8200 | | 250 | | ug/L | 50 | | 8021B | Total/NA |
| Xylenes, Total | 10000 | | 250 | | ug/L | 50 | | 8021B | Total/NA |

This Detection Summary does not include radiochemical test results.

# Detection Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-12** **Lab Sample ID: 400-128682-9**

No Detections.

**Client Sample ID: TB-1** **Lab Sample ID: 400-128682-10**

No Detections.

This Detection Summary does not include radiochemical test results.

# Sample Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 400-128682-1 | MW-2 | Water | 10/11/16 08:03 | 10/13/16 09:39 |
| 400-128682-2 | MW-3 | Water | 10/11/16 08:15 | 10/13/16 09:39 |
| 400-128682-3 | MW-4 | Water | 10/11/16 08:27 | 10/13/16 09:39 |
| 400-128682-4 | MW-5 | Water | 10/11/16 08:35 | 10/13/16 09:39 |
| 400-128682-5 | MW-6 | Water | 10/11/16 08:39 | 10/13/16 09:39 |
| 400-128682-6 | MW-7 | Water | 10/11/16 08:46 | 10/13/16 09:39 |
| 400-128682-7 | MW-9 | Water | 10/11/16 08:53 | 10/13/16 09:39 |
| 400-128682-8 | MW-11 | Water | 10/11/16 08:59 | 10/13/16 09:39 |
| 400-128682-9 | MW-12 | Water | 10/11/16 09:07 | 10/13/16 09:39 |
| 400-128682-10 | TB-1 | Water | 10/11/16 00:00 | 10/13/16 09:39 |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-2**
**Date Collected: 10/11/16 08:03**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-1**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 18:03 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 18:03 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 10/18/16 18:03 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 10/18/16 18:03 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *94* | | *78 - 124* | | *10/18/16 18:03* | *1* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-3**
**Date Collected: 10/11/16 08:15**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-2**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **82** | | 10 | | ug/L | | | 10/19/16 17:22 | 10 |
| **Ethylbenzene** | **910** | | 10 | | ug/L | | | 10/19/16 17:22 | 10 |
| Toluene | <50 | | 50 | | ug/L | | | 10/19/16 17:22 | 10 |
| **Xylenes, Total** | **1400** | | 50 | | ug/L | | | 10/19/16 17:22 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *91* | | *78 - 124* | | *10/19/16 17:22* | *10* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-4**
**Date Collected: 10/11/16 08:27**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-3**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 18:37 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 18:37 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 10/18/16 18:37 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 10/18/16 18:37 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *94* | | *78 - 124* | | *10/18/16 18:37* | *1* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-5**
**Date Collected: 10/11/16 08:35**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-4**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1400 | | 20 | | ug/L | | | 10/19/16 17:57 | 20 |
| Ethylbenzene | 120 | | 20 | | ug/L | | | 10/19/16 17:57 | 20 |
| Toluene | 3300 | | 100 | | ug/L | | | 10/19/16 17:57 | 20 |
| Xylenes, Total | 2600 | | 100 | | ug/L | | | 10/19/16 17:57 | 20 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *101* | | *78 - 124* | | *10/19/16 17:57* | *20* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-6**
**Date Collected: 10/11/16 08:39**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-5**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1200 | | 20 | | ug/L | | | 10/19/16 18:33 | 20 |
| Ethylbenzene | 750 | | 20 | | ug/L | | | 10/19/16 18:33 | 20 |
| Toluene | 4100 | | 100 | | ug/L | | | 10/19/16 18:33 | 20 |
| Xylenes, Total | 6200 | | 100 | | ug/L | | | 10/19/16 18:33 | 20 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *102* | | *78 - 124* | | *10/19/16 18:33* | *20* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-7**
**Date Collected: 10/11/16 08:46**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-6**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1200 | | 20 | | ug/L | | | 10/18/16 22:44 | 20 |
| Ethylbenzene | 1300 | | 20 | | ug/L | | | 10/18/16 22:44 | 20 |
| Toluene | 2000 | | 100 | | ug/L | | | 10/18/16 22:44 | 20 |
| Xylenes, Total | 8000 | | 100 | | ug/L | | | 10/18/16 22:44 | 20 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *98* | | *78 - 124* | | *10/18/16 22:44* | *20* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-9**
**Date Collected: 10/11/16 08:53**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-7**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 84 | | 2.0 | | ug/L | | | 10/19/16 16:47 | 2 |
| Ethylbenzene | 140 | | 2.0 | | ug/L | | | 10/19/16 16:47 | 2 |
| Toluene | 82 | | 10 | | ug/L | | | 10/19/16 16:47 | 2 |
| Xylenes, Total | 750 | | 10 | | ug/L | | | 10/19/16 16:47 | 2 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *97* | | *78 - 124* | | *10/19/16 16:47* | *2* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-11**
**Date Collected: 10/11/16 08:59**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-8**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 3200 | | 50 | | ug/L | | | 10/18/16 23:53 | 50 |
| Ethylbenzene | 950 | | 50 | | ug/L | | | 10/18/16 23:53 | 50 |
| Toluene | 8200 | | 250 | | ug/L | | | 10/18/16 23:53 | 50 |
| Xylenes, Total | 10000 | | 250 | | ug/L | | | 10/18/16 23:53 | 50 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *99* | | *78 - 124* | | *10/18/16 23:53* | *50* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: MW-12**
**Date Collected: 10/11/16 09:07**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-9**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 10/19/16 12:43 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 10/19/16 12:43 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 10/19/16 12:43 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 10/19/16 12:43 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *95* | | *78 - 124* | | *10/19/16 12:43* | *1* |

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

**Client Sample ID: TB-1**
**Date Collected: 10/11/16 00:00**
**Date Received: 10/13/16 09:39**

**Lab Sample ID: 400-128682-10**
**Matrix: Water**

**Method: 8021B - Volatile Organic Compounds (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 11:02 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 11:02 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 10/18/16 11:02 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 10/18/16 11:02 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *94* | | *78 - 124* | | *10/18/16 11:02* | *1* |

# QC Association Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

## GC VOA

### Analysis Batch: 327107

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-128682-1 | MW-2 | Total/NA | Water | 8021B | |
| 400-128682-3 | MW-4 | Total/NA | Water | 8021B | |
| 400-128682-6 | MW-7 | Total/NA | Water | 8021B | |
| 400-128682-8 | MW-11 | Total/NA | Water | 8021B | |
| 400-128682-10 | TB-1 | Total/NA | Water | 8021B | |
| MB 400-327107/5 | Method Blank | Total/NA | Water | 8021B | |
| LCS 400-327107/1002 | Lab Control Sample | Total/NA | Water | 8021B | |
| 400-128682-1 MS | MW-2 | Total/NA | Water | 8021B | |
| 400-128682-1 MSD | MW-2 | Total/NA | Water | 8021B | |

### Analysis Batch: 327303

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 400-128682-2 | MW-3 | Total/NA | Water | 8021B | |
| 400-128682-4 | MW-5 | Total/NA | Water | 8021B | |
| 400-128682-5 | MW-6 | Total/NA | Water | 8021B | |
| 400-128682-7 | MW-9 | Total/NA | Water | 8021B | |
| 400-128682-9 | MW-12 | Total/NA | Water | 8021B | |
| MB 400-327303/4 | Method Blank | Total/NA | Water | 8021B | |
| LCS 400-327303/1002 | Lab Control Sample | Total/NA | Water | 8021B | |
| 400-128823-B-1 MS | Matrix Spike | Total/NA | Water | 8021B | |
| 400-128823-B-1 MSD | Matrix Spike Duplicate | Total/NA | Water | 8021B | |

## Method: 8021B - Volatile Organic Compounds (GC)

**Lab Sample ID: MB 400-327107/5**
**Matrix: Water**
**Analysis Batch: 327107**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 10:27 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 10/18/16 10:27 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 10/18/16 10:27 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 10/18/16 10:27 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *94* | | *78 - 124* | | *10/18/16 10:27* | *1* |

**Lab Sample ID: LCS 400-327107/1002**
**Matrix: Water**
**Analysis Batch: 327107**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 50.0 | 43.1 | | ug/L | | 86 | 85 - 115 | | |
| Ethylbenzene | | | 50.0 | 44.2 | | ug/L | | 88 | 85 - 115 | | |
| Toluene | | | 50.0 | 43.2 | | ug/L | | 86 | 85 - 115 | | |
| Xylenes, Total | | | 150 | 131 | | ug/L | | 87 | 85 - 115 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *98* | | *78 - 124* |

**Lab Sample ID: 400-128682-1 MS**
**Matrix: Water**
**Analysis Batch: 327107**

**Client Sample ID: MW-2**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 49.5 | | ug/L | | 99 | 44 - 150 | | |
| Ethylbenzene | <1.0 | | 50.0 | 51.6 | | ug/L | | 103 | 70 - 142 | | |
| Toluene | <5.0 | | 50.0 | 51.2 | | ug/L | | 102 | 69 - 136 | | |
| Xylenes, Total | <5.0 | | 150 | 152 | | ug/L | | 102 | 68 - 142 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *99* | | *78 - 124* |

**Lab Sample ID: 400-128682-1 MSD**
**Matrix: Water**
**Analysis Batch: 327107**

**Client Sample ID: MW-2**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 50.5 | | ug/L | | 101 | 44 - 150 | 2 | 16 |
| Ethylbenzene | <1.0 | | 50.0 | 50.4 | | ug/L | | 101 | 70 - 142 | 2 | 16 |
| Toluene | <5.0 | | 50.0 | 49.9 | | ug/L | | 100 | 69 - 136 | 3 | 16 |
| Xylenes, Total | <5.0 | | 150 | 149 | | ug/L | | 99 | 68 - 142 | 2 | 15 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *99* | | *78 - 124* |

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

**Lab Sample ID: MB 400-327303/4**
**Matrix: Water**
**Analysis Batch: 327303**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 1.0 | | ug/L | | | 10/19/16 09:45 | 1 |
| Ethylbenzene | <1.0 | | 1.0 | | ug/L | | | 10/19/16 09:45 | 1 |
| Toluene | <5.0 | | 5.0 | | ug/L | | | 10/19/16 09:45 | 1 |
| Xylenes, Total | <5.0 | | 5.0 | | ug/L | | | 10/19/16 09:45 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *94* | | *78 - 124* | | *10/19/16 09:45* | *1* |

**Lab Sample ID: LCS 400-327303/1002**
**Matrix: Water**
**Analysis Batch: 327303**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | | | 50.0 | 42.7 | | ug/L | | 85 | 85 - 115 | | |
| Ethylbenzene | | | 50.0 | 44.7 | | ug/L | | 89 | 85 - 115 | | |
| Toluene | | | 50.0 | 44.1 | | ug/L | | 88 | 85 - 115 | | |
| Xylenes, Total | | | 150 | 133 | | ug/L | | 89 | 85 - 115 | | |

| *Surrogate* | | | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | | | *98* | | *78 - 124* |

**Lab Sample ID: 400-128823-B-1 MS**
**Matrix: Water**
**Analysis Batch: 327303**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 54.4 | | ug/L | | 109 | 44 - 150 | | |
| Ethylbenzene | <1.0 | | 50.0 | 55.6 | | ug/L | | 111 | 70 - 142 | | |
| Toluene | <5.0 | | 50.0 | 55.3 | | ug/L | | 111 | 69 - 136 | | |
| Xylenes, Total | <5.0 | | 150 | 164 | | ug/L | | 110 | 68 - 142 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *101* | | *78 - 124* |

**Lab Sample ID: 400-128823-B-1 MSD**
**Matrix: Water**
**Analysis Batch: 327303**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <1.0 | | 50.0 | 56.2 | | ug/L | | 112 | 44 - 150 | 3 | 16 |
| Ethylbenzene | <1.0 | | 50.0 | 56.1 | | ug/L | | 112 | 70 - 142 | 1 | 16 |
| Toluene | <5.0 | | 50.0 | 55.6 | | ug/L | | 111 | 69 - 136 | 1 | 16 |
| Xylenes, Total | <5.0 | | 150 | 166 | | ug/L | | 111 | 68 - 142 | 1 | 15 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *a,a,a-Trifluorotoluene (pid)* | *101* | | *78 - 124* |

## Client Sample ID: MW-2
**Lab Sample ID: 400-128682-1**
**Date Collected: 10/11/16 08:03**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 327107 | 10/18/16 18:03 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-3
**Lab Sample ID: 400-128682-2**
**Date Collected: 10/11/16 08:15**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 10 | 5 mL | 5 mL | 327303 | 10/19/16 17:22 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-4
**Lab Sample ID: 400-128682-3**
**Date Collected: 10/11/16 08:27**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 327107 | 10/18/16 18:37 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-5
**Lab Sample ID: 400-128682-4**
**Date Collected: 10/11/16 08:35**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 20 | 5 mL | 5 mL | 327303 | 10/19/16 17:57 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-6
**Lab Sample ID: 400-128682-5**
**Date Collected: 10/11/16 08:39**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 20 | 5 mL | 5 mL | 327303 | 10/19/16 18:33 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-7
**Lab Sample ID: 400-128682-6**
**Date Collected: 10/11/16 08:46**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 20 | 5 mL | 5 mL | 327107 | 10/18/16 22:44 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

## Client Sample ID: MW-9

**Lab Sample ID: 400-128682-7**

**Date Collected: 10/11/16 08:53**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 2 | 5 mL | 5 mL | 327303 | 10/19/16 16:47 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-11

**Lab Sample ID: 400-128682-8**

**Date Collected: 10/11/16 08:59**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 50 | 5 mL | 5 mL | 327107 | 10/18/16 23:53 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: MW-12

**Lab Sample ID: 400-128682-9**

**Date Collected: 10/11/16 09:07**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 327303 | 10/19/16 12:43 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

## Client Sample ID: TB-1

**Lab Sample ID: 400-128682-10**

**Date Collected: 10/11/16 00:00**
**Matrix: Water**
**Date Received: 10/13/16 09:39**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8021B | | 1 | 5 mL | 5 mL | 327107 | 10/18/16 11:02 | SAB | TAL PEN |
| | Instrument ID: CH_JOAN | | | | | | | | | |

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Certification Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

## Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alabama | State Program | 4 | 40150 | 06-30-17 |
| Arizona | State Program | 9 | AZ0710 | 01-11-17 |
| Arkansas DEQ | State Program | 6 | 88-0689 | 09-01-17 |
| California | ELAP | 9 | 2510 | 03-31-18 |
| Florida | NELAP | 4 | E81010 | 06-30-17 |
| Georgia | State Program | 4 | N/A | 06-30-17 |
| Illinois | NELAP | 5 | 200041 | 10-09-17 |
| Iowa | State Program | 7 | 367 | 08-01-18 |
| Kansas | NELAP | 7 | E-10253 | 10-31-17 |
| Kentucky (UST) | State Program | 4 | 53 | 06-30-17 |
| Kentucky (WW) | State Program | 4 | 98030 | 12-31-16 |
| Louisiana | NELAP | 6 | 30976 | 06-30-17 |
| Maryland | State Program | 3 | 233 | 09-30-17 |
| Massachusetts | State Program | 1 | M-FL094 | 06-30-17 |
| Michigan | State Program | 5 | 9912 | 05-06-17 |
| New Jersey | NELAP | 2 | FL006 | 06-30-17 |
| North Carolina (WW/SW) | State Program | 4 | 314 | 12-31-16 |
| Oklahoma | State Program | 6 | 9810 | 08-31-17 |
| Pennsylvania | NELAP | 3 | 68-00467 | 01-31-17 |
| Rhode Island | State Program | 1 | LAO00307 | 12-30-16 |
| South Carolina | State Program | 4 | 96026 | 06-30-16 * |
| Tennessee | State Program | 4 | TN02907 | 06-30-17 |
| Texas | NELAP | 6 | T104704286-16-10 | 09-30-17 |
| USDA | Federal | | P330-16-00172 | 05-24-19 |
| Virginia | NELAP | 3 | 460166 | 06-14-17 |
| Washington | State Program | 10 | C915 | 05-15-17 |
| West Virginia DEP | State Program | 3 | 136 | 06-30-17 |

* Certification renewal pending - certification considered valid.

# Method Summary

Client: MWH Americas Inc
Project/Site: James F. Bell #1E

TestAmerica Job ID: 400-128682-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8021B | Volatile Organic Compounds (GC) | SW846 | TAL PEN |

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

SERIAL NUMBER: 80996

681-Atlanta

Page 25 of 26

10/26/2016

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD


**TestAmerica Pensacola**
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QUOTE NO.:

BOTTLE ORDER NO.:

ORDER - LOG-IN NO.: C

CLIENT: EPCGPC

ADDRESS: —

PAGE: 1 OF: 1

PROJECT NAME: JF Bell

PROJECT NO.: 105088834

CLIENT PROJECT MANAGER: Clint Oberbroeckling

PROJECT LOC. (STATE): NM

SAMPLED BY: Clint Oberbroeckling

CONTRACT / P.O. NO.: AFE# ERG-MW#09-23thru00-i

CLIENT PHONE: 575.200.4299

CLIENT E-MAIL OR FAX:

TAT REQUESTED: RUSH NEEDS LAB PREAPPROVAL ☐ NORMAL 10 BUSINESS DAYS
☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☐ 5 DAYS ☐ 20 DAYS (Package) X OTHER: 14 CAL DAYS

SAMPLE DISPOSAL: ☐ RETURN TO CLIENT X DISPOSAL BY LAB
☐ SEE CONTRACT ☐ OTHER:

REQUESTED ANALYSIS: BTEX by 8021B

POSSIBLE HAZARD IDENTIFICATION
X NON-HAZARD
Δ FLAMMABLE
Δ RADIOACTIVE
Δ POISON B
Δ UNKNOWN
Δ OTHER:

NO. OF COOLERS PER SHIPMENT:

SPECIAL INSTRUCTIONS/ CONDITIONS OF RECEIPT

LAB USE ONLY - SAMPLE NUMBER

| SAMPLE DATE | SAMPLE TIME | SAMPLE IDENTIFICATION | PRESERVATIVE: No Preservative | HCL - Hydrochloric Acid | HNO3 - Nitric Acid | H2SO4 - Sulfuric Acid or H3PO4 | NAOH - Sodium Hydroxide | CH3OH - Methanol | NAHSO4 - Sodium Bisulfate | NA2S2O3 - Sodium Thiosulfate | Other: | MATRIX: Drinking Water | Aqeuous GW, SW, WW | Solid, Semisolid, Sediment | Air | NonAqueous (Oil, Solvent, etc.) | NUMBER OF CONTAINERS SUBMITTED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/11/16 | 803 | MW 2 | | 3 | | | | | | | | | | | | | 6 |
| | 815 | MW 3 | | | | | | | | | | | | | | | |
| | 827 | MW 4 | | | | | | | | | | | | | | | |
| | 835 | MW 5 | | | | | | | | | | | | | | | |
| | 839 | MW 6 | | | | | | | | | | | | | | | |
| | 846 | MW 7 | | | | | | | | | | | | | | | |
| | 853 | MW 9 | | | | | | | | | | | | | | | |
| | 859 | MW 11 | | | | | | | | | | | | | | | |
| | 907 | MW 12 | | | | | | | | | | | | | | | |
| | — | ~~TB02 TB2~~ | | | | | | | | | | | | | | | |
| ↓ | — | TB1 | | ↓ | | | | | | | | | | | | | ↓ |

400-128682 COC

| RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE | TIME | RELINQUISHED BY: (SIGNATURE) | DATE | TIME |
|---|---|---|---|---|---|---|---|---|
| EMPTY CONTAINERS | | | | 10/11/16 | 1200 | | | |
| RECEIVED BY: (SIGNATURE) | DATE | TIME | RECEIVED BY: (SIGNATURE) | DATE | TIME | RECEIVED BY: (SIGNATURE) | DATE | TIME |
| EMPTY CONTAINERS | | | | | | | | |

LABORATORY USE ONLY

| RECEIVED FOR LABORATORY BY: | DATE | TIME | CUSTODY INTACT? Δ YES Δ NO | CUSTODY SEAL NO. | REMARKS: |
|---|---|---|---|---|---|
| | 10/13/16 | 959 | | | A 3.6°C IR6 |

TAL-8251 (1207)

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-128682-1

**Login Number: 128682**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Hughes, Nicholas T**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 3.6°C - IR6 |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |