# 2013 ANNUAL GROUNDWATER REPORT

**Gallegos Canyon Unit #124E**
**Meter Code: 95608**
**T28N, R12W, Sec 35, Unit N**

## SITE DETAILS

**Site Location:** Latitude: 36.614105 N, Longitude: -108.083662 W
**Land Type:** Navajo
**Operator:** BP America Production Company

## SITE BACKGROUND

- **Site Assessment:** 1/95
- **Excavation:** 10/95 (196 cy)

Gallegos Canyon Unit #124E (Site) is 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 (EPCGP's) program methods. Currently, the site is operated by BP America Production Company and is active.

The Site is located on Navajo Agricultural Products Industry land. Various site investigations have occurred from 1995 through 2012. Monitoring wells were installed in 1995 (MW-1) and 2013 (MW-2 through MW-7). Free product has historically been detected in MW-1 but no free product has been detected since 2003. Currently, groundwater sampling conducted on a semi-annual basis.

## SUMMARY OF 2013 ACTIVITIES

In July 2013, a Site survey was completed to re-develop a base Site map, confirm the Site benchmark, and validate the elevation and location of monitoring well MW-1.

Six new wells (MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7) were drilled in October 2013, to further assess the extent of the dissolved phase hydrocarbons and to define the groundwater gradient at the Site. Ground surface and casing elevations of monitoring wells MW-1 and MW-2 through MW-7 (completed in October 2013), were again surveyed in November 2013, by a licensed surveyor using state plane coordinates.

Monitoring wells MW-2 through MW-7 were constructed of 2-inch diameter, schedule 40, 0.010-inch, continuous, factory-slotted PVC screen and schedule 40 blank PVC casing. The well screen was installed from 40 feet below ground surface (bgs) to 15 feet bgs and bisects the observed water table located at depths ranging from 25-27 feet below the top of the monitoring well casings during 2013 gauging events. A 3-foot seal of bentonite chips was placed above the sandpack and the remaining annular space filled with bentonite grout. The 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. Borehole logs and well construction diagrams are provided in Appendix A

Monitoring wells MW-3, MW-4, MW-5, and MW-6 were installed around the existing MW-1 in order to better delineate groundwater impacts from the former EPC pit. Monitoring well MW-2 was installed south of a former operator's drill pit, and monitoring well MW-7 was installed southwest between two previously completed soil borings (soil boring drilled in November 2000). Pertinent Site features and soil boring/monitoring well locations are shown on accompanying Figures 1-6.

During the drilling of soil borings associated with the installation of the wells completed in October 2013, the soil sample interval exhibiting the highest PID reading was collected and placed in a 4-ounce jar for laboratory analysis. Soil samples were analyzed for the presence of benzene, toluene, ethylbenzene, and total xylenes (BTEX) according to EPA Method SW846 8260B, Total petroleum hydrocarbons using EPA Method SW846 9071, and Chlorides according to EPA Method 300. Sample jars were stored in an ice-filled cooler and shipped under standard chain of custody to Test America Laboratories in Corpus Christi, Texas. The soil sample laboratory analytical report is provided in Appendix B.

Monitoring well development was performed using a well swab and disposable bailer until all sediment was removed and visibly clear groundwater was observed. Purged groundwater was stored in a labeled 55-gallon drum and staged on-site along with the soil boring cuttings for later disposal by Safety-Kleen.

On June 4 and September 11, 2013, groundwater levels were gauged at MW-1, and groundwater samples were collected using a HydraSleeve™ (HydraSleeve); a disposable, no-purge passive groundwater sampling device. On December 15, 2013, MW-1, and new monitoring wells MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 were gauged and a groundwater sample was collected from MW-1 using a HydraSleeve. The HydraSleeve within MW-1 was set during the previous sampling event approximately 0.5 foot above the termination depth of each monitoring well using a suspension tether and weights to collect a sample from the screened interval. All new monitoring wells installed in October 2013 were purged and samples were collected with a 2 inch disposable bailer. HydraSleeves were set in wells without free product to be sampled at a future event. Groundwater samples were placed into laboratory supplied sample containers, packed on ice and shipped under standard chain of custody protocols to Test America Laboratories in Corpus Christi, Texas where they were analyzed for BTEX. Additional field parameters were collected including dissolved oxygen, temperature, conductivity, pH, and ORP using a YSI multi-parameter instrument. The de minimis water remaining in the HydraSleeve was combined in a waste container along with excess water from bailing activities and transferred to an off-site 55-gallon drum for later disposal by Safety-Kleen.

## SUMMARY TABLES

Soil analytical results for samples from the MW-2 through MW-7 borings are presented in Table 1. Historic analytical and water level data are summarized in Table 2.

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## SITE MAPS

Groundwater analytical results maps (Figures 1, 3, and 5) and groundwater elevation maps (Figures 2, 4, and 6) summarize the results of the 2013 groundwater sampling and gauging events.

## ANALYTICAL LAB REPORTS

The soil and groundwater analytical lab reports are presented in Appendices B and C, respectively.

## RESULTS

- Based on 2013 quarterly water level gauging events, the groundwater flow direction is generally to the west at the Site (see Figure 6).

- Concentrations of benzene (25, 33, and 87 µg/L) in groundwater collected from MW-1 remained above the New Mexico Water Quality Control Commission (NMWQCC) standard during each of the three 2013 quarterly sampling events. Concentrations of ethylbenzene and total xylenes remained significantly below standards for all three 2013 sampling events. Toluene was not detected in groundwater obtained from MW-1 during the three 2013 quarterly sampling events.

- BTEX constituents were not detected in MW-2 during the December 2013 sampling event.

- Concentrations of benzene, ethylbenzene, and total xylenes in groundwater collected from MW-3 were below NMWQCC standards during the December 2013 sampling event. Toluene was not detected in the collected groundwater in December 2013.

- BTEX constituents were not detected in g MW-4 during the December 2013 sampling event or were reported below the reporting limit (J-flagged).

- Concentrations of benzene, ethylbenzene, and total xylenes in groundwater collected from MW-5 were below NMWQCC standards during the December 2013 sampling event. Toluene was not detected in the collected groundwater in December 2013.

- BTEX constituents were not detected in groundwater collected from MW-6 during the December 2013 sampling event.

- BTEX constituents were not detected in groundwater collected from MW-7 during the December 2013 sampling event.

- Based on the results of groundwater analyses from the wells installed in 2013, comprehensive coverage of the potential area where dissolved hydrocarbon concentrations could exist from the former release has been achieved. It does not appear that additional delineation of dissolved hydrocarbons is necessary at this time.

- Soil samples from the borings for new monitoring wells MW-2 through MW-7 were analyzed for BTEX, total petroleum hydrocarbons (TPH), and chloride. All samples were non-detect for benzene and toluene. Ethylbenzene was non detect at 4 of the sample locations with high reported concentration 0.24 milligrams/kilogram of soil (mg/kg) at MW-4. Xylenes were non detect or estimated at concentration below the reporting limit at 4 locations with a high concentration of 3.4 mg/kg at MW-4. TPH values ranged from 65 milligrams per kilogram of soil (mg/kg) at MW-2 to 590 mg/kg at MW-6. Chloride was detected below the reporting limit (J-flagged) at all locations except MW-5 where chloride was reported at 61 mg/kg.

## PLANNED FUTURE ACTIVITIES

Monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 will be gauged and sampled on a semi-annual basis in 2014. Groundwater elevation and analytical data collected during 2014 will be evaluated and presented in the 2014 Annual Groundwater Report issued in early 2015. When BTEX concentrations in all wells are reported below the NMWQCC standards, groundwater sampling frequency will be increased to quarterly. After four consecutive quarters with no dissolved hydrocarbon concentrations are observed EPCGP will request site closure from NMOCD.

# TABLES

TABLE 1 – SOIL SAMPLING ANALYTICAL RESULTS
TABLE 2 – GROUNDWATER ANALYTICAL AND WATER LEVEL RESULTS

# TABLE 1 - SOIL ANALYTICAL RESULTS

| Gallegos Canyon Unit #124E | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Location** | **Date** | **Benzene (mg/kg)** | **Toluene (mg/kg)** | **Ethylbenzene (mg/kg)** | **Total Xylenes (mg/kg)** | **TPH (mg/kg)** | **Chloride (mg/kg)** |
| MW-2(19-20) | 10/31/13 | <0.00022 | <0.00087 | <0.00044 | <0.00048 | 65 | 35J |
| MW-3(25-26) | 10/30/13 | <0.019 | <0.0096 | 0.21 | 2.3 | 260 | 39J |
| MW-4(25-30) | 10/29/13 | <0.023 | <0.012 | 0.24 | 3.4 | 430 | 26J |
| MW-5(24-25) | 10/31/13 | <0.00024 | <0.00094 | <0.00024 | 0.0036J | 230 | 61 |
| MW-6(25-26) | 10/30/13 | <0.021 | <0.010 | <0.010 | <0.010 | 590 | 45J |
| MW-7(24-25) | 10/31/13 | <0.00021 | <0.00084 | <0.00042 | <0.00047 | 130 | 26J |

Notes:
"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).

# TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

| Gallegos Canyon Unit #124E | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Location** | **Date** | **Benzene (µg/L)** | **Toluene (µg/L)** | **Ethylbenzene (µg/L)** | **Total Xylenes (µg/L)** | **Depth to Water (ft.)** | **Depth to LNAPL (ft.)** | **LNAPL Thickness (ft.)** |
| NMWQCC Standards | | 10 | 750 | 750 | 620 | NA | NA | NA |
| MW-1 | 06/25/98 | 340 | 271 | 111 | 510 | 27.21 | - | - |
| MW-1 | 09/14/98 | 410 | 251 | 68.3 | 220 | 27.50 | - | - |
| MW-1 | 12/15/98 | 710 | 1300 | 160 | 940 | 28.16 | 27.61 | 0.55 |
| MW-1 | 03/16/99 | 2960 | 5130 | 367 | 2890 | 29.02 | 27.60 | 1.42 |
| MW-1 | 10/05/00 | | | | | 29.46 | 29.04 | 0.42 |
| MW-1 | 11/15/00 | | | | | 28.93 | 28.93 | 0.00 |
| MW-1 | 12/20/00 | | | | | 28.98 | - | - |
| MW-1 | 01/09/01 | | | | | 29.21 | 29.18 | 0.03 |
| MW-1 | 01/15/01 | | | | | 29.07 | 29.04 | 0.03 |
| MW-1 | 01/22/01 | | | | | 28.99 | - | - |
| MW-1 | 01/30/01 | | | | | 29.09 | - | - |
| MW-1 | 03/12/01 | | | | | 29.26 | - | - |
| MW-1 | 06/05/01 | | | | | 29.32 | 29.28 | 0.04 |
| MW-1 | 07/13/01 | | | | | 29.65 | - | - |
| MW-1 | 08/02/01 | | | | | 29.53 | - | - |
| MW-1 | 08/31/01 | | | | | 29.27 | - | - |
| MW-1 | 09/21/01 | | | | | 29.33 | - | - |
| MW-1 | 10/02/01 | | | | | 28.98 | - | - |
| MW-1 | 01/02/02 | | | | | 28.96 | 28.85 | 0.11 |
| MW-1 | 01/07/02 | | | | | 28.99 | 28.94 | 0.05 |
| MW-1 | 01/23/02 | | | | | 29.35 | 26.35 | 3.00 |
| MW-1 | 01/30/02 | | | | | 29.24 | 29.22 | 0.02 |
| MW-1 | 02/07/02 | | | | | 29.70 | 29.66 | 0.04 |
| MW-1 | 02/14/02 | | | | | 29.29 | 29.28 | 0.01 |
| MW-1 | 02/20/02 | | | | | 29.76 | 29.75 | 0.01 |
| MW-1 | 03/04/02 | | | | | 29.30 | - | - |
| MW-1 | 03/11/02 | | | | | 29.17 | - | - |
| MW-1 | 03/21/02 | | | | | 29.47 | - | - |
| MW-1 | 03/28/02 | | | | | 29.33 | - | - |
| MW-1 | 04/03/02 | | | | | 29.33 | - | - |
| MW-1 | 04/12/02 | | | | | 29.70 | - | - |
| MW-1 | 04/18/02 | | | | | 29.31 | - | - |
| MW-1 | 04/25/02 | | | | | 30.11 | - | - |
| MW-1 | 05/03/02 | | | | | 30.18 | - | - |
| MW-1 | 05/10/02 | | | | | 30.25 | - | - |
| MW-1 | 05/17/02 | | | | | 29.57 | - | - |
| MW-1 | 05/24/02 | | | | | 29.70 | - | - |
| MW-1 | 05/31/02 | | | | | 29.54 | - | - |
| MW-1 | 06/07/02 | | | | | 29.42 | - | - |
| MW-1 | 06/12/02 | | | | | 29.21 | - | - |
| MW-1 | 06/21/02 | | | | | 30.12 | - | - |
| MW-1 | 06/27/02 | | | | | 30.18 | - | - |
| MW-1 | 07/02/02 | | | | | 29.99 | 29.98 | 0.01 |
| MW-1 | 07/11/02 | | | | | 30.06 | - | - |
| MW-1 | 07/15/02 | | | | | 29.63 | - | - |
| MW-1 | 10/16/02 | | | | | 29.65 | 29.24 | 0.41 |
| MW-1 | 01/15/03 | | | | | 28.63 | - | - |
| MW-1 | 05/05/03 | | | | | 27.72 | 27.69 | 0.03 |
| MW-1 | 07/18/03 | | | | | 27.08 | 27.06 | 0.02 |
| MW-1 | 01/29/04 | | | | | 25.40 | - | - |
| MW-1 | 04/15/04 | | | | | 24.98 | - | - |
| MW-1 | 07/26/04 | | | | | 24.50 | - | - |
| MW-1 | 10/15/04 | | | | | 24.98 | - | - |
| MW-1 | 01/17/05 | | | | | 25.49 | - | - |
| MW-1 | 04/19/05 | 38.8 | <1 | 142 | 1160 | 25.45 | - | - |
| MW-1 | 07/20/05 | 125 | 11.4 | 371 | 2640 | 24.73 | - | - |

# TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

| Gallegos Canyon Unit #124E | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Location** | **Date** | **Benzene (µg/L)** | **Toluene (µg/L)** | **Ethylbenzene (µg/L)** | **Total Xylenes (µg/L)** | **Depth to Water (ft.)** | **Depth to LNAPL (ft.)** | **LNAPL Thickness (ft.)** |
| NMWQCC Standards | | 10 | 750 | 750 | 620 | NA | NA | NA |
| MW-1 | 10/20/05 | 86.8 | 11.3 | 125 | 864 | 24.85 | - | - |
| MW-1 | 01/19/06 | 77.9 | 12 | 101 | 656 | 24.53 | - | - |
| MW-1 | 04/24/06 | 45.1 | 3.5 J | 56.1 | 377 | 24.25 | - | - |
| MW-1 | 07/31/06 | 60.8 | 1.5 J | 79.3 | 524 | 25.68 | - | - |
| MW-1 | 10/24/06 | 21.1 | <1 | 56.6 | 349 | 24.94 | - | - |
| MW-1 | 01/19/07 | 22.4 | <1 | 60 | 367 | 26.33 | - | - |
| MW-1 | 04/24/07 | 30.3 | <1 | 60.6 | 407 | 25.97 | - | - |
| MW-1 | 07/31/07 | 35.3 | <2 | 68.4 | 416 | 26.26 | - | - |
| MW-1 | 10/25/07 | 9 | <1 | 33.2 | 173 | 26.44 | - | - |
| MW-1 | 01/28/08 | 6 | <2 | 41.6 | 210 | 26.67 | - | - |
| MW-1 | 04/23/08 | 14.1 | 0.59 J | 50.1 | 360 | 26.67 | - | - |
| MW-1 | 07/23/08 | 72.7 | 6.7 | 65.8 | 210 | 23.49 | - | - |
| MW-1 | 10/08/08 | 194 | <50 | 43.6 J | 328 | 22.30 | - | - |
| MW-1 | 01/07/09 | 281 | 6 J | 110 | 653 | 23.74 | - | - |
| MW-1 | 08/25/09 | 57.9 | 8.8 J | 58.4 | 298 | 26.65 | - | - |
| MW-1 | 11/03/09 | | | | | 25.62 | - | - |
| MW-1 | 02/15/10 | 98.3 | 4.1 | 80.6 | 385 | 25.93 | - | - |
| MW-1 | 05/24/10 | | | | | 19.47 | - | - |
| MW-1 | 09/27/10 | 159 | <2 | 56.4 | 348 | 19.78 | - | - |
| MW-1 | 11/01/10 | | | | | 19.82 | - | - |
| MW-1 | 02/01/11 | 109 | 0.28 J | 54.1 | 436 | 21.70 | - | - |
| MW-1 | 05/02/11 | | | | | 23.32 | - | - |
| MW-1 | 09/23/11 | 288 | <1 | 116 | 1020 | 24.71 | - | - |
| MW-1 | 02/22/12 | 255 | <5 | 145 | 853 | 23.51 | - | - |
| MW-1 | 05/07/12 | | | | | 24.20 | - | - |
| MW-1 | 06/04/13 | 33 | <0.60 | 11.0 | 0.86 | 25.87 | - | - |
| MW-1 | 09/11/13 | 25 | <0.30 | 9.8 | 8.9 | 25.74 | - | - |
| MW-1 | 12/15/13 | 87 | <0.30 | 50 | 100 | 25.67 | - | - |

# TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

| Gallegos Canyon Unit #124E | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Location** | **Date** | **Benzene (µg/L)** | **Toluene (µg/L)** | **Ethylbenzene (µg/L)** | **Total Xylenes (µg/L)** | **Depth to Water (ft.)** | **Depth to LNAPL (ft.)** | **LNAPL Thickness (ft.)** |
| NMWQCC Standards | | 10 | 750 | 750 | 620 | NA | NA | NA |
| MW-2 | 12/15/13 | <0.14 | <0.30 | <0.20 | <0.23 | 26.46 | - | - |
| MW-3 | 12/15/13 | 4.1 | <0.30 | 7.4 | 27 | 26.02 | - | - |
| MW-4 | 12/15/13 | <0.14 | <0.30 | 0.28 J | 1.4 J | 25.62 | - | - |
| MW-5 | 12/15/13 | 9.3 | <0.30 | 53 | 32 | 25.17 | - | - |
| MW-6 | 12/15/13 | <0.14 | <0.30 | <0.20 | 2.0 J | 25.48 | - | - |
| MW-7 | 12/15/13 | <0.14 | <0.30 | <0.20 | <0.23 | 25.34 | - | - |

Notes:
Results highlighted yellow exceed their respective New Mexico Water Quality Control Comission 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).

## FIGURES

FIGURE 1: JUNE 6, 2013 GROUNDWATER ANALYTICAL RESULTS MAP
FIGURE 2: JUNE 6, 2013 GROUNDWATER ELEVATION MAP
FIGURE 3: SEPTEMBER 11, 2013 GROUNDWATER ANALYTICAL RESULTS MAP
FIGURE 4: SEPTEMBER 11, 2013 GROUNDWATER ELEVATION MAP
FIGURE 5: DECEMBER 15, 2013 GROUNDWATER ANALYTICAL RESULTS MAP
FIGURE 6: DECEMBER 15, 2013 GROUNDWATER ELEVATION MAP

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## LEGEND:

- 5795 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- FORMER PIT
- PW — PRODUCED WATER LINE
- UGC — UNDERGROUND CABLE
- G — UNDERGROUND GAS LINE
- BENCHMARK
- GAS VALVE
- MONITORING WELL
- SOIL BORING
- RIG ANCHOR

**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
<0.30 = 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 30 60

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| A | 10/14/2013 | CCL | CCL | DAW |

TITLE:
GALLEGOS CANYON UNIT #124E
GROUNDWATER ANALYTICAL RESULTS
SAMPLED JUNE 4, 2013

PROJECT:
SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.: 1

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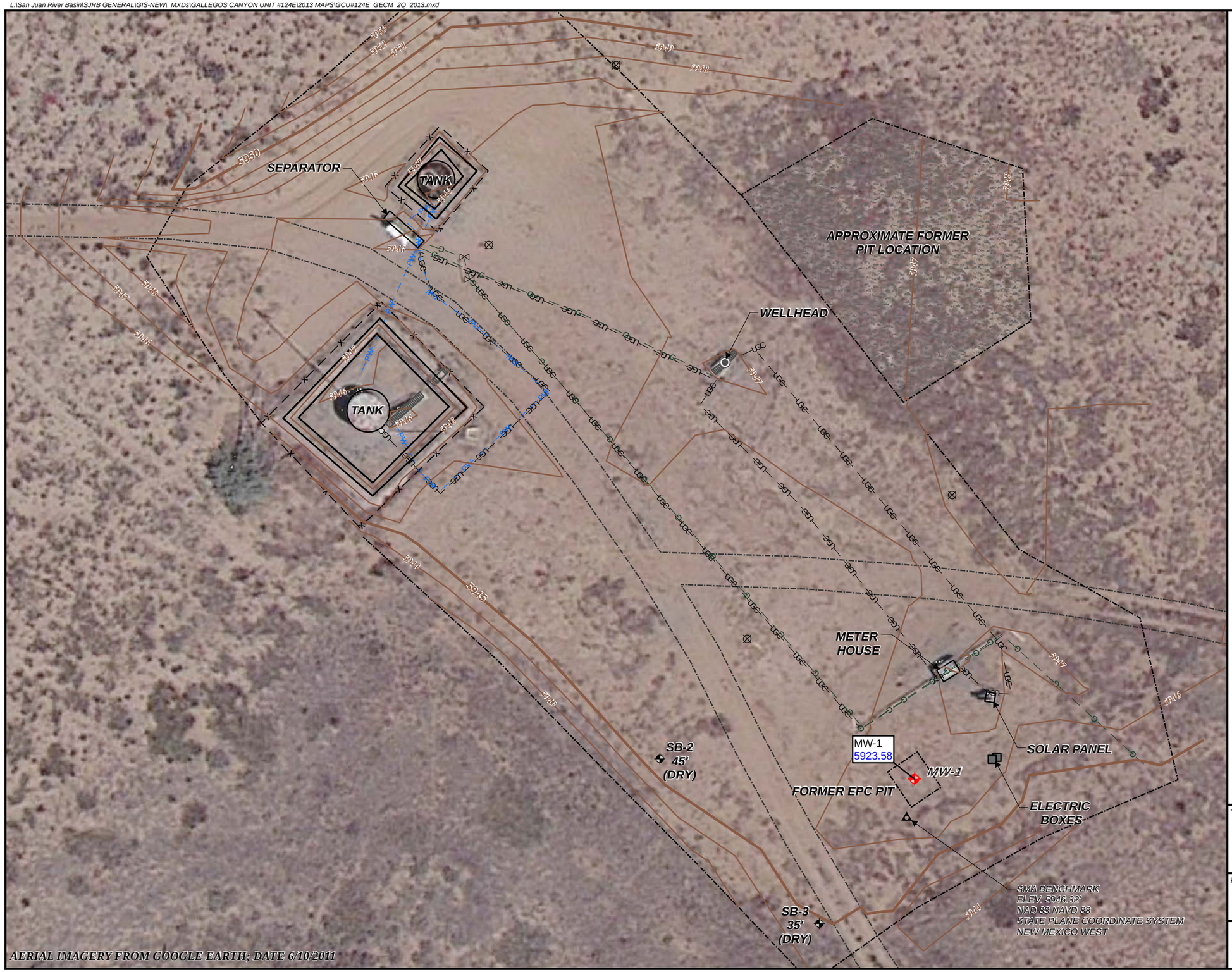


## LEGEND:

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- ACCESS ROAD
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- GAS VALVE
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- SOIL BORING
- RIG ANCHOR

N

SCALE IN FEET

0 30 60

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| A | 10/14/2013 | CCL | CCL | DAW |

TITLE:

GALLEGOS CANYON UNIT #124E
GROUNDWATER ELEVATION MAP
SAMPLED JUNE 4, 2013

PROJECT:

SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.: 2

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## LEGEND:

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NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT

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|---|---|
| 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 30 60

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| A | 10/14/2013 | CCL | CCL | DAW |

TITLE:
GALLEGOS CANYON UNIT #124E
GROUNDWATER ANALYTICAL RESULTS
SAMPLED SEPTEMBER 11, 2013

PROJECT:
SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.: 3

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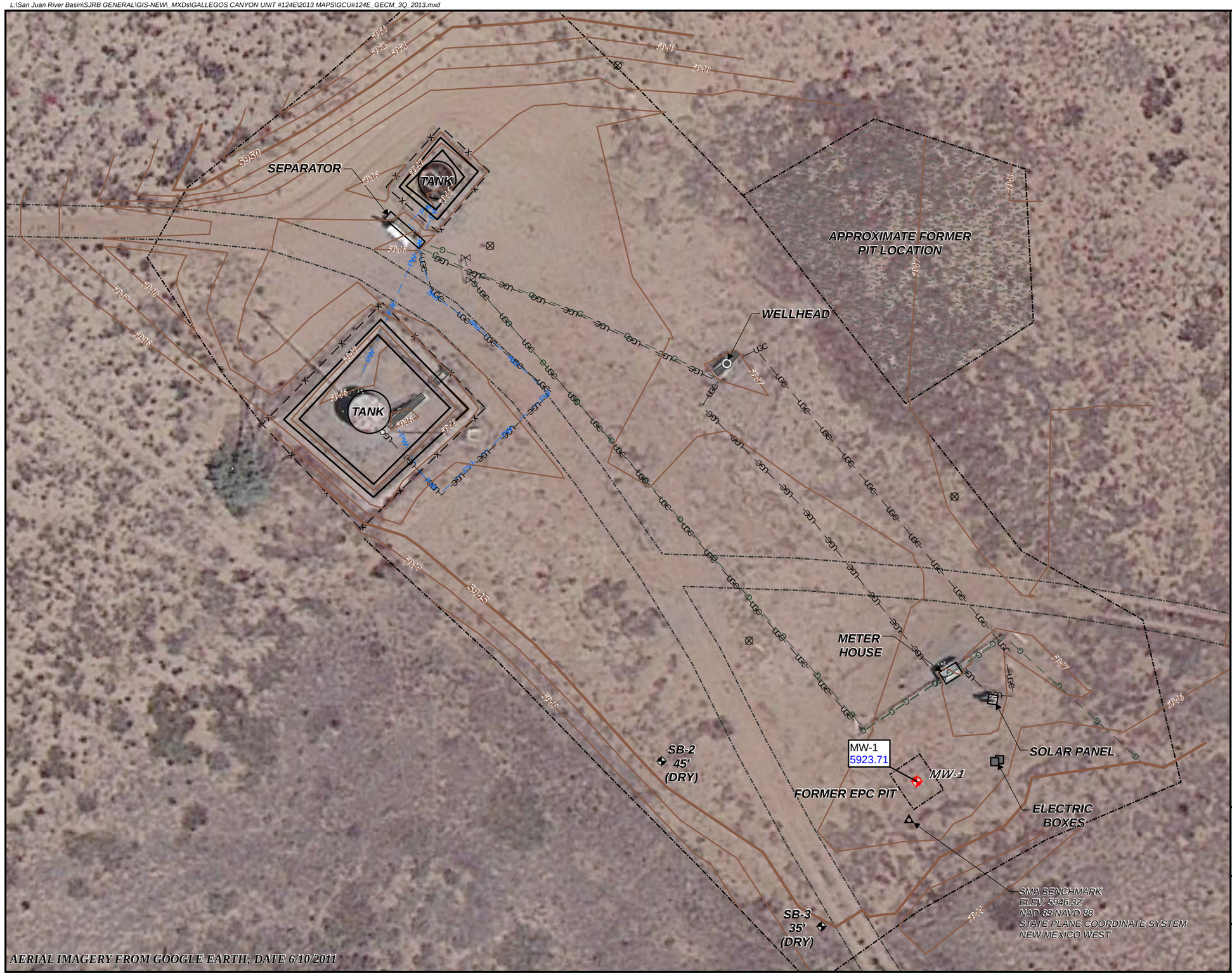


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- UNDERGROUND CABLE
- UNDERGROUND GAS LINE
- BENCHMARK
- GAS VALVE
- MONITORING WELL
- SOIL BORING
- RIG ANCHOR

N

SCALE IN FEET

0 30 60

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| A | 10/14/2013 | CCL | CCL | DAW |

TITLE:

GALLEGOS CANYON UNIT #124E
GROUNDWATER ELEVATION MAP
SAMPLED SEPTEMBER 11, 2013

PROJECT:

SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
SAN JUAN COUNTY, NEW MEXICO

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Figure No.: 4

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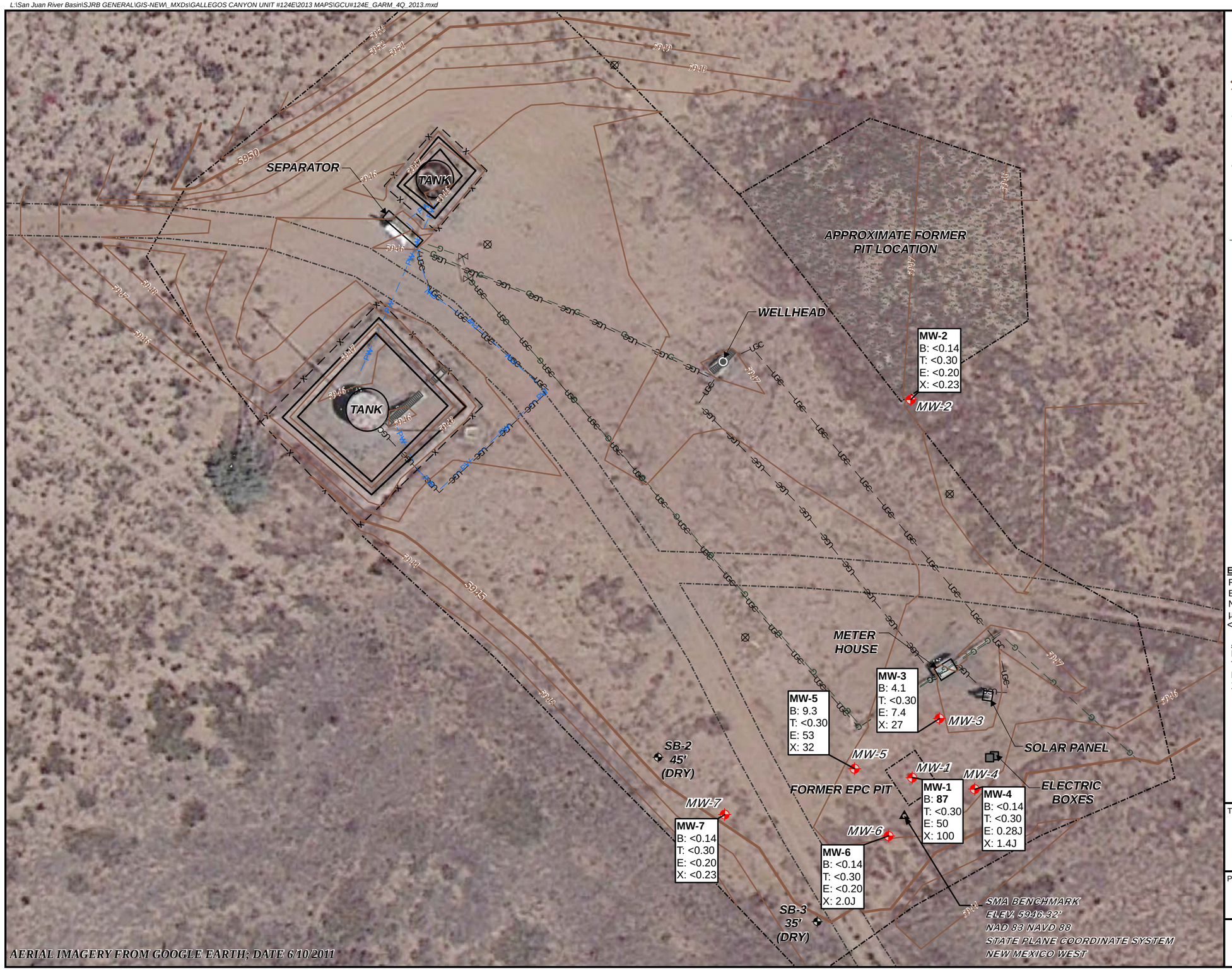


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- BENCHMARK
- GAS VALVE
- MONITORING WELL
- SOIL BORING
- RIG ANCHOR

**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
<0.30 = 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 30 60

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| A | 1/17/2014 | CCL | CCL | DAW |

TITLE:
GALLEGOS CANYON UNIT #124E
GROUNDWATER ANALYTICAL RESULTS
SAMPLED DECEMBER 15, 2013

PROJECT:
SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.: 5

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\GALLEGOS CANYON UNIT #124E\2013 MAPS\GCU#124E_GECM_4Q_2013.mxd

SEPARATOR

TANK

TANK

APPROXIMATE FORMER PIT LOCATION

WELLHEAD

MW-2
MW-2
5923.66

5923.6

5923.7

5923.5

5923.8

METER HOUSE

MW-3
5923.82
MW-3

MW-1
5923.78

5923.9

SOLAR PANEL

5923.4

SB-2
45'
(DRY)

MW-7
5923.34
MW-7

MW-5

MW-1

FORMER EPC PIT

MW-4

MW-4
5923.95

ELECTRIC BOXES

MW-6

MW-6
5923.86

SMA BENCHMARK
ELEV. 5946.32'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

SB-3
35'
(DRY)

MW-5
5923.75

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 6/10/2011

# LEGEND:

- 5795 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FENCE
- FORMER PIT
- PW — PRODUCED WATER LINE
- UGC — UNDERGROUND CABLE
- G — UNDERGROUND GAS LINE
- BENCHMARK
- GAS VALVE
- MONITORING WELL
- SOIL BORING
- RIG ANCHOR

**NOTES:**

5367.84 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

5367.76 CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.5 FOOT CONTOUR INTERVAL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET

0 30 60

| REVISION | DATE | DESIGN BY | DRAWN BY | REVIEWED BY |
|---|---|---|---|---|
| A | 1/16/2014 | CCL | CCL | DAW |

TITLE:

GALLEGOS CANYON UNIT #124E
GROUNDWATER ELEVATION MAP
SAMPLED DECEMBER 15, 2013

PROJECT:

SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
SAN JUAN COUNTY, NEW MEXICO

MWH

Figure No.:

6

## APPENDICES

APPENDIX A – BOREHOLE AND WELL CONSTRUCTION LOGS

APPENDIX B – NOVEMBER SOIL SAMPLING ANALYTICAL REPORT

APPENDIX C - JUNE 6, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT
SEPTEMBER 11, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT
DECEMBER 15, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT

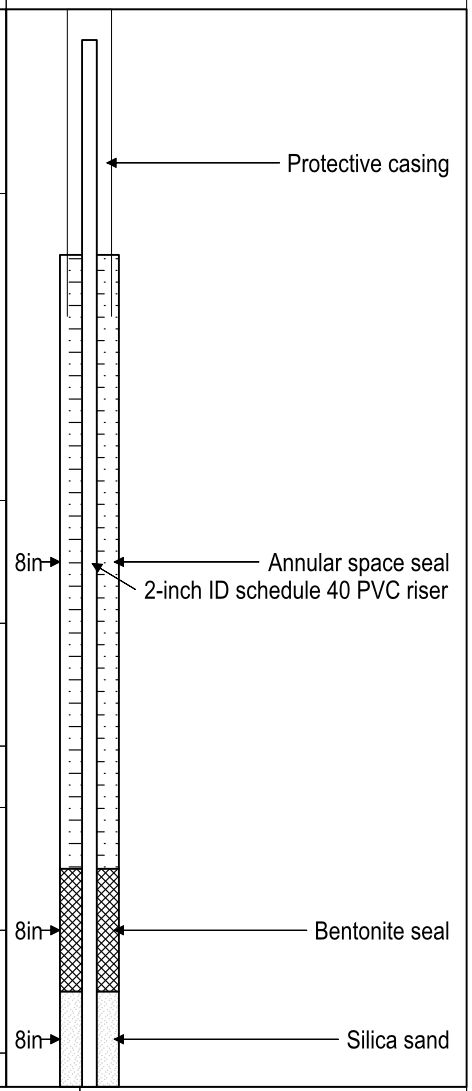
# APPENDIX A

MW-2
MW-3
MW-4
MW-5
MW-6
MW-7

| | |
|---|---|
| GEOLOGIST: Doug Burr | COMPLETION DATE: October 31, 2013 |
| DRILLER: Miguel Alveredo | GROUND SURFACE ELEV (ft MSL) 5947.3 |
| DRILLING COMPANY: National | TOP OF CASING ELEV (ft, MSL) 5950.1 |
| DRILLING METHOD: Hollow Stem Auger | STATE PLANE COORDINATES (ft) |
| HOLE DIAMETER (IN): 8.0 | Northing 2042957.1 Easting 2649677.6 |

Groundwater seepage encountered at 27-35 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

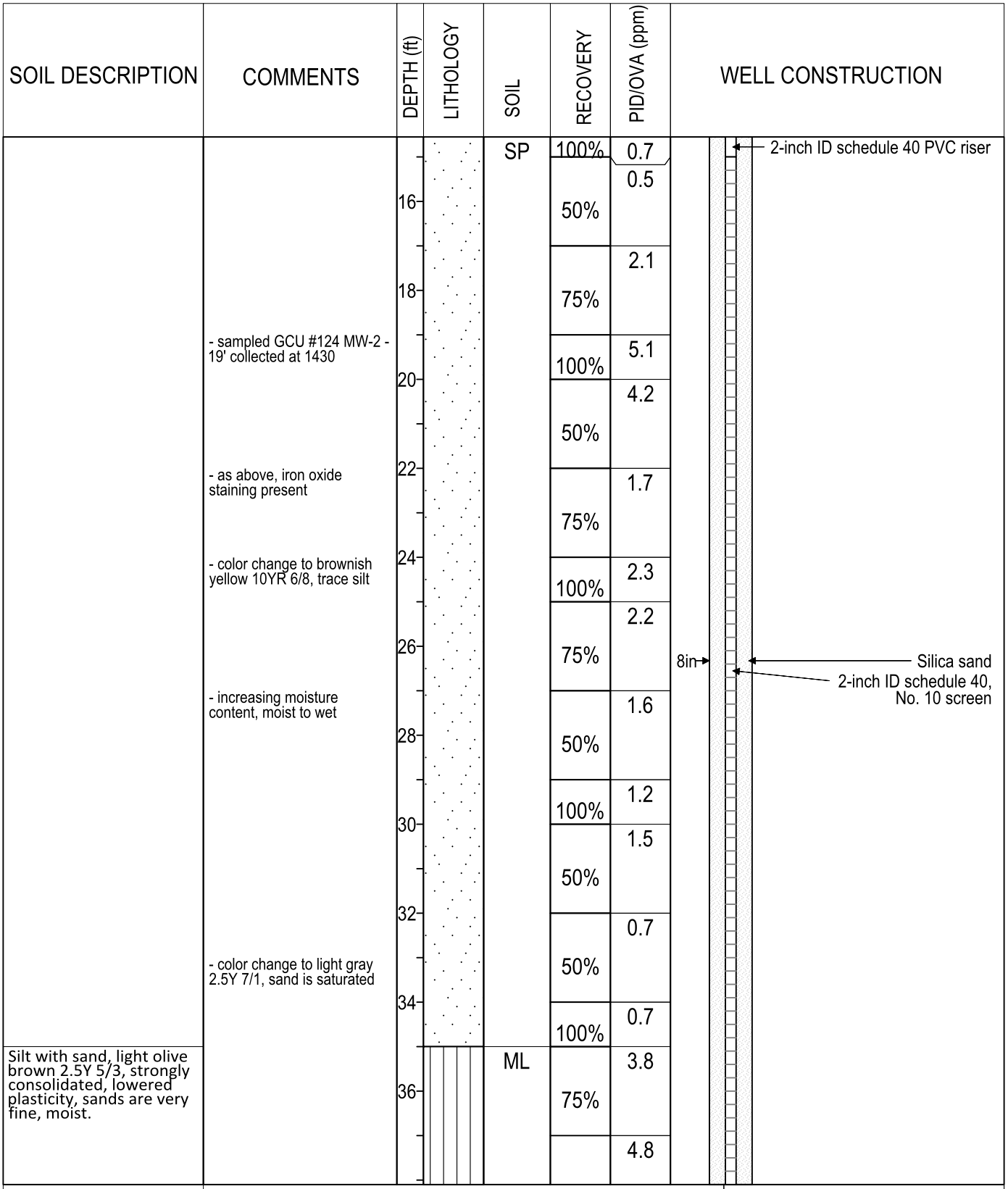
| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | 0 | | | | NA | |
| | | 2 | | | | | |
| | | 4 | | | | | |
| Silty sand, yelllowish brown 10YR 4/6, loose, moist, no cementation, low plasticity, poorly graded. | - Hand augered to 5' bgs (no sample recovered) | 6 | | SM | 100% | 0.8 | |
| Poorly graded sand, light olive brown, 2.5Y 5/3, very loose moist, fine - medium sand, no cementation, abundant quartz. | | 8 | | SP | 100% | 0.9 | |
| | | | | | 100% | 0.8 | |
| | | 10 | | | 100% | 1.4 | |
| | | 12 | | | 50% | 1 | |
| | | 14 | | | | 0.7 | |




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-2

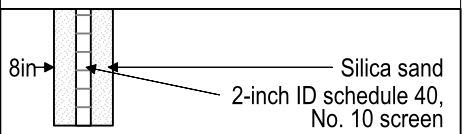
Gallegos Canyon Unit #124E




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-2

Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | | | ML | 75% | 4.8 |  |
| | | | | | 100% | 4.2 | |
| | Total depth = 40' bgs | 40 | | | | | |
| | | 42 | | | | | |
| | | 44 | | | | | |
| | | 46 | | | | | |
| | | 48 | | | | | |
| | | 50 | | | | | |
| | | 52 | | | | | |
| | | 54 | | | | | |
| | | 56 | | | | | |
| | | 58 | | | | | |
| | | 60 | | | | | |



MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-2

Gallegos Canyon Unit #124E

| | |
|---|---|
| GEOLOGIST: Doug Burr | COMPLETION DATE: October 30, 2013 |
| DRILLER: Miguel Alveredo | GROUND SURFACE ELEV (ft MSL) 5947.0 |
| DRILLING COMPANY: National | TOP OF CASING ELEV (ft, MSL) 5949.8 |
| DRILLING METHOD: Hollow Stem Auger | STATE PLANE COORDINATES (ft) |
| HOLE DIAMETER (IN): 8.0 | Northing 2042857.1 Easting 2649686.6 |

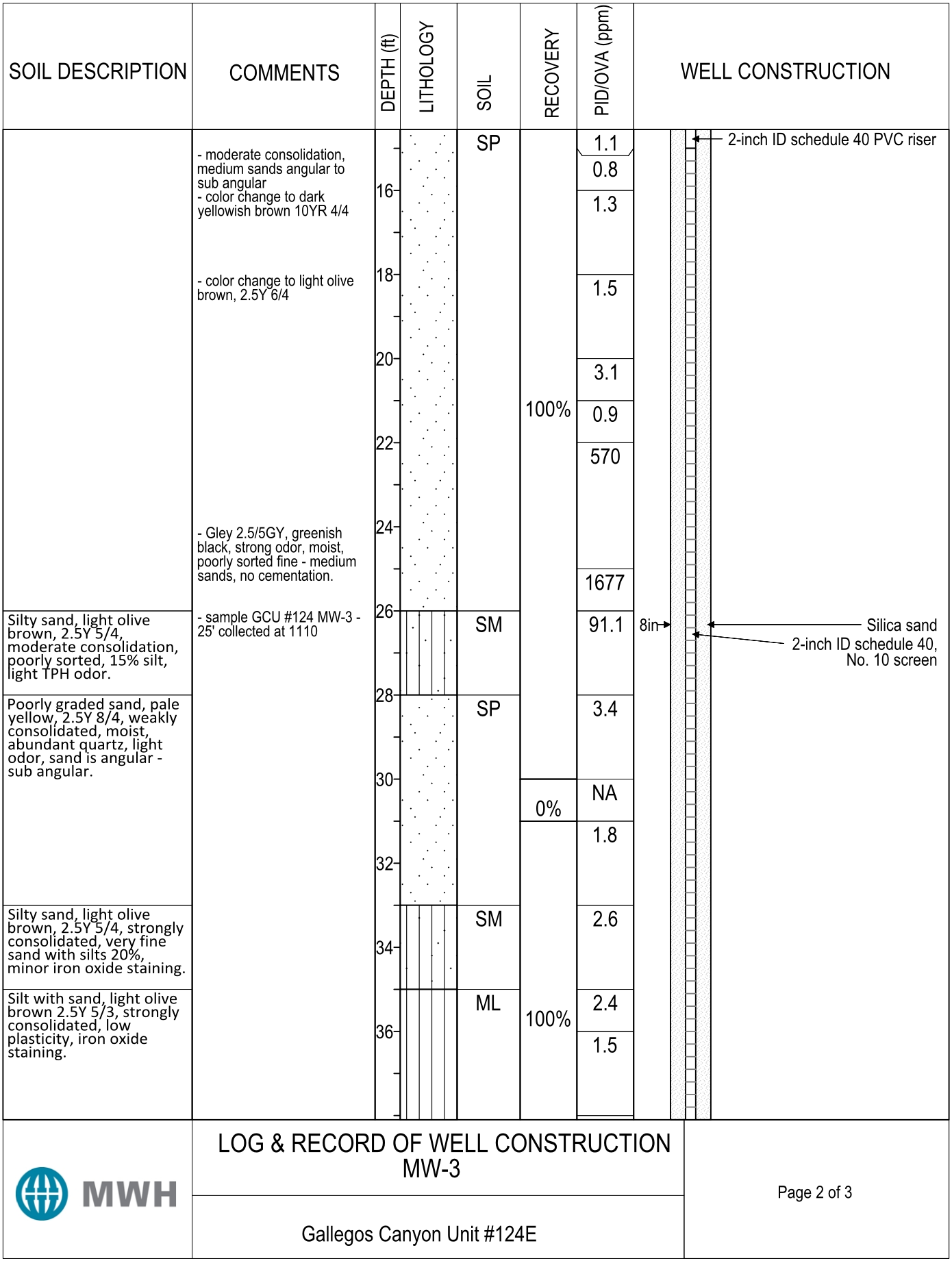
Groundwater seepage encountered at none noted ft depth during drilling.
Soil colors classified using the Munsell soil color charts

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| Recovered sample from 0'-5' just outside of boring. Silty sand, dark yellowish brown, 10YR 4/6, loose, medium-fine sand, no cementation, non-plastic, poorly graded. | - Hand augered to 5' bgs | 0 | | SM | 100% | 0.6 | Protective casing |
| | | 2 | | | | 0 | |
| | | 4 | | | | 0.7 | |
| | | 6 | | | | 0.6 | 8in — Annular space seal; 2-inch ID schedule 40 PVC riser |
| | | 8 | | | | 0.1 | |
| Poorly graded sand, light olive brown, 2.5Y 5/3, very loose moist, fine - medium sand, no cementation, minor caliche | | 10 | | SP | 0% | 0 | |
| | | | | | | NA | |
| | | 12 | | | | 0.9 | 8in — Bentonite seal |
| | | 14 | | | | 1.1 | 8in — Silica sand |

MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-3

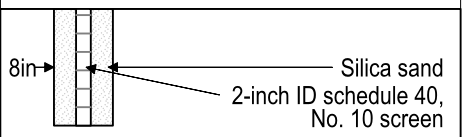
Gallegos Canyon Unit #124E




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-3

Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | | | ML | | 2.4 |  |
| | Total depth = 40' bgs | 40 | | | | | |
| | | 42 | | | | | |
| | | 44 | | | | | |
| | | 46 | | | | | |
| | | 48 | | | | | |
| | | 50 | | | | | |
| | | 52 | | | | | |
| | | 54 | | | | | |
| | | 56 | | | | | |
| | | 58 | | | | | |
| | | 60 | | | | | |



MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-3

Gallegos Canyon Unit #124E

| | |
|---|---|
| GEOLOGIST: Doug Burr | COMPLETION DATE: October 28, 2013 |
| DRILLER: Miguel Alveredo | GROUND SURFACE ELEV (ft MSL) 5946.7 |
| DRILLING COMPANY: National | TOP OF CASING ELEV (ft, MSL) 5949.6 |
| DRILLING METHOD: Hollow Stem Auger | STATE PLANE COORDINATES (ft) |
| HOLE DIAMETER (IN): 8.0 | Northing 2042834.9 Easting 2649697.7 |

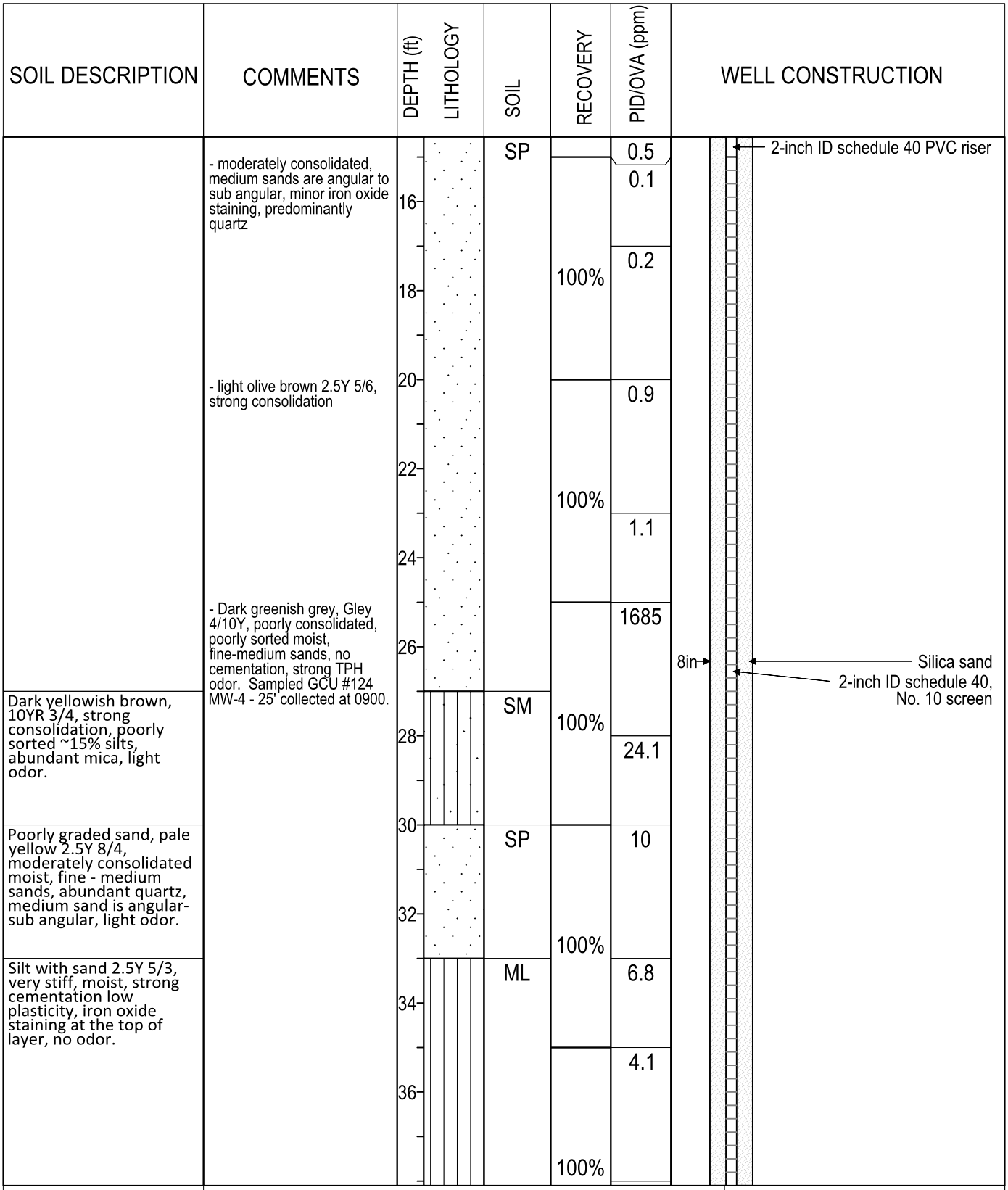
Groundwater seepage encountered at none noted ft depth during drilling.
Soil colors classified using the Munsell soil color charts

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | 0 | | | | | Protective casing |
| | | 2 | | | 0% | | |
| | | 4 | | | | | |
| Silty sand, yellowish brown 10YR 5/8, poorly consolidated, medium - fine sand, weak cementation, non plastic, poorly graded. | - Hand augered to 5' bgs (no sample recovered)<br>- pale yellow 2.5Y 8/4 | 6 | | SM | | 0.8 | 8in — Annular space seal; 2-inch ID schedule 40 PVC riser |
| | | 8 | | | 80% | 0 | |
| Poorly graded sand, pale yellow 2.5Y 8/4, very loose, moist fine - medium sand, weak cementation, non plastic, up to 1" caliche spheres. | | 10 | | SP | | 0.3 | |
| | | 12 | | | 100% | | 8in — Bentonite seal |
| | | 14 | | | | 0.5 | 8in — Silica sand |

MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-4

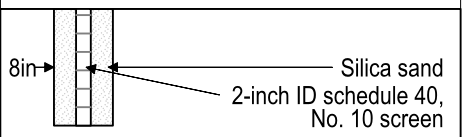
Gallegos Canyon Unit #124E




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-4

Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | | | ML | | 4.2 |  |
| | Total depth = 40' bgs | 40 | | | | | |
| | | 42 | | | | | |
| | | 44 | | | | | |
| | | 46 | | | | | |
| | | 48 | | | | | |
| | | 50 | | | | | |
| | | 52 | | | | | |
| | | 54 | | | | | |
| | | 56 | | | | | |
| | | 58 | | | | | |
| | | 60 | | | | | |



MWH

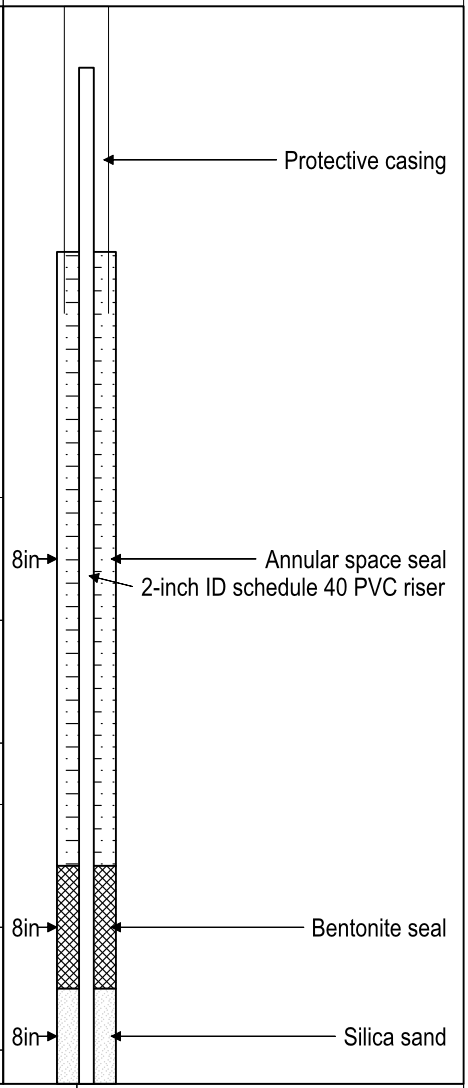
LOG & RECORD OF WELL CONSTRUCTION
MW-4

Gallegos Canyon Unit #124E

| | |
|---|---|
| GEOLOGIST: Doug Burr | COMPLETION DATE: October 30, 2013 |
| DRILLER: Miguel Alveredo | GROUND SURFACE ELEV (ft MSL) 5946.2 |
| DRILLING COMPANY: National | TOP OF CASING ELEV (ft, MSL) 5948.9 |
| DRILLING METHOD: Hollow Stem Auger | STATE PLANE COORDINATES (ft) |
| HOLE DIAMETER (IN): 8.0 | Northing 2042841.3 Easting 2649660.0 |

Groundwater seepage encountered at none noted ft depth during drilling.
Soil colors classified using the Munsell soil color charts

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| Silty sand, yellowish brown, 2.5Y 5/8, poorly consolidated, dry, fine - medium sand, no cementation, poorly graded. | - Hand augered to 5' bgs (no sample recovered) | 6 | | SM | 100% | 2.9 | |
| Poorly graded sand, pale yellow 2.5Y 8/4, loose, dry - moist, fine - medium sand poorly graded | - color change to yellowish brown 10YR 5/6, iron oxide staining and caliche present | 8 | | SP | 100% | 5.5 | |
| | | 10 | | | 100% | 4.1 | |
| | | 12 | | | 100% | 5.7 | |
| | - color change to pale yellow 2.5Y 8/4 | 14 | | | 100% | 4.1 | |
| | | | | | | 8 | |




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-5

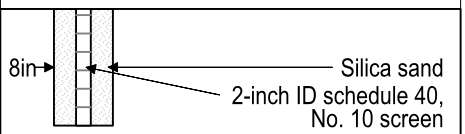
Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | - moderate cementation, no iron oxide or caliche | 16 | | SP | 100% | 8 | 2-inch ID schedule 40 PVC riser |
| | | | | | 100% | 9.1 | |
| | | 18 | | | 100% | 7 | |
| | | 20 | | | 100% | 7.7 | |
| | | | | | 100% | 10.7 | |
| | | 22 | | | 100% | 13.7 | |
| | | | | | 100% | 14.3 | |
| | - Poorly graded sand, dark greenish grey gley 4/10Y, poorly consolidated, strong TPH odor. Sampled GCU #124 MW-5 - 24' at 1515. | 24 | | | 100% | 562 | |
| | | 26 | | | 50% | 407 | 8in → Silica sand; 2-inch ID schedule 40, No. 10 screen |
| Silt with sand, light olive brown 2.5Y 6/4, very stiff, moist to dry, low - medium plasticity. | | | | ML | 100% | 57.9 | |
| | | 28 | | | 100% | 21 | |
| | | 30 | | | 100% | 20.8 | |
| | | 32 | | | 100% | 3.5 | |
| | - color change to light olive grey 5Y 6/2, minor iron oxide staining. | 34 | | | 100% | 1.5 | |
| | - color change to dark grey 10YR 4/1, decrease in fine sand, medium palsticity. | 36 | | | 90% | 2.3 | |
| | | | | | | 1.7 | |

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-5

Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | | | ML | 100% | 1.7 |  |
| | | | | | 100% | 2.2 | |
| | Total depth = 40' bgs | 40 | | | | | |
| | | 42 | | | | | |
| | | 44 | | | | | |
| | | 46 | | | | | |
| | | 48 | | | | | |
| | | 50 | | | | | |
| | | 52 | | | | | |
| | | 54 | | | | | |
| | | 56 | | | | | |
| | | 58 | | | | | |
| | | 60 | | | | | |



MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-5

Gallegos Canyon Unit #124E

| | |
|---|---|
| GEOLOGIST: Doug Burr | COMPLETION DATE: October 29, 2013 |
| DRILLER: Miguel Alveredo | GROUND SURFACE ELEV (ft MSL) 5946.4 |
| DRILLING COMPANY: National | TOP OF CASING ELEV (ft, MSL) 5949.3 |
| DRILLING METHOD: Hollow Stem Auger | STATE PLANE COORDINATES (ft) |
| HOLE DIAMETER (IN): 8.0 | Northing 2042820.3 Easting 2649670.7 |

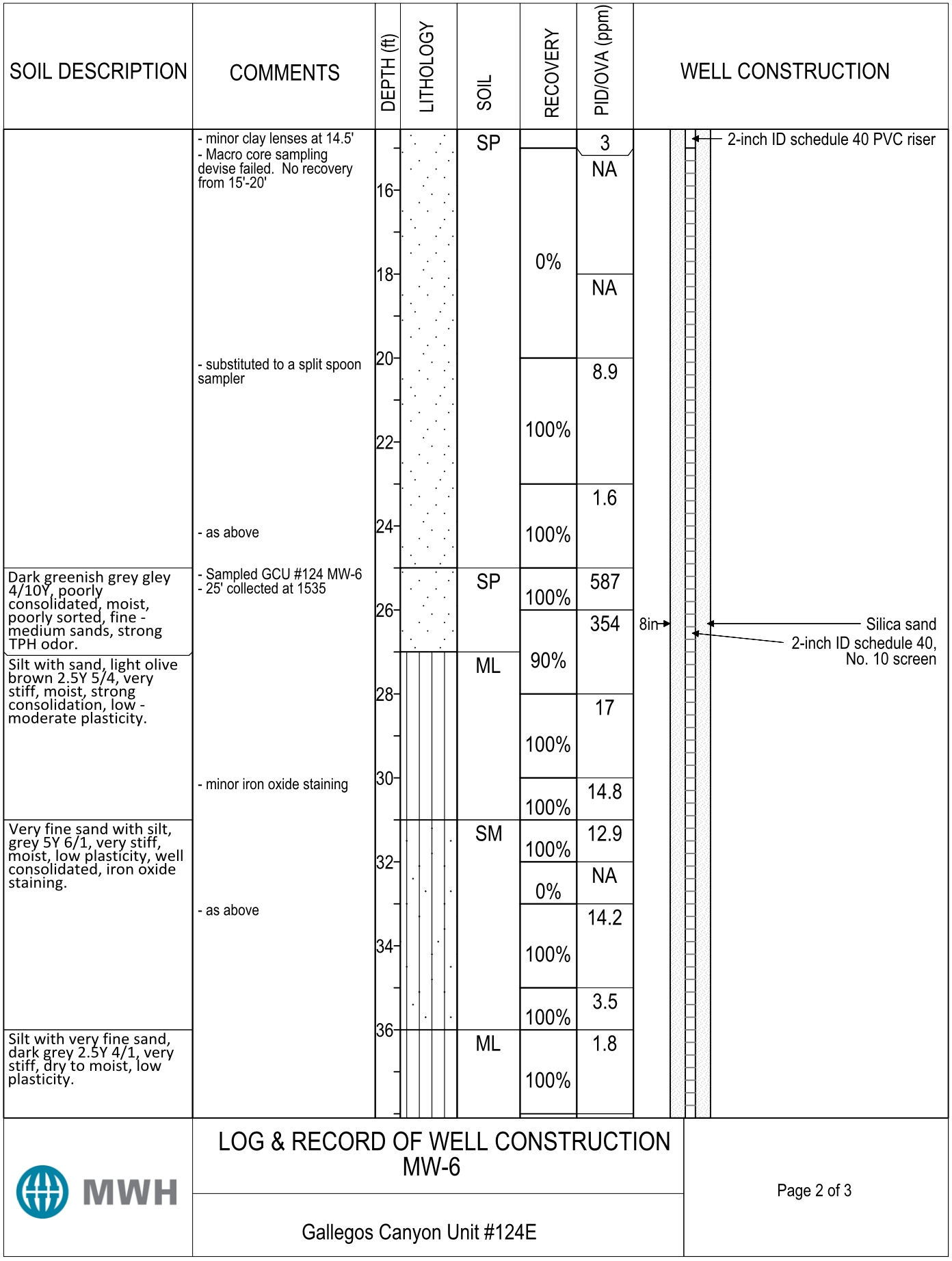
Groundwater seepage encountered at none noted ft depth during drilling.
Soil colors classified using the Munsell soil color charts

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| Silty sand, yellowish brown 10YR 5/8, poorly consolidated fine -medium sand, weak cementation, poorly graded. | - Hand augered to 5' bgs (no sample recovered) | 0 | | SM | 0% | 4.1 | Protective casing |
| Poorly graded sand, pale yellow 2.5YR 5/8, moderately consolidated dry, fine - medium sand, weak cementation, non plastic. | - brown 7.5YR 4/3, poorly consolidated<br>- light yellowish brown, 2.5Y 6/3 | 2<br>4<br>6<br>8<br>10<br>12<br>14 | | SP | 30%<br>100% | 1.3<br>3.5<br>3 | 8in Annular space seal<br>2-inch ID schedule 40 PVC riser<br>8in Bentonite seal<br>8in Silica sand |

MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-6

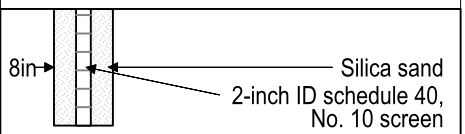
Gallegos Canyon Unit #124E




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-6

Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | | | ML | 100% | 1.3 |  |
| | Total depth = 40' bgs | 40 | | | | | |
| | | 42 | | | | | |
| | | 44 | | | | | |
| | | 46 | | | | | |
| | | 48 | | | | | |
| | | 50 | | | | | |
| | | 52 | | | | | |
| | | 54 | | | | | |
| | | 56 | | | | | |
| | | 58 | | | | | |
| | | 60 | | | | | |



MWH

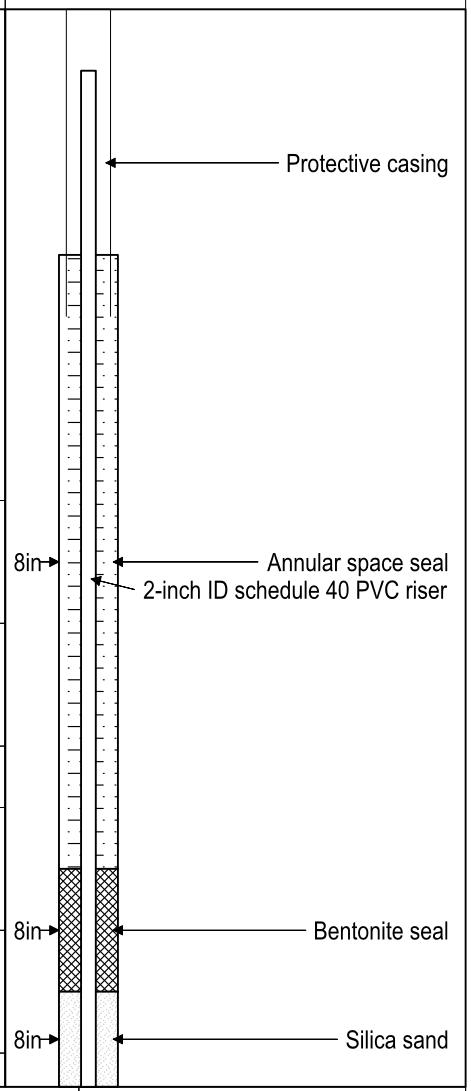
LOG & RECORD OF WELL CONSTRUCTION
MW-6

Gallegos Canyon Unit #124E

| | |
|---|---|
| GEOLOGIST: Doug Burr | COMPLETION DATE: October 31, 2013 |
| DRILLER: Miguel Alveredo | GROUND SURFACE ELEV (ft MSL) 5946.0 |
| DRILLING COMPANY: National | TOP OF CASING ELEV (ft, MSL) 5948.7 |
| DRILLING METHOD: Hollow Stem Auger | STATE PLANE COORDINATES (ft) |
| HOLE DIAMETER (IN): 8.0 | Northing 2042826.9 Easting 2649619.2 |

Groundwater seepage encountered at 24.0 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

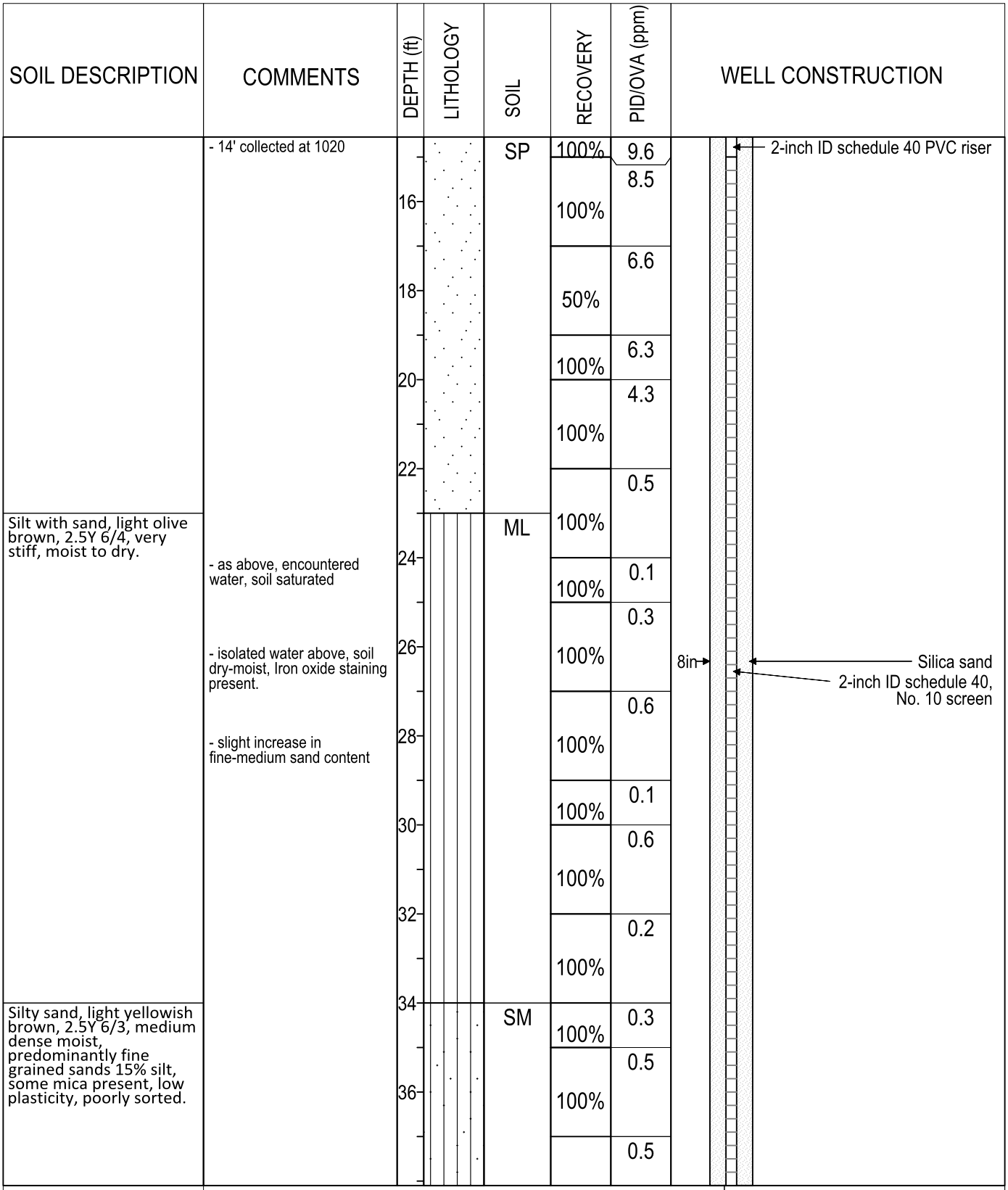
| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) |
|---|---|---|---|---|---|---|
| Silty sand, yellowish brown 10YR 5/8, poorly consolidated dry fine - medium sand, poorly graded. | - Hand augered to 5' bgs (no sample recovered) | 6 | | SM | 100% | 2 |
| | | 8 | | | 100% | 3.3 |
| Poorly graded sand, pale yellow 2.5Y 8/4, loose, dry, fine - medium sand, trace coarse sands, no cementation, non plastic. | | 10 | | SP | 100% | 5.7 |
| | | 12 | | | 100% | 7.2 |
| | | 14 | | | 100% | 7.4 |
| | - Sampled GCU #124 MW-7 | | | | | 9.6 |




MWH

# LOG & RECORD OF WELL CONSTRUCTION MW-7

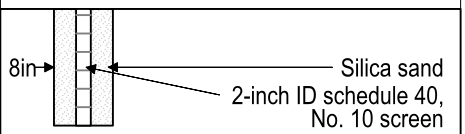
Gallegos Canyon Unit #124E




MWH

# LOG & RECORD OF WELL CONSTRUCTION
MW-7

Gallegos Canyon Unit #124E

| SOIL DESCRIPTION | COMMENTS | DEPTH (ft) | LITHOLOGY | SOIL | RECOVERY | PID/OVA (ppm) | WELL CONSTRUCTION |
|---|---|---|---|---|---|---|---|
| | | | | SM | 100% | 0.5 |  |
| | | | | | 100% | 0.3 | |
| | Total depth = 40' bgs | 40 | | | | | |
| | | 42 | | | | | |
| | | 44 | | | | | |
| | | 46 | | | | | |
| | | 48 | | | | | |
| | | 50 | | | | | |
| | | 52 | | | | | |
| | | 54 | | | | | |
| | | 56 | | | | | |
| | | 58 | | | | | |
| | | 60 | | | | | |



MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-7

Gallegos Canyon Unit #124E

# APPENDIX B

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-43493-1
TestAmerica SDG: W-MWH-10-23-13-DAW-01
Client Project/Site: Gallegos Canyon Unit #124E

For:
MWH Americas Inc
1801 California Street
Suite 2900
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Attn: Mr. Daniel Wade

*Authorized for release by:*
*11/14/2013 8:28:20 PM*

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# Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

### General Chemistry

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| B | Compound was found in the blank and sample. |

## 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 |
| 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) |

# Case Narrative

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Job ID: 560-43493-1

**Laboratory: TestAmerica Corpus Christi**

**Narrative**

**Receipt**

The samples were received on 11/2/2013 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5º C.

**GC/MS VOA**

Method(s) 8260B: Please note that samples 560-43493-1 through -3 were prepared and analyzed from a methanol extraction due to the abundance of non-target analytes. Elevated reporting limits (RLs) are provided. No other analytical or quality issues were noted.

# Detection Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Client Sample ID: GCU#124-MW-4-25' — Lab Sample ID: 560-43493-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 0.24 | | 0.12 | 0.012 | mg/Kg | 50 | ☼ | 8260B | Total/NA |
| Xylenes, Total | 3.4 | | 0.35 | 0.012 | mg/Kg | 50 | ☼ | 8260B | Total/NA |
| TPH (1664A) | 430 | B | 65 | 1.5 | mg/Kg | 1 | ☼ | 9071B | Total/NA |
| Chloride | 26 | J | 65 | 6.5 | mg/Kg | 1 | ☼ | 9251 | Soluble |

## Client Sample ID: GCU#124-MW-6-25' — Lab Sample ID: 560-43493-2

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 590 | B | 58 | 1.4 | mg/Kg | 1 | ☼ | 9071B | Total/NA |
| Chloride | 45 | J | 58 | 5.8 | mg/Kg | 1 | ☼ | 9251 | Soluble |

## Client Sample ID: GCU#124-MW-3-25' — Lab Sample ID: 560-43493-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 0.21 | | 0.096 | 0.0096 | mg/Kg | 50 | ☼ | 8260B | Total/NA |
| Xylenes, Total | 2.3 | | 0.29 | 0.0096 | mg/Kg | 50 | ☼ | 8260B | Total/NA |
| TPH (1664A) | 260 | B | 54 | 1.3 | mg/Kg | 1 | ☼ | 9071B | Total/NA |
| Chloride | 39 | J | 54 | 5.4 | mg/Kg | 1 | ☼ | 9251 | Soluble |

## Client Sample ID: GCU#124-MW-5-24' — Lab Sample ID: 560-43493-4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Xylenes, Total | 0.0036 | J | 0.016 | 0.00052 | mg/Kg | 1 | ☼ | 8260B | Total/NA |
| TPH (1664A) | 230 | B | 57 | 1.4 | mg/Kg | 1 | ☼ | 9071B | Total/NA |
| Chloride | 61 | | 58 | 5.8 | mg/Kg | 1 | ☼ | 9251 | Soluble |

## Client Sample ID: GCU#124-MW-7-14' — Lab Sample ID: 560-43493-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 130 | B | 52 | 1.2 | mg/Kg | 1 | ☼ | 9071B | Total/NA |
| Chloride | 26 | J | 53 | 5.3 | mg/Kg | 1 | ☼ | 9251 | Soluble |

## Client Sample ID: GCU#124-MW-2-19' — Lab Sample ID: 560-43493-6

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 65 | B | 54 | 1.3 | mg/Kg | 1 | ☼ | 9071B | Total/NA |
| Chloride | 35 | J | 55 | 5.5 | mg/Kg | 1 | ☼ | 9251 | Soluble |

## Client Sample ID: Trip Blank — Lab Sample ID: 560-43493-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Client Sample ID: GCU#124-MW-4-25'

**Lab Sample ID: 560-43493-1**
**Date Collected: 10/29/13 09:00**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 76.8**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.023 | | 0.12 | 0.023 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:31 | 50 |
| **Ethylbenzene** | **0.24** | | 0.12 | 0.012 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:31 | 50 |
| Toluene | <0.012 | | 0.12 | 0.012 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:31 | 50 |
| **Xylenes, Total** | **3.4** | | 0.35 | 0.012 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:31 | 50 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *117* | | *50 - 135* | *11/05/13 08:18* | *11/05/13 16:31* | *50* |
| *4-Bromofluorobenzene (Surr)* | *114* | | *37 - 138* | *11/05/13 08:18* | *11/05/13 16:31* | *50* |
| *Dibromofluoromethane (Surr)* | *103* | | *55 - 135* | *11/05/13 08:18* | *11/05/13 16:31* | *50* |
| *1,2-Dichloroethane-d4 (Surr)* | *119* | | *60 - 145* | *11/05/13 08:18* | *11/05/13 16:31* | *50* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **TPH (1664A)** | **430** | **B** | 65 | 1.5 | mg/Kg | ☼ | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

### General Chemistry - Soluble

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **26** | **J** | 65 | 6.5 | mg/Kg | ☼ | | 11/06/13 16:55 | 1 |

## Client Sample ID: GCU#124-MW-6-25'

**Lab Sample ID: 560-43493-2**
**Date Collected: 10/29/13 15:35**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 85.6**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.021 | | 0.10 | 0.021 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:56 | 50 |
| Ethylbenzene | <0.010 | | 0.10 | 0.010 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:56 | 50 |
| Toluene | <0.010 | | 0.10 | 0.010 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:56 | 50 |
| Xylenes, Total | <0.010 | | 0.31 | 0.010 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 16:56 | 50 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *114* | | *50 - 135* | *11/05/13 08:18* | *11/05/13 16:56* | *50* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *37 - 138* | *11/05/13 08:18* | *11/05/13 16:56* | *50* |
| *Dibromofluoromethane (Surr)* | *99* | | *55 - 135* | *11/05/13 08:18* | *11/05/13 16:56* | *50* |
| *1,2-Dichloroethane-d4 (Surr)* | *114* | | *60 - 145* | *11/05/13 08:18* | *11/05/13 16:56* | *50* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **TPH (1664A)** | **590** | **B** | 58 | 1.4 | mg/Kg | ☼ | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

### General Chemistry - Soluble

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **45** | **J** | 58 | 5.8 | mg/Kg | ☼ | | 11/06/13 16:57 | 1 |

## Client Sample ID: GCU#124-MW-3-25'

**Lab Sample ID: 560-43493-3**
**Date Collected: 10/30/13 11:10**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 92.8**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.019 | | 0.096 | 0.019 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 17:21 | 50 |

## Client Sample ID: GCU#124-MW-3-25'

**Lab Sample ID: 560-43493-3**
**Date Collected: 10/30/13 11:10**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 92.8**

### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Ethylbenzene** | **0.21** | | 0.096 | 0.0096 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 17:21 | 50 |
| Toluene | <0.0096 | | 0.096 | 0.0096 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 17:21 | 50 |
| **Xylenes, Total** | **2.3** | | 0.29 | 0.0096 | mg/Kg | ☼ | 11/05/13 08:18 | 11/05/13 17:21 | 50 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *107* | | *50 - 135* | *11/05/13 08:18* | *11/05/13 17:21* | *50* |
| *4-Bromofluorobenzene (Surr)* | *108* | | *37 - 138* | *11/05/13 08:18* | *11/05/13 17:21* | *50* |
| *Dibromofluoromethane (Surr)* | *100* | | *55 - 135* | *11/05/13 08:18* | *11/05/13 17:21* | *50* |
| *1,2-Dichloroethane-d4 (Surr)* | *113* | | *60 - 145* | *11/05/13 08:18* | *11/05/13 17:21* | *50* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **TPH (1664A)** | **260** | **B** | 54 | 1.3 | mg/Kg | ☼ | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

### General Chemistry - Soluble

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **39** | **J** | 54 | 5.4 | mg/Kg | ☼ | | 11/06/13 16:58 | 1 |

## Client Sample ID: GCU#124-MW-5-24'

**Lab Sample ID: 560-43493-4**
**Date Collected: 10/30/13 15:15**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 85.9**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00024 | | 0.0052 | 0.00024 | mg/Kg | ☼ | | 11/08/13 15:20 | 1 |
| Ethylbenzene | <0.00047 | | 0.0052 | 0.00047 | mg/Kg | ☼ | | 11/08/13 15:20 | 1 |
| Toluene | <0.00094 | | 0.0052 | 0.00094 | mg/Kg | ☼ | | 11/08/13 15:20 | 1 |
| **Xylenes, Total** | **0.0036** | **J** | 0.016 | 0.00052 | mg/Kg | ☼ | | 11/08/13 15:20 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *98* | | *65 - 139* | | *11/08/13 15:20* | *1* |
| *4-Bromofluorobenzene (Surr)* | *97* | | *61 - 136* | | *11/08/13 15:20* | *1* |
| *Dibromofluoromethane (Surr)* | *112* | | *50 - 136* | | *11/08/13 15:20* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *118* | | *65 - 152* | | *11/08/13 15:20* | *1* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **TPH (1664A)** | **230** | **B** | 57 | 1.4 | mg/Kg | ☼ | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

### General Chemistry - Soluble

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Chloride** | **61** | | 58 | 5.8 | mg/Kg | ☼ | | 11/06/13 16:58 | 1 |

## Client Sample ID: GCU#124-MW-7-14'

**Lab Sample ID: 560-43493-5**
**Date Collected: 10/31/13 10:20**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 95.1**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00021 | | 0.0047 | 0.00021 | mg/Kg | ☼ | | 11/08/13 12:16 | 1 |
| Ethylbenzene | <0.00042 | | 0.0047 | 0.00042 | mg/Kg | ☼ | | 11/08/13 12:16 | 1 |

## Client Sample ID: GCU#124-MW-7-14'

**Lab Sample ID: 560-43493-5**
**Date Collected: 10/31/13 10:20**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 95.1**

### Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Toluene | <0.00084 | | 0.0047 | 0.00084 | mg/Kg | ☼ | | 11/08/13 12:16 | 1 |
| Xylenes, Total | <0.00047 | | 0.014 | 0.00047 | mg/Kg | ☼ | | 11/08/13 12:16 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *95* | | *65 - 139* | | *11/08/13 12:16* | *1* |
| *4-Bromofluorobenzene (Surr)* | *91* | | *61 - 136* | | *11/08/13 12:16* | *1* |
| *Dibromofluoromethane (Surr)* | *114* | | *50 - 136* | | *11/08/13 12:16* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *119* | | *65 - 152* | | *11/08/13 12:16* | *1* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 130 | B | 52 | 1.2 | mg/Kg | ☼ | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

### General Chemistry - Soluble

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 26 | J | 53 | 5.3 | mg/Kg | ☼ | | 11/06/13 16:59 | 1 |

## Client Sample ID: GCU#124-MW-2-19'

**Lab Sample ID: 560-43493-6**
**Date Collected: 10/31/13 14:30**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 91.7**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00022 | | 0.0048 | 0.00022 | mg/Kg | ☼ | | 11/08/13 15:47 | 1 |
| Ethylbenzene | <0.00044 | | 0.0048 | 0.00044 | mg/Kg | ☼ | | 11/08/13 15:47 | 1 |
| Toluene | <0.00087 | | 0.0048 | 0.00087 | mg/Kg | ☼ | | 11/08/13 15:47 | 1 |
| Xylenes, Total | <0.00048 | | 0.015 | 0.00048 | mg/Kg | ☼ | | 11/08/13 15:47 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *95* | | *65 - 139* | | *11/08/13 15:47* | *1* |
| *4-Bromofluorobenzene (Surr)* | *89* | | *61 - 136* | | *11/08/13 15:47* | *1* |
| *Dibromofluoromethane (Surr)* | *117* | | *50 - 136* | | *11/08/13 15:47* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *115* | | *65 - 152* | | *11/08/13 15:47* | *1* |

### General Chemistry

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 65 | B | 54 | 1.3 | mg/Kg | ☼ | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

### General Chemistry - Soluble

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 35 | J | 55 | 5.5 | mg/Kg | ☼ | | 11/06/13 16:59 | 1 |

## Client Sample ID: Trip Blank

**Lab Sample ID: 560-43493-7**
**Date Collected: 10/31/13 00:00**
**Matrix: Water**
**Date Received: 11/02/13 09:45**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 11/06/13 16:34 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 11/06/13 16:34 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 11/06/13 16:34 | 1 |

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

**Client Sample ID: Trip Blank**
**Date Collected: 10/31/13 00:00**
**Date Received: 11/02/13 09:45**

**Lab Sample ID: 560-43493-7**
**Matrix: Water**

**Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 11/06/13 16:34 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *96* | | *70 - 130* | | *11/06/13 16:34* | *1* |
| *4-Bromofluorobenzene (Surr)* | *110* | | *70 - 130* | | *11/06/13 16:34* | *1* |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 560-94646/1-A**
**Matrix: Solid**
**Analysis Batch: 94647**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 94646**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.020 | | 0.10 | 0.020 | mg/Kg | | 11/05/13 08:18 | 11/05/13 13:59 | 50 |
| Ethylbenzene | <0.010 | | 0.10 | 0.010 | mg/Kg | | 11/05/13 08:18 | 11/05/13 13:59 | 50 |
| Toluene | <0.010 | | 0.10 | 0.010 | mg/Kg | | 11/05/13 08:18 | 11/05/13 13:59 | 50 |
| Xylenes, Total | <0.010 | | 0.30 | 0.010 | mg/Kg | | 11/05/13 08:18 | 11/05/13 13:59 | 50 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *96* | | *50 - 135* | *11/05/13 08:18* | *11/05/13 13:59* | *50* |
| *4-Bromofluorobenzene (Surr)* | *93* | | *37 - 138* | *11/05/13 08:18* | *11/05/13 13:59* | *50* |
| *Dibromofluoromethane (Surr)* | *91* | | *55 - 135* | *11/05/13 08:18* | *11/05/13 13:59* | *50* |
| *1,2-Dichloroethane-d4 (Surr)* | *105* | | *60 - 145* | *11/05/13 08:18* | *11/05/13 13:59* | *50* |

**Lab Sample ID: LCS 560-94646/2-A**
**Matrix: Solid**
**Analysis Batch: 94647**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 94646**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 2.50 | 2.71 | | mg/Kg | | 109 | 70 - 130 |
| Ethylbenzene | 2.50 | 2.62 | | mg/Kg | | 105 | 70 - 130 |
| Toluene | 2.50 | 2.56 | | mg/Kg | | 103 | 70 - 130 |
| Xylenes, Total | 5.00 | 5.06 | | mg/Kg | | 101 | 70 - 130 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *109* | | *50 - 135* |
| *4-Bromofluorobenzene (Surr)* | *103* | | *37 - 138* |
| *Dibromofluoromethane (Surr)* | *117* | | *55 - 135* |
| *1,2-Dichloroethane-d4 (Surr)* | *114* | | *60 - 145* |

**Lab Sample ID: MB 560-94813/8**
**Matrix: Solid**
**Analysis Batch: 94813**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00023 | | 0.0050 | 0.00023 | mg/Kg | | | 11/08/13 11:50 | 1 |
| Ethylbenzene | <0.00045 | | 0.0050 | 0.00045 | mg/Kg | | | 11/08/13 11:50 | 1 |
| Toluene | <0.00090 | | 0.0050 | 0.00090 | mg/Kg | | | 11/08/13 11:50 | 1 |
| Xylenes, Total | <0.00050 | | 0.015 | 0.00050 | mg/Kg | | | 11/08/13 11:50 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *94* | | *65 - 139* | | *11/08/13 11:50* | *1* |
| *4-Bromofluorobenzene (Surr)* | *93* | | *61 - 136* | | *11/08/13 11:50* | *1* |
| *Dibromofluoromethane (Surr)* | *111* | | *50 - 136* | | *11/08/13 11:50* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *118* | | *65 - 152* | | *11/08/13 11:50* | *1* |

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 560-94813/3**
**Matrix: Solid**
**Analysis Batch: 94813**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0400 | 0.0381 | | mg/Kg | | 95 | 70 - 130 |
| Ethylbenzene | 0.0400 | 0.0390 | | mg/Kg | | 98 | 70 - 130 |
| Toluene | 0.0400 | 0.0383 | | mg/Kg | | 96 | 70 - 130 |
| Xylenes, Total | 0.0800 | 0.0804 | | mg/Kg | | 101 | 70 - 130 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *100* | | *65 - 139* |
| *4-Bromofluorobenzene (Surr)* | *98* | | *61 - 136* |
| *Dibromofluoromethane (Surr)* | *106* | | *50 - 136* |
| *1,2-Dichloroethane-d4 (Surr)* | *116* | | *65 - 152* |

**Lab Sample ID: 560-43493-5 MS**
**Matrix: Solid**
**Analysis Batch: 94813**

**Client Sample ID: GCU#124-MW-7-14'**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00021 | | 0.0379 | 0.0348 | | mg/Kg | ☼ | 92 | 56 - 132 |
| Ethylbenzene | <0.00042 | | 0.0379 | 0.0366 | | mg/Kg | ☼ | 97 | 48 - 138 |
| Toluene | <0.00084 | | 0.0379 | 0.0359 | | mg/Kg | ☼ | 95 | 48 - 135 |
| Xylenes, Total | <0.00047 | | 0.0758 | 0.0763 | | mg/Kg | ☼ | 101 | 49 - 137 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *65 - 139* |
| *4-Bromofluorobenzene (Surr)* | *90* | | *61 - 136* |
| *Dibromofluoromethane (Surr)* | *111* | | *50 - 136* |
| *1,2-Dichloroethane-d4 (Surr)* | *115* | | *65 - 152* |

**Lab Sample ID: 560-43493-5 MSD**
**Matrix: Solid**
**Analysis Batch: 94813**

**Client Sample ID: GCU#124-MW-7-14'**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00021 | | 0.0378 | 0.0320 | | mg/Kg | ☼ | 85 | 56 - 132 | 8 | 40.0 |
| Ethylbenzene | <0.00042 | | 0.0378 | 0.0320 | | mg/Kg | ☼ | 85 | 48 - 138 | 13 | 40.0 |
| Toluene | <0.00084 | | 0.0378 | 0.0315 | | mg/Kg | ☼ | 83 | 48 - 135 | 13 | 40.0 |
| Xylenes, Total | <0.00047 | | 0.0755 | 0.0651 | | mg/Kg | ☼ | 86 | 49 - 137 | 16 | 40.0 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *99* | | *65 - 139* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *61 - 136* |
| *Dibromofluoromethane (Surr)* | *103* | | *50 - 136* |
| *1,2-Dichloroethane-d4 (Surr)* | *108* | | *65 - 152* |

## Method: 9071B - HEM and SGT-HEM

**Lab Sample ID: MB 600-120370/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 120371** — **Prep Batch: 120370**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 9.95 | J | 50 | 1.2 | mg/Kg | | 11/13/13 12:32 | 11/13/13 12:32 | 1 |

**Lab Sample ID: LCS 600-120370/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 120371** — **Prep Batch: 120370**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| TPH (1664A) | 1980 | 1850 | | mg/Kg | | 94 | 70 - 130 |

**Lab Sample ID: LCSD 600-120370/3-A** — **Client Sample ID: Lab Control Sample Dup**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 120371** — **Prep Batch: 120370**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| TPH (1664A) | 1980 | 1940 | | mg/Kg | | 98 | 70 - 130 | 5 | 30 |

## Method: 9251 - Chloride

**Lab Sample ID: MB 560-94748/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 94746**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | <0.50 | | 5.0 | 0.50 | mg/Kg | | | 11/06/13 16:54 | 1 |

**Lab Sample ID: LCS 560-94748/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 94746**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Chloride | 150 | 142 | | mg/Kg | | 95 | 85 - 115 |

**Lab Sample ID: 560-43493-1 MS** — **Client Sample ID: GCU#124-MW-4-25'**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 94746**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| Chloride | 26 | J | 1300 | 1230 | | mg/Kg | ☼ | 93 | 85 - 115 |

**Lab Sample ID: 560-43493-1 MSD** — **Client Sample ID: GCU#124-MW-4-25'**
**Matrix: Solid** — **Prep Type: Soluble**
**Analysis Batch: 94746**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 26 | J | 1300 | 1300 | | mg/Kg | ☼ | 98 | 85 - 115 | 5 | 30 |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Client Sample ID: GCU#124-MW-4-25'

**Lab Sample ID: 560-43493-1**
**Date Collected: 10/29/13 09:00**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 76.8**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5030B | | | 94646 | 11/05/13 08:18 | RP56 | TAL CC |
| Total/NA | Analysis | 8260B | | 50 | 94647 | 11/05/13 16:31 | ANT | TAL CC |
| Total/NA | Analysis | Moisture | | 1 | 94688 | 11/05/13 15:58 | DRB | TAL CC |
| Soluble | Leach | DI Leach | | | 94748 | 11/06/13 12:00 | LPO | TAL CC |
| Soluble | Analysis | 9251 | | 1 | 94746 | 11/06/13 16:55 | LPO | TAL CC |
| Total/NA | Prep | 9071B | | | 120370 | 11/13/13 12:32 | FNC | TAL HOU |
| Total/NA | Analysis | 9071B | | 1 | 120371 | 11/13/13 12:32 | FNC | TAL HOU |

## Client Sample ID: GCU#124-MW-6-25'

**Lab Sample ID: 560-43493-2**
**Date Collected: 10/29/13 15:35**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 85.6**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5030B | | | 94646 | 11/05/13 08:18 | RP56 | TAL CC |
| Total/NA | Analysis | 8260B | | 50 | 94647 | 11/05/13 16:56 | ANT | TAL CC |
| Total/NA | Analysis | Moisture | | 1 | 94688 | 11/05/13 15:58 | DRB | TAL CC |
| Soluble | Leach | DI Leach | | | 94748 | 11/06/13 12:00 | LPO | TAL CC |
| Soluble | Analysis | 9251 | | 1 | 94746 | 11/06/13 16:57 | LPO | TAL CC |
| Total/NA | Prep | 9071B | | | 120370 | 11/13/13 12:32 | FNC | TAL HOU |
| Total/NA | Analysis | 9071B | | 1 | 120371 | 11/13/13 12:32 | FNC | TAL HOU |

## Client Sample ID: GCU#124-MW-3-25'

**Lab Sample ID: 560-43493-3**
**Date Collected: 10/30/13 11:10**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 92.8**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5030B | | | 94646 | 11/05/13 08:18 | RP56 | TAL CC |
| Total/NA | Analysis | 8260B | | 50 | 94647 | 11/05/13 17:21 | ANT | TAL CC |
| Total/NA | Analysis | Moisture | | 1 | 94688 | 11/05/13 15:58 | DRB | TAL CC |
| Soluble | Leach | DI Leach | | | 94748 | 11/06/13 12:00 | LPO | TAL CC |
| Soluble | Analysis | 9251 | | 1 | 94746 | 11/06/13 16:58 | LPO | TAL CC |
| Total/NA | Prep | 9071B | | | 120370 | 11/13/13 12:32 | FNC | TAL HOU |
| Total/NA | Analysis | 9071B | | 1 | 120371 | 11/13/13 12:32 | FNC | TAL HOU |

## Client Sample ID: GCU#124-MW-5-24'

**Lab Sample ID: 560-43493-4**
**Date Collected: 10/30/13 15:15**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 85.9**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 94813 | 11/08/13 15:20 | ANT | TAL CC |
| Total/NA | Analysis | Moisture | | 1 | 94688 | 11/05/13 15:58 | DRB | TAL CC |
| Soluble | Leach | DI Leach | | | 94748 | 11/06/13 12:00 | LPO | TAL CC |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Client Sample ID: GCU#124-MW-5-24'

**Lab Sample ID: 560-43493-4**

**Date Collected: 10/30/13 15:15**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 85.9**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Soluble | Analysis | 9251 | | 1 | 94746 | 11/06/13 16:58 | LPO | TAL CC |
| Total/NA | Prep | 9071B | | | 120370 | 11/13/13 12:32 | FNC | TAL HOU |
| Total/NA | Analysis | 9071B | | 1 | 120371 | 11/13/13 12:32 | FNC | TAL HOU |

## Client Sample ID: GCU#124-MW-7-14'

**Lab Sample ID: 560-43493-5**

**Date Collected: 10/31/13 10:20**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 95.1**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 94813 | 11/08/13 12:16 | ANT | TAL CC |
| Total/NA | Analysis | Moisture | | 1 | 94688 | 11/05/13 15:58 | DRB | TAL CC |
| Soluble | Leach | DI Leach | | | 94748 | 11/06/13 12:00 | LPO | TAL CC |
| Soluble | Analysis | 9251 | | 1 | 94746 | 11/06/13 16:59 | LPO | TAL CC |
| Total/NA | Prep | 9071B | | | 120370 | 11/13/13 12:32 | FNC | TAL HOU |
| Total/NA | Analysis | 9071B | | 1 | 120371 | 11/13/13 12:32 | FNC | TAL HOU |

## Client Sample ID: GCU#124-MW-2-19'

**Lab Sample ID: 560-43493-6**

**Date Collected: 10/31/13 14:30**
**Matrix: Solid**
**Date Received: 11/02/13 09:45**
**Percent Solids: 91.7**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 94813 | 11/08/13 15:47 | ANT | TAL CC |
| Total/NA | Analysis | Moisture | | 1 | 94688 | 11/05/13 15:58 | DRB | TAL CC |
| Soluble | Leach | DI Leach | | | 94748 | 11/06/13 12:00 | LPO | TAL CC |
| Soluble | Analysis | 9251 | | 1 | 94746 | 11/06/13 16:59 | LPO | TAL CC |
| Total/NA | Prep | 9071B | | | 120370 | 11/13/13 12:32 | FNC | TAL HOU |
| Total/NA | Analysis | 9071B | | 1 | 120371 | 11/13/13 12:32 | FNC | TAL HOU |

## Client Sample ID: Trip Blank

**Lab Sample ID: 560-43493-7**

**Date Collected: 10/31/13 00:00**
**Matrix: Water**
**Date Received: 11/02/13 09:45**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 94706 | 11/06/13 16:34 | RJT | TAL CC |

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

# Certification Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

## Laboratory: TestAmerica Corpus Christi

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Kansas | NELAP | 7 | E-10362 | 10-31-14 |
| Oklahoma | State Program | 6 | 9968 | 08-31-14 |
| Texas | NELAP | 6 | T104704210-12-8 | 03-31-14 |
| USDA | Federal | | P330-11-00060 | 02-03-14 |

## Laboratory: TestAmerica Houston

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Arkansas DEQ | State Program | 6 | 88-0759 | 08-04-13 * |
| Louisiana | NELAP | 6 | 01967 | 06-30-14 |
| Oklahoma | State Program | 6 | 9503 | 08-31-13 * |
| Texas | NELAP | 6 | T104704223-10-6-TX | 10-31-14 |
| USDA | Federal | | P330-08-00217 | 04-01-14 |
| Utah | NELAP | 8 | GULF | 10-31-13 * |

* Expired certification is currently pending renewal and is considered valid.

# Method Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL CC |
| 9071B | HEM and SGT-HEM | SW846 | TAL HOU |
| 9251 | Chloride | SW846 | TAL CC |
| Moisture | Percent Moisture | EPA | TAL CC |

**Protocol References:**

EPA = US Environmental Protection Agency

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

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

# Sample Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124E

TestAmerica Job ID: 560-43493-1
SDG: W-MWH-10-23-13-DAW-01

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 560-43493-1 | GCU#124-MW-4-25' | Solid | 10/29/13 09:00 | 11/02/13 09:45 |
| 560-43493-2 | GCU#124-MW-6-25' | Solid | 10/29/13 15:35 | 11/02/13 09:45 |
| 560-43493-3 | GCU#124-MW-3-25' | Solid | 10/30/13 11:10 | 11/02/13 09:45 |
| 560-43493-4 | GCU#124-MW-5-24' | Solid | 10/30/13 15:15 | 11/02/13 09:45 |
| 560-43493-5 | GCU#124-MW-7-14' | Solid | 10/31/13 10:20 | 11/02/13 09:45 |
| 560-43493-6 | GCU#124-MW-2-19' | Solid | 10/31/13 14:30 | 11/02/13 09:45 |
| 560-43493-7 | Trip Blank | Water | 10/31/13 00:00 | 11/02/13 09:45 |

**TestAmerica Corpus Christi** TPH frozen 11/02
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Phone (361) 289-2673 Fax (361) 289-2471

# Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

| Client Information | Sampler: Dave Burr | Lab PM: Kellogg, Timothy L. | Carrier Tracking No(s): 8495 2775 7407 | COC No: 560-11420-1198.1 |
|---|---|---|---|---|
| Client Contact: Mr. Daniel Wade | Phone: 918 761 3793 | E-Mail: tim.kellogg@testamericainc.com | | Page: Page 1 of 1 |
| Company: MWH Americas Inc | | | | Job #: Loc: 560 43493 |
| Address: 1801 California Street Suite 2900 | Due Date Requested: | | | |
| City: Denver | TAT Requested (days): | | | |
| State, Zip: CO, 80202 | | | | |
| Phone: 713-420-3414(Tel) | PO #: Purchase Order not required | | | |
| Email: Daniel.A.Wade@us.mwhglobal.com | WO #: TWO # C-STLI- | | | |
| Project Name: W-MWH-10-23-13-DAW-01 | Project #: 56000058 | | | |
| Site: Gallegos Canyon Unit #124E | SSOW#: | | | |

**Analysis Requested**

**Preservatic**
A - HCL
B - NaOH
C - Zn Aceta
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
Q - Na2SO3
R - Na2S2SO3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - ph 4-5
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) | Perform MS/MSD (Yes or No) | 300 - Chloride | Moisture, TX_1005 | 8260B - BTEX | 8260B - BTEX | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | N | N | N | A | | |
| GCU#124-MW-4-25' | 102913 | 0900 | C | Solid | | | X | X | X | | | |
| GCU#124-MW-6-25' | 102913 | 1535 | C | Solid | | | X | X | X | | | |
| GCU#124-MW-3-25' | 103013 | 1110 | C | Solid | | | X | X | X | | | |
| GCU#124-MW-5-24' | 103013 | 1515 | C | Solid | | | X | X | X | | | |
| GCU#124-MW-7-14' | 103113 | 1020 | C | Solid | | | X | X | X | | | |
| GCU#124-MW-8-19' | 103113 | 1430 | C | Solid | | | X | X | X | | | |
| | | | | Solid | | | | | | | | |
| Trip Blank | | | | Water | | | | | | X | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

560-43493 Chain of Custody

***Possible Hazard Identification***
☒ 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 ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment: FedEx Sat

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| | 10/13 | MWH | | 10/13 0845 | |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.: 345228
Cooler Temperature(s) °C and Other Remarks: OBS 1.3C Corr 1.5C IR4

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11/14/2013

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-43493-1
SDG Number: W-MWH-10-23-13-DAW-01

**Login Number: 43493**
**List Number: 1**
**Creator: Rood, Vivian R**

**List Source: TestAmerica Corpus Christi**

| 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. | True | |
| 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 | |
| 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. | True | TPH frozen 11/02 - Refer to job narrative |
| 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 | |

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-43493-1
SDG Number: W-MWH-10-23-13-DAW-01

**Login Number: 43493**
**List Number: 1**
**Creator: Lopez, Sandro R**

**List Source: TestAmerica Houston**
**List Creation: 11/06/13 02:18 PM**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| 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. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | 4.7 |
| 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. | 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 | |

# APPENDIX C

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-40568-1
TestAmerica Sample Delivery Group: June 2013
Client Project/Site: GCU #124E

For:
MWH Americas Inc
1801 California Street
Suite 2900
Denver, Colorado 80202

Attn: Mr. Daniel Wade

*Authorized for release by:*
*6/19/2013 7:54:07 PM*

Timothy Kellogg, Lab Director
tim.kellogg@testamericainc.com

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## 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 |
| CNF | Contains no Free Liquid |
| DER | Duplicate error ratio (normalized absolute difference) |
| 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) |

# Case Narrative

Client: MWH Americas Inc
Project/Site: GCU #124E

TestAmerica Job ID: 560-40568-1
SDG: June 2013

## Job ID: 560-40568-1

**Laboratory: TestAmerica Corpus Christi**

**Narrative**

**Receipt**

The sample was received on 6/12/2013 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0º C.

**GC/MS VOA**

Method(s) 8260B: Please note that sample 560-40568-1 was diluted due to the nature of the sample matrix (non-target analytes). As such, elevated reporting limits (RLs) for some compounds are provided. No other analytical or quality issues were noted.

Client: MWH Americas Inc
Project/Site: GCU #124E

TestAmerica Job ID: 560-40568-1
SDG: June 2013

**Client Sample ID: MW-1**
**Date Collected: 06/09/13 16:30**
**Date Received: 06/12/13 10:00**

**Lab Sample ID: 560-40568-1**
**Matrix: Water**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.033 | | 0.0020 | 0.00028 | mg/L | | | 06/17/13 17:47 | 2 |
| Ethylbenzene | 0.011 | | 0.0020 | 0.00040 | mg/L | | | 06/17/13 17:47 | 2 |
| Toluene | <0.00060 | | 0.0020 | 0.00060 | mg/L | | | 06/17/13 17:47 | 2 |
| Xylenes, Total | 0.00086 | J | 0.0060 | 0.00045 | mg/L | | | 06/17/13 17:47 | 2 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *96* | | *70 - 130* | | *06/17/13 17:47* | *2* |
| *4-Bromofluorobenzene (Surr)* | *94* | | *70 - 130* | | *06/17/13 17:47* | *2* |
| *Dibromofluoromethane (Surr)* | *100* | | *70 - 130* | | *06/17/13 17:47* | *2* |
| *1,2-Dichloroethane-d4 (Surr)* | *105* | | *70 - 130* | | *06/17/13 17:47* | *2* |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 560-89167/8**
**Matrix: Water**
**Analysis Batch: 89167**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 06/17/13 11:31 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 06/17/13 11:31 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 06/17/13 11:31 | 1 |
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 06/17/13 11:31 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *97* | | *70 - 130* | | *06/17/13 11:31* | *1* |
| *4-Bromofluorobenzene (Surr)* | *89* | | *70 - 130* | | *06/17/13 11:31* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *70 - 130* | | *06/17/13 11:31* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *104* | | *70 - 130* | | *06/17/13 11:31* | *1* |

**Lab Sample ID: LCS 560-89167/3**
**Matrix: Water**
**Analysis Batch: 89167**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0250 | 0.0251 | | mg/L | | 101 | 70 - 130 |
| Ethylbenzene | 0.0250 | 0.0255 | | mg/L | | 102 | 70 - 130 |
| Toluene | 0.0250 | 0.0254 | | mg/L | | 102 | 70 - 130 |
| Xylenes, Total | 0.0750 | 0.0771 | | mg/L | | 103 | 70 - 130 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *99* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *97* | | *70 - 130* |
| *1,2-Dichloroethane-d4 (Surr)* | *99* | | *70 - 130* |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: GCU #124E

TestAmerica Job ID: 560-40568-1
SDG: June 2013

**Client Sample ID: MW-1**
**Date Collected: 06/09/13 16:30**
**Date Received: 06/12/13 10:00**

**Lab Sample ID: 560-40568-1**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 2 | 89167 | 06/17/13 17:47 | RT | TAL CC |

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

# Certification Summary

Client: MWH Americas Inc
Project/Site: GCU #124E

TestAmerica Job ID: 560-40568-1
SDG: June 2013

## Laboratory: TestAmerica Corpus Christi

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Kansas | NELAP | 7 | E-10362 | 10-31-13 |
| Oklahoma | State Program | 6 | 9968 | 08-31-13 |
| Texas | NELAP | 6 | T104704210-12-8 | 03-31-14 |
| USDA | Federal | | P330-11-00060 | 02-03-14 |

# Method Summary

Client: MWH Americas Inc
Project/Site: GCU #124E

TestAmerica Job ID: 560-40568-1
SDG: June 2013

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL CC |

**Protocol References:**

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

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

# Sample Summary

Client: MWH Americas Inc
Project/Site: GCU #124E

TestAmerica Job ID: 560-40568-1
SDG: June 2013

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 560-40568-1 | MW-1 | Water | 06/09/13 16:30 | 06/12/13 10:00 |

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

No. [illegible]

# CHAIN OF CUSTODY RECORD

Loc: 560
40568

560-40568 Chain of Custody

| CUSTOMER INFORMATION | PROJECT INFORMATION |
|---|---|
| COMPANY: MWH/KMI | PROJECT NAME/NUMBER: GCU #124E |
| SEND REPORT TO: DW ~~MWH~~ Daniel Wade | **BILLING INFORMATION** |
| ADDRESS: 1801 California St. | BILL TO: Kinder Morgan |
| Denver, CO 80202 | ADDRESS: Houston, Tx |
| PHONE: 303-291-~~2222~~ DW 2250 | PHONE: |
| FAX: | FAX: PO NO: |

SEAL INTACT: YES
TEMP C: 4.8
CORR TEMP C: 4.0
IR GUN ID: 4
INITIAL/DATE: MM 6/12

| SAMPLE NO. | SAMPLE DESCRIPTION | SAMPLE DATE | SAMPLE TIME | SAMPLE MATRIX | CONTAINER | PRESERV. | NUMBER OF CONTAINERS | 8260 | REMARKS/PRECAUTIONS. |
|---|---|---|---|---|---|---|---|---|---|
| | MW-1 | 6/9/13 | 1630 | GW | VOA | HCL | 3 | X | |

SAMPLER: Daniel Wade
SHIPMENT METHOD: FedEx
AIRBILL NO.: 795788553894

REQUIRED TURNAROUND: [X] ROUTINE TAT (10 BUSINESS DAYS) [ ] RUSH TAT (MAY REQUIRE SURCHARGE)

| | | | | | |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY: Daniel Wade | DATE | 2. RELINQUISHED BY: | DATE | 3. RELINQUISHED BY: | DATE |
| SIGNATURE: | 6/11 ~~6/10~~ DW | SIGNATURE: | | SIGNATURE: | |
| PRINTED NAME/COMPANY: MWH | TIME 1000 ~~1730~~ DW | PRINTED NAME/COMPANY: | TIME | PRINTED NAME/COMPANY: | TIME |
| 1. RECEIVED BY: | DATE | 2. RECEIVED BY: | DATE | 3. RECEIVED BY: | DATE |
| SIGNATURE: | 06/12/13 | SIGNATURE: | | SIGNATURE: | |
| PRINTED NAME/COMPANY: | TIME 10 00 | PRINTED NAME/COMPANY: | TIME | PRINTED NAME/COMPANY: | TIME |

TAL-8222-560 (0412)

**TestAmerica**
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Phone: 361.289.2673/Fax: 361.289.2471

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-40568-1
SDG Number: June 2013

**Login Number: 40568**
**List Number: 1**
**Creator: McDermott, Vivian**

**List Source: TestAmerica Corpus Christi**

| 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. | True | |
| 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 | |
| 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. | 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

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-42547-1
TestAmerica Sample Delivery Group: September 2013
Client Project/Site: GCU #124E Groundwater Analysis

For:
MWH Americas Inc
1801 California Street
Suite 2900
Denver, Colorado 80202

Attn: Mr. Daniel Wade

*Authorized for release by:*
*10/3/2013 11:36:01 AM*
Lindy Maingot, Project Manager I
lindy.maingot@testamericainc.com

Designee for

Timothy Kellogg, Lab Director
tim.kellogg@testamericainc.com

## 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 |
| 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: 560-42547-1

**Laboratory: TestAmerica Corpus Christi**

**Narrative**

**Job Narrative**
**560-42547-1**

**Comments**
No additional comments.

**Receipt**
The sample was received on 9/14/2013 10:05 AM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 1.4° C.

**GC/MS VOA**
No analytical or quality issues were noted.

**Organic Prep**
No analytical or quality issues were noted.

# Detection Summary

Client: MWH Americas Inc
Project/Site: GCU #124E Groundwater Analysis

TestAmerica Job ID: 560-42547-1
SDG: September 2013

## Client Sample ID: MW-1

## Lab Sample ID: 560-42547-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.025 | | 0.0010 | 0.00014 | mg/L | 1 | | 8260B | Total/NA |
| Ethylbenzene | 0.0098 | | 0.0010 | 0.00020 | mg/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.0089 | | 0.0030 | 0.00023 | mg/L | 1 | | 8260B | Total/NA |

This Detection Summary does not include radiochemical test results.

Client: MWH Americas Inc
Project/Site: GCU #124E Groundwater Analysis

TestAmerica Job ID: 560-42547-1
SDG: September 2013

**Client Sample ID: MW-1**
**Date Collected: 09/11/13 09:00**
**Date Received: 09/14/13 10:05**

**Lab Sample ID: 560-42547-1**
**Matrix: Water**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **0.025** | | 0.0010 | 0.00014 | mg/L | | | 09/19/13 03:12 | 1 |
| **Ethylbenzene** | **0.0098** | | 0.0010 | 0.00020 | mg/L | | | 09/19/13 03:12 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 09/19/13 03:12 | 1 |
| **Xylenes, Total** | **0.0089** | | 0.0030 | 0.00023 | mg/L | | | 09/19/13 03:12 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *97* | | *70 - 130* | | *09/19/13 03:12* | *1* |
| *4-Bromofluorobenzene (Surr)* | *92* | | *70 - 130* | | *09/19/13 03:12* | *1* |
| *Dibromofluoromethane (Surr)* | *93* | | *70 - 130* | | *09/19/13 03:12* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *103* | | *70 - 140* | | *09/19/13 03:12* | *1* |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 560-92892/8**
**Matrix: Water**
**Analysis Batch: 92892**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 09/18/13 18:46 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 09/18/13 18:46 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 09/18/13 18:46 | 1 |
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 09/18/13 18:46 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *93* | | *70 - 130* | | *09/18/13 18:46* | *1* |
| *4-Bromofluorobenzene (Surr)* | *87* | | *70 - 130* | | *09/18/13 18:46* | *1* |
| *Dibromofluoromethane (Surr)* | *94* | | *70 - 130* | | *09/18/13 18:46* | *1* |
| *1,2-Dichloroethane-d4 (Surr)* | *104* | | *70 - 140* | | *09/18/13 18:46* | *1* |

**Lab Sample ID: LCS 560-92892/3**
**Matrix: Water**
**Analysis Batch: 92892**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0250 | 0.0235 | | mg/L | | 94 | 70 - 130 |
| Ethylbenzene | 0.0250 | 0.0248 | | mg/L | | 99 | 70 - 130 |
| Toluene | 0.0250 | 0.0221 | | mg/L | | 89 | 70 - 130 |
| Xylenes, Total | 0.0750 | 0.0747 | | mg/L | | 100 | 70 - 130 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *96* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *99* | | *70 - 130* |
| *Dibromofluoromethane (Surr)* | *97* | | *70 - 130* |
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *70 - 140* |

# Certification Summary

Client: MWH Americas Inc
Project/Site: GCU #124E Groundwater Analysis

TestAmerica Job ID: 560-42547-1
SDG: September 2013

## Laboratory: TestAmerica Corpus Christi

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Kansas | NELAP | 7 | E-10362 | 10-31-13 |
| Oklahoma | State Program | 6 | 9968 | 08-31-14 |
| Texas | NELAP | 6 | T104704210-12-8 | 03-31-14 |
| USDA | Federal | | P330-11-00060 | 02-03-14 |

# Method Summary

Client: MWH Americas Inc
Project/Site: GCU #124E Groundwater Analysis

TestAmerica Job ID: 560-42547-1
SDG: September 2013

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL CC |

**Protocol References:**

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

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

# Sample Summary

Client: MWH Americas Inc
Project/Site: GCU #124E Groundwater Analysis

TestAmerica Job ID: 560-42547-1
SDG: September 2013

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 560-42547-1 | MW-1 | Water | 09/11/13 09:00 | 09/14/13 10:05 |

**TestAmerica Corpus Christi**
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Phone (361) 289-2673 Fax (361) 289-2471

# Chain of Custo

560-42547 Chain of Custody

TestAmerica

Loc: 560
42547

COC No: 560-10718-1157
Page: Page 1 of 1
Job #:

| Client Information | Sampler: DAW | Lab PM: Kellogg, Timothy L. |
|---|---|---|
| Client Contact: Mr. Daniel Wade | Phone: 303-912-2625 | E-Mail: tim.kellogg@testamericainc.com |
| Company: MWH Americas Inc | | |
| Address: 1801 California Street Suite 2900 | Due Date Requested: | |
| City: Denver | TAT Requested (days): Standard | |
| State, Zip: CO, 80202 | | |
| Phone: 713-420-3414(Tel) | PO #: Purchase Order not required | |
| Email: Daniel.A.Wade@us.mwhglobal.com | WO #: TWO # C-STLI- | |
| Project Name: San Juan River Basin Pit Sites | Project #: 56000058 | |
| Site: GCU #124E | SSOW#: | |

**Analysis Requested**

**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 - Na2S2SO3 |
| 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) | Perform MS/MSD (Yes or No) | 8260B - BTEX | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | A | | |
| MW-1 | 9/11/13 | 900 | G | Water | | | X | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |

**Possible Hazard Identification**
☒ 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 ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

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

| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|
| | 9/13/13 1200 | | | 9/14/13 0905 | TAL |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: WB 1.3C Cor 1.4C IR4

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10/3/2013

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-42547-1
SDG Number: September 2013

**Login Number: 42547**
**List Number: 1**
**Creator: Wing, Randi**

**List Source: TestAmerica Corpus Christi**

| 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 | |
| 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. | 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

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-44357-1
TestAmerica Sample Delivery Group: December 2013
Client Project/Site: Gallegos Canyon Unit #124 Groundwater

For:
MWH Americas Inc
2890 East Cottonwood Pkwy
Suite 300
Salt Lake City, Utah 84121

Attn: Mr. Cary Ruble

*Authorized for release by:*
*12/30/2013 7:30:05 PM*

Timothy Kellogg, Lab Director
(361)289-2673
tim.kellogg@testamericainc.com

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |

## 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 |
| 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) |

# Case Narrative

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

## Job ID: 560-44357-1

**Laboratory: TestAmerica Corpus Christi**

**Narrative**

**Receipt**

The samples were received on 12/17/2013 10:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C. No analytical or quality issues were noted.

# Detection Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

## Client Sample ID: MW-1 — Lab Sample ID: 560-44357-1

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.087 | | 0.0010 | 0.00014 | mg/L | 1 | | 8260B | Total/NA |
| Ethylbenzene | 0.050 | | 0.0010 | 0.00020 | mg/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.10 | | 0.0030 | 0.00023 | mg/L | 1 | | 8260B | Total/NA |

## Client Sample ID: MW-2 — Lab Sample ID: 560-44357-2

No Detections.

## Client Sample ID: MW-3 — Lab Sample ID: 560-44357-3

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0041 | | 0.0010 | 0.00014 | mg/L | 1 | | 8260B | Total/NA |
| Ethylbenzene | 0.0074 | | 0.0010 | 0.00020 | mg/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.027 | | 0.0030 | 0.00023 | mg/L | 1 | | 8260B | Total/NA |

## Client Sample ID: MW-4 — Lab Sample ID: 560-44357-4

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Ethylbenzene | 0.00028 | J | 0.0010 | 0.00020 | mg/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.0014 | J | 0.0030 | 0.00023 | mg/L | 1 | | 8260B | Total/NA |

## Client Sample ID: MW-5 — Lab Sample ID: 560-44357-5

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0093 | | 0.0010 | 0.00014 | mg/L | 1 | | 8260B | Total/NA |
| Ethylbenzene | 0.053 | | 0.0010 | 0.00020 | mg/L | 1 | | 8260B | Total/NA |
| Xylenes, Total | 0.032 | | 0.0030 | 0.00023 | mg/L | 1 | | 8260B | Total/NA |

## Client Sample ID: MW-6 — Lab Sample ID: 560-44357-6

| Analyte | Result | Qualifier | RL | MDL | Unit | Dil Fac | D | Method | Prep Type |
|---|---|---|---|---|---|---|---|---|---|
| Xylenes, Total | 0.0020 | J | 0.0030 | 0.00023 | mg/L | 1 | | 8260B | Total/NA |

## Client Sample ID: MW-7 — Lab Sample ID: 560-44357-7

No Detections.

This Detection Summary does not include radiochemical test results.

## Client Sample ID: MW-1

**Lab Sample ID: 560-44357-1**

**Date Collected: 12/15/13 10:00**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **0.087** | | 0.0010 | 0.00014 | mg/L | | | 12/27/13 11:43 | 1 |
| **Ethylbenzene** | **0.050** | | 0.0010 | 0.00020 | mg/L | | | 12/27/13 11:43 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/27/13 11:43 | 1 |
| **Xylenes, Total** | **0.10** | | 0.0030 | 0.00023 | mg/L | | | 12/27/13 11:43 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *103* | | *70 - 130* | | *12/27/13 11:43* | *1* |
| *4-Bromofluorobenzene (Surr)* | *103* | | *70 - 130* | | *12/27/13 11:43* | *1* |

## Client Sample ID: MW-2

**Lab Sample ID: 560-44357-2**

**Date Collected: 12/15/13 11:00**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 12/26/13 19:51 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 12/26/13 19:51 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/26/13 19:51 | 1 |
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 12/26/13 19:51 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *96* | | *70 - 130* | | *12/26/13 19:51* | *1* |
| *4-Bromofluorobenzene (Surr)* | *111* | | *70 - 130* | | *12/26/13 19:51* | *1* |

## Client Sample ID: MW-3

**Lab Sample ID: 560-44357-3**

**Date Collected: 12/15/13 10:05**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **0.0041** | | 0.0010 | 0.00014 | mg/L | | | 12/26/13 19:01 | 1 |
| **Ethylbenzene** | **0.0074** | | 0.0010 | 0.00020 | mg/L | | | 12/26/13 19:01 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/26/13 19:01 | 1 |
| **Xylenes, Total** | **0.027** | | 0.0030 | 0.00023 | mg/L | | | 12/26/13 19:01 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *96* | | *70 - 130* | | *12/26/13 19:01* | *1* |
| *4-Bromofluorobenzene (Surr)* | *105* | | *70 - 130* | | *12/26/13 19:01* | *1* |

## Client Sample ID: MW-4

**Lab Sample ID: 560-44357-4**

**Date Collected: 12/15/13 10:10**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 12/26/13 20:17 | 1 |
| **Ethylbenzene** | **0.00028** | **J** | 0.0010 | 0.00020 | mg/L | | | 12/26/13 20:17 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/26/13 20:17 | 1 |
| **Xylenes, Total** | **0.0014** | **J** | 0.0030 | 0.00023 | mg/L | | | 12/26/13 20:17 | 1 |

## Client Sample ID: MW-4

**Lab Sample ID: 560-44357-4**

**Date Collected: 12/15/13 10:10**

**Matrix: Water**

**Date Received: 12/17/13 10:40**

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *98* | | *70 - 130* | | *12/26/13 20:17* | *1* |
| *4-Bromofluorobenzene (Surr)* | *102* | | *70 - 130* | | *12/26/13 20:17* | *1* |

## Client Sample ID: MW-5

**Lab Sample ID: 560-44357-5**

**Date Collected: 12/15/13 10:20**

**Matrix: Water**

**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **Benzene** | **0.0093** | | 0.0010 | 0.00014 | mg/L | | | 12/26/13 20:42 | 1 |
| **Ethylbenzene** | **0.053** | | 0.0010 | 0.00020 | mg/L | | | 12/26/13 20:42 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/26/13 20:42 | 1 |
| **Xylenes, Total** | **0.032** | | 0.0030 | 0.00023 | mg/L | | | 12/26/13 20:42 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *106* | | *70 - 130* | | *12/26/13 20:42* | *1* |
| *4-Bromofluorobenzene (Surr)* | *101* | | *70 - 130* | | *12/26/13 20:42* | *1* |

## Client Sample ID: MW-6

**Lab Sample ID: 560-44357-6**

**Date Collected: 12/15/13 10:25**

**Matrix: Water**

**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 12/26/13 21:07 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 12/26/13 21:07 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/26/13 21:07 | 1 |
| **Xylenes, Total** | **0.0020** | **J** | 0.0030 | 0.00023 | mg/L | | | 12/26/13 21:07 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *98* | | *70 - 130* | | *12/26/13 21:07* | *1* |
| *4-Bromofluorobenzene (Surr)* | *109* | | *70 - 130* | | *12/26/13 21:07* | *1* |

## Client Sample ID: MW-7

**Lab Sample ID: 560-44357-7**

**Date Collected: 12/15/13 10:30**

**Matrix: Water**

**Date Received: 12/17/13 10:40**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 12/27/13 12:08 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 12/27/13 12:08 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/27/13 12:08 | 1 |
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 12/27/13 12:08 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *100* | | *70 - 130* | | *12/27/13 12:08* | *1* |
| *4-Bromofluorobenzene (Surr)* | *99* | | *70 - 130* | | *12/27/13 12:08* | *1* |

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 560-96593/8**
**Matrix: Water**
**Analysis Batch: 96593**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 12/26/13 13:58 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 12/26/13 13:58 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/26/13 13:58 | 1 |
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 12/26/13 13:58 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *93* | | *70 - 130* | | *12/26/13 13:58* | *1* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *70 - 130* | | *12/26/13 13:58* | *1* |

**Lab Sample ID: LCS 560-96593/3**
**Matrix: Water**
**Analysis Batch: 96593**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0250 | 0.0249 | | mg/L | | 100 | 70 - 130 |
| Ethylbenzene | 0.0250 | 0.0250 | | mg/L | | 100 | 70 - 130 |
| Toluene | 0.0250 | 0.0233 | | mg/L | | 93 | 70 - 130 |
| Xylenes, Total | 0.0500 | 0.0507 | | mg/L | | 101 | 70 - 130 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Toluene-d8 (Surr)* | *97* | | *70 - 130* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *70 - 130* |

**Lab Sample ID: MB 560-96638/8**
**Matrix: Water**
**Analysis Batch: 96638**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00014 | | 0.0010 | 0.00014 | mg/L | | | 12/27/13 11:17 | 1 |
| Ethylbenzene | <0.00020 | | 0.0010 | 0.00020 | mg/L | | | 12/27/13 11:17 | 1 |
| Toluene | <0.00030 | | 0.0010 | 0.00030 | mg/L | | | 12/27/13 11:17 | 1 |
| Xylenes, Total | <0.00023 | | 0.0030 | 0.00023 | mg/L | | | 12/27/13 11:17 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Toluene-d8 (Surr)* | *102* | | *70 - 130* | | *12/27/13 11:17* | *1* |
| *4-Bromofluorobenzene (Surr)* | *101* | | *70 - 130* | | *12/27/13 11:17* | *1* |

**Lab Sample ID: LCS 560-96638/3**
**Matrix: Water**
**Analysis Batch: 96638**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.0250 | 0.0252 | | mg/L | | 101 | 70 - 130 |
| Ethylbenzene | 0.0250 | 0.0235 | | mg/L | | 94 | 70 - 130 |
| Toluene | 0.0250 | 0.0248 | | mg/L | | 99 | 70 - 130 |
| Xylenes, Total | 0.0750 | 0.0705 | | mg/L | | 94 | 70 - 130 |

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 560-96638/3**
**Matrix: Water**
**Analysis Batch: 96638**

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

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| Toluene-d8 (Surr) | 101 | | 70 - 130 |
| 4-Bromofluorobenzene (Surr) | 103 | | 70 - 130 |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

## Client Sample ID: MW-1
**Lab Sample ID: 560-44357-1**
**Date Collected: 12/15/13 10:00**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96638 | 12/27/13 11:43 | RP56 | TAL CC |

## Client Sample ID: MW-2
**Lab Sample ID: 560-44357-2**
**Date Collected: 12/15/13 11:00**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96593 | 12/26/13 19:51 | RJT | TAL CC |

## Client Sample ID: MW-3
**Lab Sample ID: 560-44357-3**
**Date Collected: 12/15/13 10:05**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96593 | 12/26/13 19:01 | RJT | TAL CC |

## Client Sample ID: MW-4
**Lab Sample ID: 560-44357-4**
**Date Collected: 12/15/13 10:10**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96593 | 12/26/13 20:17 | RJT | TAL CC |

## Client Sample ID: MW-5
**Lab Sample ID: 560-44357-5**
**Date Collected: 12/15/13 10:20**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96593 | 12/26/13 20:42 | RJT | TAL CC |

## Client Sample ID: MW-6
**Lab Sample ID: 560-44357-6**
**Date Collected: 12/15/13 10:25**
**Matrix: Water**
**Date Received: 12/17/13 10:40**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96593 | 12/26/13 21:07 | RJT | TAL CC |

# Lab Chronicle

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

**Client Sample ID: MW-7**
**Date Collected: 12/15/13 10:30**
**Date Received: 12/17/13 10:40**

**Lab Sample ID: 560-44357-7**
**Matrix: Water**

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B | | 1 | 96638 | 12/27/13 12:08 | RP56 | TAL CC |

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

# Certification Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

## Laboratory: TestAmerica Corpus Christi

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Kansas | NELAP | 7 | E-10362 | 10-31-14 |
| Oklahoma | State Program | 6 | 9968 | 08-31-14 |
| Texas | NELAP | 6 | T104704210-12-8 | 03-31-14 |
| USDA | Federal | | P330-11-00060 | 02-03-14 |

# Method Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8260B | Volatile Organic Compounds (GC/MS) | SW846 | TAL CC |

**Protocol References:**

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

**Laboratory References:**

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

# Sample Summary

Client: MWH Americas Inc
Project/Site: Gallegos Canyon Unit #124 Groundwater

TestAmerica Job ID: 560-44357-1
SDG: December 2013

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 560-44357-1 | MW-1 | Water | 12/15/13 10:00 | 12/17/13 10:40 |
| 560-44357-2 | MW-2 | Water | 12/15/13 11:00 | 12/17/13 10:40 |
| 560-44357-3 | MW-3 | Water | 12/15/13 10:05 | 12/17/13 10:40 |
| 560-44357-4 | MW-4 | Water | 12/15/13 10:10 | 12/17/13 10:40 |
| 560-44357-5 | MW-5 | Water | 12/15/13 10:20 | 12/17/13 10:40 |
| 560-44357-6 | MW-6 | Water | 12/15/13 10:25 | 12/17/13 10:40 |
| 560-44357-7 | MW-7 | Water | 12/15/13 10:30 | 12/17/13 10:40 |

**TestAmerica Corpus Christi**
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Phone (361) 289-2673 Fax (361) 289-2471

# Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

| Client Information | Sampler: CCL | Lab PM: Kellogg, Timothy L. | Carrier Tracking No(s): | COC No: 560-11604-1157.1 |
|---|---|---|---|---|
| Client Contact: ~~Mr. Daniel Wade~~ Christopher Lee | Phone: 303 291-2242 | E-Mail: tim.kellogg@testamericainc.com | | Page: Page 1 o |
| Company: MWH Americas Inc | | | | Job #: 44357 |
| Address: 1801 California Street Suite 2900 | Due Date Requested: | Analysis Requested | | Loc: 560 |
| City: Denver | TAT Requested (days): STANDARD | | | Preserva |
| State, Zip: CO, 80202 | PO #: Purchase Order not required | | | A - HCL<br>B - NaOH<br>C - Zn Ac<br>D - Nitric Acid<br>E - NaHSO4<br>F - MeOH<br>G - Amchlor<br>H - Ascorbic Acid<br>I - Ice<br>J - DI Water<br>K - EDTA<br>L - EDA<br>P - Na2O4S<br>Q - Na2SO3<br>R - Na2S2SO3<br>S - H2SO4<br>T - TSP Dodecahydrate<br>U - Acetone<br>V - MCAA<br>W - ph 4-5<br>Z - other (specify) |
| Phone: 713-420-3414(Tel) | WO #: TWO # C-STLI- | | | Other: |
| Email: Christopher.C.Lee@mwhglobal.com ~~Daniel.A.Wade@us.mwhglobal.com~~ | Project #: 56000058 | | | |
| Project Name: San Juan River Basin Pit Sites | SSOW#: | | | |
| Site: Gallegos Canyon Unit #124 | | | | |

| 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) | 8260B - BTEX | Total Number of containers | Special Instructions/Note: |
|---|---|---|---|---|---|---|---|---|---|
| | | | Preservation Code: | | | | A | | |
| MW-1 | 12/15/13 | 1000 | G | Water | | | X | | |
| MW-2 | 12/15/13 | 1100 | G | Water | | | X | | |
| MW-3 | 12/15/13 | 1005 | G | Water | | | X | | |
| MW-4 | 12/15/13 | 1010 | G | Water | | | X | | |
| MW-5 | 12/15/13 | 1020 | G | Water | | | X | | |
| MW-6 | 12/15/13 | 1025 | G | Water | | | X | | |
| MW-7 | 12/15/13 | 1030 | G | Water | | | X | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| | | | | Water | | | | | |
| Trip Blank | | | | Water | | | | | |

560-44357 Chain of Custody

**Possible Hazard Identification**
☒ 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 ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

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

| | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
|---|---|---|---|---|---|---|
| 1 | [signature] | 9/16/13 900 | | [signature] | 12-17-13 10:40 | TAC |
| 2 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |
| 3 | Relinquished by: | Date/Time: | Company | Received by: | Date/Time: | Company |

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1.9/2.1 IR Gun



12/30/2013

# Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-44357-1
SDG Number: December 2013

**Login Number: 44357**
**List Number: 1**
**Creator: Rood, Vivian R**

**List Source: TestAmerica Corpus Christi**

| 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. | True | |
| 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 | |
| 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. | 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 | |