3R - 205

2013 AGWMR

04 / 03 / 2014

MWH

BUILDING A BETTER WORLD

March 4, 2014

Mr. Glenn von Gonten
New Mexico Oil Conservation Division (NMOCD)
1220 South St., Francis Drive
Santa Fe, NM 87505

RE: 2013 Annual Report Submittals
San Juan River Basin Program - Pit Sites

Dear Mr. von Gonten

On behalf of El Paso CGP Company (EPCGPC), MWH is submitting the enclosed 2013 Annual Reports for 18 of its remaining San Juan River Basin pit groundwater remediation sites. The reports present the 2013 sampling data and planned activities for 2014 at these sites.

If you have any questions concerning the enclosed reports, please contact either Joe Wiley (representing EPCGPC) at 713-420-3475 or me at 515-253-0830.

Sincerely,

David C. Wombacher
Principal Engineer

/mja:dcw:hls
Enclosures
cc: Bill Freeman – NNEPA, Shiprock, NM (Navajo Nation Lands, See Table 1)
Mark Kelly – BLM, Farmington, NM (Federal Lands, See Table 1)
Brandon Powell – NMOCD, Aztec, NM (all 18 reports)
Joe Wiley – EPCGP Company (all 18 reports, electronic)

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TABLE 1

REPORT LISTING AND LAND TYPE
SAN JUAN RIVER BASIN PROGRAM – PIT SITES

METER or LINE ID	NMOCD CASE NO.	SITE NAME	Land Type
87640	3RP-155-0	Canada Mesa #2	Federal
89961	3RP-170-0	Fields A#7A	Federal
73220	3RP-068-0	Fogelson 4-1 Com. #14	Federal
95608	3RP-407-0	Gallegos Canyon Unit #124E	Navajo
03906	3RP-179-0	GCU Com A #142E	State/Fee
89894	3RP-186-0	Hammond #41A	Federal
94715	3RP-196-0	James F. Bell #1E	Federal
70194	3RP-201-0	Johnston Fed #4	State/Fee
89232	3RP-202-0	Johnston Fed #6A	Federal
LD072	3RP-204-0	K27 LD072	Federal
LD087	3RP-205-0	K-31 Line Drip	State/Fee
72556	3RP-207-0	Knight #1	State/Fee
LD174	3RP-212-0	Lateral L 40	Federal
LD151	3RP-213-0	Lateral 0-21 Line Drip	Federal
94810	3RP-223-0	Miles Fed 1A	Federal
89620	3RP-235-0	Sandoval GC A #1A	Federal
70445	3RP-074-0	Standard Oil Com #1	State/Fee
71669	3RP-239-0	State Gas Com N #1	State/Fee

2013 ANNUAL GROUNDWATER REPORT

K-31 Line Drip
Meter Code: LD087
T25N, R6W, Sec16, Unit N

SITE DETAILS

Site Location: Latitude: 36.393578 N, Longitude: -107.474689 W
Land Type: State
Operator: Enterprise

SITE BACKGROUND

- **Site Assessment:** 7/94
- **Excavations:** 8/94 (90 cy)
- **Re-Excavation:** 11/95 (1786 CY)
- **ORC Nutrient Injection:** 11/02

K-31 Line Drip (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 Enterprise and is active.

The Site is located on State/Fee land. Various Site investigations have occurred from 1994 through 2012. Monitoring wells were installed in 1997 (MW-1), 2000 (MW-2 through MW-3), 2006 (MW-4 and MW-5) and 2012 (MW-6 through MW-9). Currently, groundwater sampling is conducted on a semi-annual basis and free product is not observed.

SUMMARY OF 2013 ACTIVITIES

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

Four new wells (MW-6, MW-7, MW-8, and MW-9) 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 MW-1, MW-2, MW-3, MW-4, MW-5 and all new monitoring wells (completed in October 2013), were again surveyed in November 2013, by a licensed surveyor using state plane coordinates.

Monitoring wells were constructed of 2-inch diameter, schedule 40, .010-inch, continuous, factory-slotted PVC screen and schedule 40 blank PVC casing. The well screen was installed from 30 feet below ground surface (bgs) to 10 feet bgs and bisects the observed water table located at depths ranging from 17-20 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 well MW-6 was installed downgradient from the former EPCPG drip line. MW-7 was

installed cross gradient from MW-1, northwest of the former drip line. Monitoring well MW-9 was installed southwest of the existing MW-1 and MW-8 was installed southeast of MW-1 and due east of the former drip line. Pertinent Site features and soil boring/monitoring well locations are shown on maps included in Figures 1 through 6.
During the drilling of the Site soil borings 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 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 5, and September 10, 2013 groundwater levels were gauged at MW-1, MW-2, MW-3, MW-4, and MW-5 and groundwater samples were collected using a HydraSleeve™ (HydraSleeve); a disposable, no-purge passive groundwater sampling device. On December 11, 2013, MW-1 through MW-5 and the new monitoring wells MW-6, MW-7, MW-8, and MW-9 were gauged and samples were collected from MW-1 through MW-5 using a HydraSleeve. The HydraSleeves were set during the previous sampling event approximately 0.5 feet above termination depth of the monitoring wells using a suspension tether and weights to collect a sample from the screened interval. The new monitoring wells, MW-6 through MW-9 were purged and sampled with 2 inch disposable bailers. 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 HydraSleeves was combined in a waste container and transferred to an off-site 55-gallon drum for later disposal by Safety-Kleen.

SUMMARY TABLES

Soil sample results are summarized in Table 1, and historic analytical and water level data are summarized in Table 2.

SITE MAPS

Groundwater analytical results and groundwater elevation contour maps from the 2013 quarterly sampling events are depicted in Figures 1through 6.

ANALYTICAL LAB REPORTS

The soil and groundwater analytical laboratory reports are included as Appendices B and C, respectively.

RESULTS

- Based on 2013 quarterly water level gauging events, the groundwater flow direction is generally to the northwest at the Site (Figures 2, 4, and 6).

- BTEX constituents were not detected in groundwater samples collected from MW-1 during each of the three 2013 quarterly sampling events.

- BTEX constituents were either not detected or reported values were below the laboratory quantitation limit (J-flagged values) in groundwater samples collected from MW-2 during each of the 2013 sampling events.

- Monitoring well MW-3 was dry during each sampling event in 2013.

- BTEX constituents were not detected in groundwater samples collected from MW-4 during each of the 2013 sampling events.

- BTEX constituents were either not detected or reported values were below the laboratory quantitation limit (J-flagged values) in groundwater samples collected from MW-5 during each of the 2013 sampling events.

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

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

- Benzene concentrations exceeded the NMWQCC standard in samples collected from MW-8 during the December sampling event. Toluene, ethylbenzene, and total xylenes were detected below their respective standards. This monitoring well is located approximately 50 feet up-gradient and side-gradient from the original source of the release.

- BTEX constituents were not detected in groundwater samples collected from MW-9 during each of the 2013 sampling events.

- Soil samples were collected from the borings for monitoring wells MW-6 through MW-9. Sample locations were based on elevated soil screening results. For benzene, concentrations ranged from non detect (MW-7 and MW-9) to 0.86 milligrams per kilogram of soil (mg/kg) at MW-8. Toluene results ranged from non detect (MW-6) to a high of 2.7 mg/kg at MW-7. Ethylbenzne results ranged from non detect (MW-9) to 0.66 mg/kg at MW-8. Total xylenes concentrations

ranged from non detect (MW-9) to 3.8 mg/kg at MW-8. Total petroleum hydrocarbons (TPH) were non detect at MW-6, and below the reporting limit, (J-flagged) at MW-7. TPH reported at MW-8 and MW-9 were 78 mg/kg and 320 mg/kg, respectively. Chloride concentrations were reported at all four sampling locations. Concentrations ranged from 150 mg/kg (MW-7) to 1100 mg/kg (MW-6).

- 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 line drip release has been achieved. It does not appear that additional delineation of dissolved hydrocarbons is necessary at this time. Concentrations in well MW-8 will be carefully monitored, along with concentrations from well MW-3 when groundwater is present.

PLANNED FUTURE ACTIVITIES

Monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8 and MW-9 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 ANALYTICAL RESULTS

K-31 Line Drip							
Location	Date	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
MW-6(17.5-20)	11/21/13	0.29	<0.011	0.038J	0.13 J	<1.5	1100
MW-7(22.5-25)	11/21/13	<0.022	0.022 J	0.20	0.98	23 J	150
MW-8(22.5-25)	11/21/13	0.86	2.7	0.66	3.8	320	260
MW-9(17.5-20)	11/21/13	<0.00023	<0.00091	<0.00046	<0.00051	78	290

Notes:
"J" =Result is less than the RL but greater than or equal to the MDL and the concentration is 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

K-31 Line Drip								
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	04/16/97	84.9	25.7	43.6	206	15.00	-	-
MW-1	06/06/97	115	<1	37.8	76.1	17.99	-	-
MW-1	09/11/97	259	10.8	124	58.4	18.48	-	-
MW-1	12/09/97	201	<1	71.5	25.8	18.09	-	-
MW-1	03/19/98	61.2	<1	17.8	2.35	17.59	-	-
MW-1	06/02/98	98.3	1.48	27.2	14.7	17.98	-	-
MW-1	06/14/99	65	3.7	4.2	10	17.98	-	-
MW-1	06/27/00	29	<0.5	3.5	12	18.10	-	-
MW-1	04/03/01	5	1.4	1.1	4.1	17.79	-	-
MW-1	10/01/01	3.3	1.1	0.8	5.6	18.94	-	-
MW-1	04/01/02	<2.5	<2.5	<2.5	<5	18.05	-	-
MW-1	10/08/02	0.6	<0.5	<0.5	1.3	18.86	-	-
MW-1	03/13/03					17.91	-	-
MW-1	09/15/03					19.03	-	-
MW-1	03/22/04					18.04	-	-
MW-1	09/14/04					19.23	-	-
MW-1	03/22/05					18.20	-	-
MW-1	06/24/05					18.74	-	-
MW-1	09/14/05					19.26	-	-
MW-1	12/14/05					18.78	-	-
MW-1	03/28/06					18.34	-	-
MW-1	06/07/06					18.78	-	-
MW-1	12/26/06					18.14	-	-
MW-1	06/12/07					18.09	-	-
MW-1	12/18/07					16.46	-	-
MW-1	06/16/08					18.43	-	-
MW-1	12/10/08					18.69	-	-
MW-1	06/10/09					18.46	-	-
MW-1	11/02/09					18.82	-	-
MW-1	06/02/10					18.24	-	-
MW-1	11/08/10					18.87	-	-
MW-1	05/09/11					18.17	-	-
MW-1	11/10/11					19.02	-	-
MW-1	06/05/13	<0.14	<0.30	<0.20	<0.23	18.76	-	-
MW-1	09/10/13	<0.14	<0.30	<0.20	<0.23	19.46	-	-
MW-1	12/11/13	<0.20	<0.38	<0.20	<0.65	18.73	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

K-31 Line Drip								
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	08/31/00	1800	590	86	490	17.36	-	-
MW-2	04/03/01	340	4	8.7	3.3	16.82	-	-
MW-2	10/01/01	190	3	4.5	3.7	17.63	-	-
MW-2	04/01/02	230	3.4	<2.5	<5	16.78	-	-
MW-2	10/08/02	104	1.6	2.3	1.6	17.62	-	-
MW-2	03/13/03	254	5.6	3.5	1.4	16.64	-	-
MW-2	03/25/03					16.65	-	-
MW-2	09/15/03	125	2.6	5.2	3	17.78	-	-
MW-2	03/22/04	176	3.7	7.7	1.4	16.76	-	-
MW-2	09/14/04	32.2	1.4	2.4	1.3 J	17.21	-	-
MW-2	03/22/05	93.7	0.56	4.2	<2	16.91	-	-
MW-2	06/24/05	322	1.9	11	2.5	17.44	-	-
MW-2	09/14/05	7.6	0.79 J	0.78 J	1.4 J	17.92	-	-
MW-2	12/14/05	6.3 J	0.48 J	0.68 J	0.89 J	17.46	-	-
MW-2	03/28/06	40.8	0.68 J	2.7	1.4 J	17.02	-	-
MW-2	06/07/06	44.3	<1	2.7	0.86 J	17.47	-	-
MW-2	12/26/06	50.8	<1	2.4	0.37 J	16.90	-	-
MW-2	06/12/07	502	2.3	4.7	5	16.83	-	-
MW-2	12/18/07	10.2	<2	<2	<6	17.22	-	-
MW-2	06/16/08	123	<1	<1	<2	17.15	-	-
MW-2	12/10/08	1.8	<1	<1	0.64 J	17.45	-	-
MW-2	06/10/09	34.7	<1	<1	<2	17.22	-	-
MW-2	11/02/09	0.51 J	<1	<1	<2	17.76	-	-
MW-2	06/02/10	209	0.95 J	<2	5.6 J	16.96	-	-
MW-2	11/08/10	<2	<2	<2	<6	17.72	-	-
MW-2	05/09/11	12.1	<2	<2	<6	16.90	-	-
MW-2	11/10/11	1.3	<1	<1	<3	17.80	-	-
MW-2	05/15/12	<1	<1	<1	<3	17.24	-	-
MW-2	06/05/13	<0.14	<0.30	<0.20	<0.23	17.51	-	-
MW-2	09/10/13	J.24	<0.30	<0.20	<0.23	18.19	-	-
MW-2	12/11/13	<0.20	<0.38	<0.20	<0.65	17.49	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

K-31 Line Drip								
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-3	08/31/00	<0.5	<0.5	<0.5	<0.5	17.69	-	-
MW-3	10/01/01					17.97	-	-
MW-3	10/08/02					17.92	-	-
MW-3	03/13/03					16.98	-	-
MW-3	09/15/03					18.08	-	-
MW-3	03/22/04					17.09	-	-
MW-3	09/14/04					17.95	-	-
MW-3	03/22/05					17.24	-	-
MW-3	06/24/05					17.78	-	-
MW-3	09/14/05					18.00	-	-
MW-3	12/14/05					17.78	-	-
MW-3	03/28/06					17.34	-	-
MW-3	06/07/06					17.82	-	-
MW-3	12/26/06					17.22	-	-
MW-3	06/12/07					17.15	-	-
MW-3	12/18/07					17.53	-	-
MW-3	06/16/08					17.51	-	-
MW-3	12/10/08					17.76	-	-
MW-3	06/10/09					17.57	-	-
MW-3	11/02/09					17.86	-	-
MW-3	06/02/10					17.27	-	-
MW-3	11/08/10					17.92	-	-
MW-3	05/09/11					17.22	-	-
MW-3	11/10/11					18.03	-	-
MW-3	05/15/12					17.55	-	-
MW-3	06/05/13					DRY	-	-
MW-3	09/10/13					DRY	-	-
MW-3	12/11/13					DRY	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

K-31 Line Drip								
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-4	12/26/06	131	<1	2.4	<2	16.64	-	-
MW-4	06/12/07	99.8	2.5	<1	6.9	15.58	-	-
MW-4	12/18/07	70.1	14.5	1.2 J	15	15.97	-	-
MW-4	06/16/08	28.9	25.8	1.3	21.6	16.92	-	-
MW-4	12/10/08	20.8	4.5	6.3	12.6	16.22	-	-
MW-4	06/10/09	38.5	23.2	1.6	18.3	15.97	-	-
MW-4	11/02/09	9.5	1.5	<1	8.6	16.50	-	-
MW-4	06/02/10	94.1	28.8	1.1 J	7.3	15.73	-	-
MW-4	11/08/10	15.6	6.2	<2	5.1 J	16.41	-	-
MW-4	05/09/11	11.4	J1.4	<2	2.8 J	15.71	-	-
MW-4	11/10/11	<1	<1	<1	<3	16.57	-	-
MW-4	05/15/12	<1	<1	<1	<3	16.02	-	-
MW-4	06/05/13	<0.14	<0.30	<0.20	<0.23	16.25	-	-
MW-4	09/10/13	<0.14	<0.30	<0.20	<0.23	16.94	-	-
MW-4	12/11/13	<0.20	<0.38	<0.20	<0.65	16.21	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

K-31 Line Drip								
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-5	12/26/06	7.5	<1	37.3	<2	17.46	-	-
MW-5	06/12/07	5.3	1.5	15.2	7.3	17.39	-	-
MW-5	12/18/07	87	15.3	50.4	10.1	17.78	-	-
MW-5	06/16/08	45.7	7.9	18.7	5.7	17.75	-	-
MW-5	12/10/08	63.5	5	5.1	6.4	18.02	-	-
MW-5	06/10/09	29	6	4.8	6	17.81	-	-
MW-5	11/02/09	15.5	1.4	1.2	3.9	18.33	-	-
MW-5	06/02/10	47.4	1.4 J	10	4.1 J	17.55	-	-
MW-5	11/08/10	21.2	<2	1.4 J	3.3 J	18.20	-	-
MW-5	05/09/11	31.2	<2	7.7	2.9 J	17.52	-	-
MW-5	11/10/11	1.5	<1	<1	<3	18.32	-	-
MW-5	05/15/12	2.6	<1	2.5	1 J	17.78	-	-
MW-5	06/05/13	0.17	<0.30	<0.20	<0.23	18.08	-	-
MW-5	09/10/13	1.6	<0.30	<0.20	<0.23	18.79	-	-
MW-5	12/11/13	0.70 J	<0.38	<0.20	<0.65	18.05	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

K-31 Line Drip								
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-6	12/11/13	2.6	<0.38	<0.20	<0.65	17.75	-	-
MW-7	12/11/13	<0.20	7.2	14	62	20.22	-	-
MW-8	12/11/13	25	18	1.6 J	11	17.84	-	-
MW-9	12/11/13	<0.20	<0.38	<0.20	<0.65	19.55	-	-

Notes:
Results highlighted yellow exceed their respective New Mexico Water Quality Control Comission standards.
"J" =Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
"<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit).

FIGURES

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\K-31 LINE DRIP\2013 MAPS\K-31_GARM_2Q_2013.mxd

DOGLEG

TELP

SMA RBC BENCHMARK
ELEV 6301.77
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO CENTRAL

MW-5
B: 0.17
T: <0.30
E: <0.20
X: <0.23
MW-5

MW-4
B: <0.14
T: <0.30
E: <0.20
X: <0.23
MW-4

MW-2
B: <0.14
T: <0.30
E: <0.20
X: <0.23
MW-2

MW-1
B: <0.14
T: <0.30
E: <0.20
X: <0.23
MW-1

IP-2

IP-1

MW-3
DRY
MW-3

6302
6301
6304
6305

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 5/2/2013.

LEGEND:

- 6301 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS — NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
- MONITORING WELL
- MONITORING WELL ASSOCIATED WITH UNRELATED RELEASE
- ORC INJECTION POINT
- SMA BENCHMARK

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<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 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/16/2013	CCL	CCL	DAW

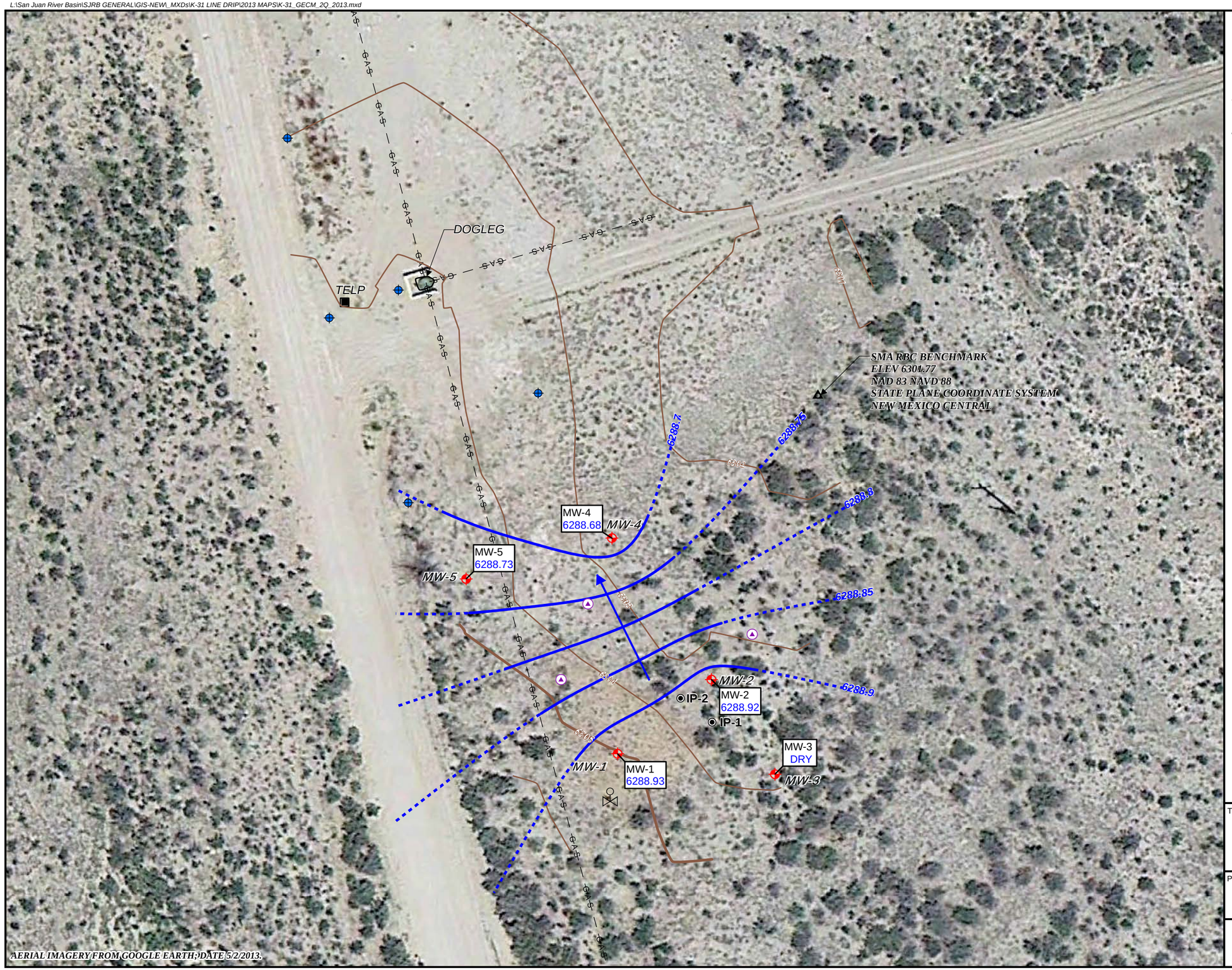
TITLE:
K-31 LINE DRIP
GROUNDWATER ANALYTICAL RESULTS
SAMPLED JUNE 5, 2013

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

MWH

Figure No.: 1

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\K-31 LINE DRIP\2013 MAPS\K-31_GECM_2Q_2013.mxd



LEGEND:

- 6301 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS — NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
- MONITORING WELL
- MONITORING WELL ASSOCIATED WITH UNRELATED RELEASE
- ORC INJECTION POINT
- SMA BENCHMARK

NOTES:

6288.85 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

6288 — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.05 FOOT CONTOUR INTERVAL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET

0 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/25/2013	CCL	CCL	DAW

TITLE:

K-31 LINE DRIP
GROUNDWATER ELEVATION MAP
GAUGED JUNE 5, 2013

PROJECT:

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

MWH

Figure No.: 2

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\K-31 LINE DRIP\2013 MAPS\K-31_GARM_3Q_2013.mxd

DOGLEG

TELP

SMA RBC BENCHMARK
ELEV 6301.77
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO CENTRAL

MW-1
B: <0.14
T: <0.30
E: <0.20
X: <0.23

MW-2
B: J 0.24
T: <0.30
E: <0.20
X: <0.23

MW-3
DRY

MW-4
B: <0.14
T: <0.30
E: <0.20
X: <0.23

MW-5
B: 1.6
T: <0.30
E: <0.20
X: <0.23

IP-1

IP-2

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 5/2/2013.

LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
- MONITORING WELL
- MONITORING WELL ASSOCIATED WITH UNRELATED RELEASE
- ORC INJECTION POINT
- SMA BENCHMARK

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<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 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/16/2013	CCL	CCL	DAW

TITLE:
K-31 LINE DRIP
GROUNDWATER ANALYTICAL RESULTS
SAMPLED SEPTEMBER 10, 2013

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

MWH

Figure No.: **3**

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\K-31 LINE DRIP\2013 MAPS\K-31_GECM_3Q_2013.mxd

DOGLEG

TELP

SMA RBC BENCHMARK
ELEV 6301.77
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO CENTRAL

MW-4
6287.99

MW-5
6288.02

MW-2
6288.24

MW-1
6288.23

MW-3
DRY

IP-2

IP-1

6288

6288.05

6288.1

6288.15

6288.2

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 5/2/2013.

LEGEND:

- 6301 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS — NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
- MONITORING WELL
- MONITORING WELL ASSOCIATED WITH UNRELATED RELEASE
- ORC INJECTION POINT
- SMA BENCHMARK

NOTES:

6288.85 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

6288 — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.05 FOOT CONTOUR INTERVAL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET

0 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/25/2013	CCL	CCL	DAW

TITLE:

K-31 LINE DRIP
GROUNDWATER ELEVATION MAP
GAUGED SEPTEMBER 10, 2013

PROJECT:

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

MWH

Figure No.: 4

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\K-31 LINE DRIP\2013 MAPS\K-31_GARM_4Q_2013.mxd

DOGLEG

TELP

SMA RBC BENCHMARK
ELEV 6301.77
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO CENTRAL

MW-5
MW-5
B: 0.70J
T: <0.38
E: <0.20
X: <0.65

MW-6
MW-6
B: 2.6
T: <0.38
E: <0.20
X: <0.65

MW-4
MW-4
B: <0.20
T: <0.38
E: <0.20
X: <0.65

MW-2
MW-2
B: <0.20
T: <0.38
E: <0.20
X: <0.65

IP-2

IP-1

MW-1
MW-1
B: <0.20
T: <0.38
E: <0.20
X: <0.65

MW-7
MW-7
B: <0.20
T: 7.2
E: 14
X: 62

MW-8
MW-8
B: **25**
T: 18
E: 1.6J
X: 11

MW-3
MW-3
DRY

MW-9
MW-9
B: <0.20
T: <0.38
E: <0.20
X: <0.65

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 5/2/2013.

LEGEND:

- 6301 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS — NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
- MONITORING WELL
- MONITORING WELL ASSOCIATED WITH UNRELATED RELEASE
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ANALYTE	NMWQCC STANDARDS
B = Benzene	10 µg/L
T = Toluene	750 µg/L
E = Ethylbenzene	750 µg/L
X = Total Xylenes	620 µg/L

N

SCALE IN FEET
0 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	1/14/2014	CCL	CCL	DAW

TITLE:
K-31 LINE DRIP
GROUNDWATER ANALYTICAL RESULTS
SAMPLED DECEMBER 11, 2013

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

MWH

Figure No.:
5

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\K-31 LINE DRIP\2013 MAPS\K-31_GECM_4Q_2013.mxd

DOGLEG

TELP

SMA RBC BENCHMARK
ELEV 6301.77
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO CENTRAL

MW-4 6288.72
MW-5 6288.76
MW-6 6288.86
MW-2 6288.94
MW-7 6288.95
MW-1 6288.96
MW-3 DRY
MW-8 6289.00
MW-9 6289.01

6288.75
6288.8
6288.85
6288.9
6288.95
6289

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 5/2/2013.

LEGEND:

- 6301 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS — NATURAL GAS LINE
- DRIP LINE
- GEOPROBE BORING LOCATION
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- ORC INJECTION POINT
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NOTES:

- 6288.85 — GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL
- 6288 — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.05 FOOT CONTOUR INTERVAL)
- DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET
0 40 80

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	1/14/2014	CCL	CCL	DAW

TITLE:
K-31 LINE DRIP
GROUNDWATER ELEVATION MAP
GAUGED DECEMBER 11, 2013

PROJECT:
SAN JUAN RIVER BASIN
MONITORING AND REMEDIATION
RIO ARRIBA 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 5, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT
SEPTEMBER 10, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT
DECEMBER 11, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT

APPENDIX A

MW-6
MW-7
MW-8
MW-9

GEOLOGIST: Doug Burr	COMPLETION DATE: November 22, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6303.7
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6306.6
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 1964754.3 Easting 1279926.2

Groundwater seepage encountered at 23.0 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		0				NA	Protective casing
		2					8in → Annular space seal
		4					2-inch ID schedule 40 PVC riser
Sandy silt, 10YR 5/4, yellowish brown, dry, stiff, moderate cementation, white veining (Fungus) present, very fine sands.	- Hand augered to 5' bgs (no sample recovered)	6		ML	0%	NA	8in → Bentonite Seal
		8			100%	2.7	
		10			20%	0	8in → Silica sand
Silty sand, 10YR 4/4, dark yellowish brown, dry, loose, weak cementation, 50% sands.		12		SM			2-inch ID schedule 40, No. 10 screen
Very silty sand, 10YR 4/4,		14		SM-ML	100%	0	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-6

K-31 Line Drip

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
dark yellowish brown, dry, medium stiff, weak cementation, predominantly fine sands.		16		SM-ML	0%	0 NA	
	- color change to 10YR 5/2, grayish brown, mottled with black 10YR 2/1, and Gley 4/5GY, dark greenish grey, moist, moderate cementation, strong TPH odor. Sampled K-31 Line Drip MW-6 - 17.5' collected at 1315	18			100%	990	
		20			0%	NA	
Silty sand, 10YR 5/3, brown, mottled with 10YR 5/1, gray, soft, wet, weak cementation, 30% medium sands.		22		SM	100%	6.0	8in → Silica sand 2-inch ID schedule 40, No. 10 screen
	- as above	24			0%	NA	
		26			50%	18.3	
	- as above	28					
	Total depth = 30' bgs	30					
		32					
		34					
		36					

MWH

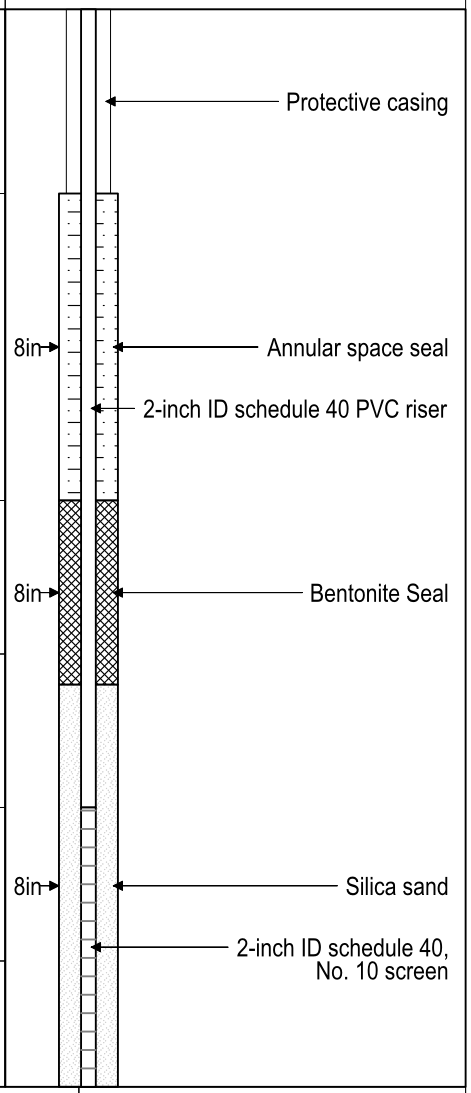
LOG & RECORD OF WELL CONSTRUCTION MW-6

K-31 Line Drip

GEOLOGIST: Doug Burr	COMPLETION DATE: November 22, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6306.0
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6309.2
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 1964716.5 Easting 1279901.2

Groundwater seepage encountered at 23.5 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)
		0				0
		2			0%	
		4				
Sandy silt, 10YR 5/4, yellowish brown, dry, stiff, moderate cementation, white veining (fungus) present, very fine sands.	- Hand augered to 5' bgs (no sample recovered)	6		ML	100%	0.0
		8			100%	0.0
Very silty sand, 10YR 5/4, yellowish brown, dry, medium stiff, weak cementation, predominantly fine sands.		10		SM-ML	0%	NA
		12				0.0
Silty sand, 10YR 5/6,		14		SM	50%	



MWH

LOG & RECORD OF WELL CONSTRUCTION MW-7

K-31 Line Drip

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
yellowish brown, dry, loose, weak cementation, 50% medium sands.		16		SM		0.0	
					0%	NA	
		18					
					20%	2.2	
	- as above, minor iron oxide staining	20					
					0%	NA	
		22					8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
	- sampled K-31 Line Drip MW-7 - 22.5' collected at 1110 - color change at 23.5' to 2.54 5/3, light olive brown, minor black lens (1"), TPH odor, wet					105	
		24			50%		
						NA	
		26			0%		
						1.0	
		28			50%		
Very silty sand, 10YR 5/3, brown, mottled with 5Y 6/1, gray, medium stiff, moist, sands are very fine.				SM-ML			
	Total depth = 30' bgs	30					
		32					
		34					
		36					

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-7

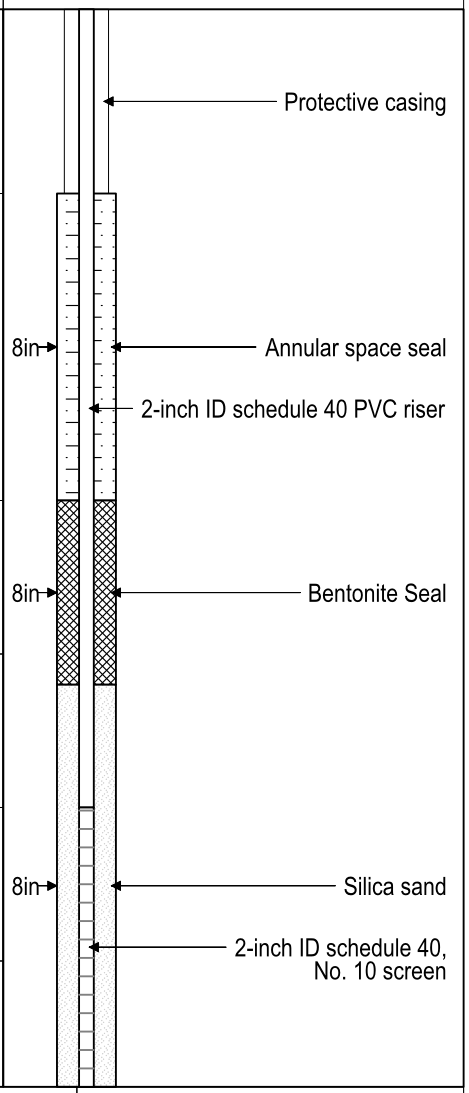
K-31 Line Drip

GEOLOGIST: Doug Burr	COMPLETION DATE: November 21, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6303.8
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6306.8
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 1964698.6 Easting 1279983.8

Groundwater seepage encountered at 22.5 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)
		0				NA
		2			0%	
		4				
Sandy silt, 10YR 5/4, yellowish brown, dry, stiff, moderate cementation, white veining (Fungus) present, very fine sands.	- Hand augered to 5' bgs (no sample recovered)	6		ML	50%	0.0
Silty sand, 10YR 5/6, yellowish brown, dry, medium dense - loose, weak cementation, predominantly fine sands.		8		SM	100%	0.0
		10			0%	NA
Clay, 10YR 4/4, dark yellowish brown, very stiff, moist, moderate cementation, medium plasticity.		12		CL	100%	0.5
		14		SM		

WELL CONSTRUCTION



MWH

LOG & RECORD OF WELL CONSTRUCTION MW-8

K-31 Line Drip

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
				SM		0.5	
		16			0%	NA	
Poorly graded sand, Gley 2.5/N, black, moist, loose, weak cementation, strong TPH odor, fine to medium sand.		18		SP		1640	
Very silty sand, 10YR 5/4, yellowish brown, moist, medium stiff, weak cementation, sands are very fine, TPH odor.				SM-ML	100%		
		20				NA	
					0%		
		22					8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
Poorly graded sand, 2.5Y 5/4, light olive brown, wet, loose, fine to medium sands, predominantly quartz.	- sampled K-31 Line Drip MW-8 - 22.5' collected at 1300			SP		35	
	- as above	24			100%		
		26				NA	
					0%		
	- as above, mottled with 2.5Y 6/6, olive brown	28				11	
	- minor clay lense at 29' (as described at 12.5')				100%		
	Total depth = 30' bgs	30					
		32					
		34					
		36					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-8

K-31 Line Drip

GEOLOGIST: Doug Burr	COMPLETION DATE: November 21, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6305.4
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6308.6
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 1964677.7 Easting 1279933.1

Groundwater seepage encountered at 20-22 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)
		0				NA
		2				
		4				
Sandy silt, 10YR 5/4, yellowish brown, dry, stiff, moderate cementation, white veining (Fungus) present, very fine sands.	- Hand augered to 5' bgs (no sample recovered)	6		ML	50%	0.0
		8			100%	2.1
Silty sand, 10YR 5/6, yellowish brown, dry, medium dense - loose, weak cementation, predominantly fine sands.		10		SM	0%	NA
	- as above, increase in silt	12			50%	1.4
		14				

WELL CONSTRUCTION

- Protective casing
- 8in — Annular space seal
- 2-inch ID schedule 40 PVC riser
- 8in — Bentonite Seal
- 8in — Silica sand
- 2-inch ID schedule 40, No. 10 screen

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-9

K-31 Line Drip

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	content and medium sand - clay lense at 15', 10YR 4/3, brown, some black mottling	16		SM	0%	1.4 NA	
	- sampled K-31 Line Drip MW-9 - 17.5' collected at 1530	18			100%	233	
	- As above, color change at 20' to Gley 2.5/N, black, strong TPH odor, (minor clay lense, approximately 2"), moist - wet.	20			20%	10.1	
	- color change to 10YR 5/4, yellowish brown, wet	22					8in → Silica sand 2-inch ID schedule 40, No. 10 screen
Very silty sand, 10YR 5/4, yellowish brown, moist, stiff, weak cementation, mottled with 10YR 5/1, gray, very fine sands.	- As above, increase in medium sands, predominantly quartz.	24		SM-ML	100%	3.9	
	- as above	26			0%	NA	
As described at 22.5', wet.		28			100%	2.4	
	Total depth = 30' bgs	30		SM			
		32					
		34					
		36					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-9

K-31 Line Drip

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: 560-43952-1
TestAmerica Sample Delivery Group: November 2013
Client Project/Site: K-31 Line Drip Soil Analysis

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

Attn: Cary Rubel

Authorized for release by:
12/17/2013 4:51:13 PM

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

LINKS

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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.

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: 560-43952-1

Laboratory: TestAmerica Corpus Christi

Narrative

Receipt

The samples were received on 11/25/2013 8:30 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.

Client Sample ID: K-31-MW-8-22.5'

Lab Sample ID: 560-43952-1

Date Collected: 11/21/13 13:00
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 81.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.86		0.22	0.043	mg/Kg	☼	11/26/13 15:23	11/27/13 06:08	100
Ethylbenzene	0.66		0.22	0.022	mg/Kg	☼	11/26/13 15:23	11/27/13 06:08	100
Toluene	2.7		0.22	0.022	mg/Kg	☼	11/26/13 15:23	11/27/13 06:08	100
Xylenes, Total	3.8		0.65	0.022	mg/Kg	☼	11/26/13 15:23	11/27/13 06:08	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*50 - 135*	*11/26/13 15:23*	*11/27/13 06:08*	*100*
4-Bromofluorobenzene (Surr)	*92*		*37 - 138*	*11/26/13 15:23*	*11/27/13 06:08*	*100*
Dibromofluoromethane (Surr)	*83*		*55 - 135*	*11/26/13 15:23*	*11/27/13 06:08*	*100*
1,2-Dichloroethane-d4 (Surr)	*112*		*60 - 145*	*11/26/13 15:23*	*11/27/13 06:08*	*100*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	320		61	1.5	mg/Kg	☼	12/10/13 12:19	12/10/13 12:24	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	260		62	6.2	mg/Kg	☼		12/02/13 13:49	1

Client Sample ID: K-31-MW-9-17.5'

Lab Sample ID: 560-43952-2

Date Collected: 11/21/13 15:30
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 88.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00023		0.0051	0.00023	mg/Kg	☼		11/29/13 15:08	1
Ethylbenzene	<0.00046		0.0051	0.00046	mg/Kg	☼		11/29/13 15:08	1
Toluene	<0.00091		0.0051	0.00091	mg/Kg	☼		11/29/13 15:08	1
Xylenes, Total	<0.00051		0.015	0.00051	mg/Kg	☼		11/29/13 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*65 - 139*		*11/29/13 15:08*	*1*
4-Bromofluorobenzene (Surr)	*93*		*61 - 136*		*11/29/13 15:08*	*1*
Dibromofluoromethane (Surr)	*104*		*50 - 136*		*11/29/13 15:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*65 - 152*		*11/29/13 15:08*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	78		56	1.3	mg/Kg	☼	12/10/13 12:19	12/10/13 12:24	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	290		56	5.6	mg/Kg	☼		12/02/13 13:49	1

Client Sample ID: K-31-MW-7-22.5'

Lab Sample ID: 560-43952-3

Date Collected: 11/21/13 11:10
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 83.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.022		0.11	0.022	mg/Kg	☼	11/26/13 15:23	11/27/13 06:33	50

Client Sample ID: K-31-MW-7-22.5'

Lab Sample ID: 560-43952-3
Date Collected: 11/21/13 11:10
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 83.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.20		0.11	0.011	mg/Kg	☼	11/26/13 15:23	11/27/13 06:33	50
Toluene	0.022	J	0.11	0.011	mg/Kg	☼	11/26/13 15:23	11/27/13 06:33	50
Xylenes, Total	0.98		0.32	0.011	mg/Kg	☼	11/26/13 15:23	11/27/13 06:33	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*50 - 135*	*11/26/13 15:23*	*11/27/13 06:33*	*50*
4-Bromofluorobenzene (Surr)	*90*		*37 - 138*	*11/26/13 15:23*	*11/27/13 06:33*	*50*
Dibromofluoromethane (Surr)	*85*		*55 - 135*	*11/26/13 15:23*	*11/27/13 06:33*	*50*
1,2-Dichloroethane-d4 (Surr)	*110*		*60 - 145*	*11/26/13 15:23*	*11/27/13 06:33*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	23	J	59	1.4	mg/Kg	☼	12/10/13 12:19	12/10/13 12:24	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		60	6.0	mg/Kg	☼		12/02/13 13:37	1

Client Sample ID: K-31-MW-6-17.5'

Lab Sample ID: 560-43952-4
Date Collected: 11/21/13 13:15
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 80.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.29		0.11	0.022	mg/Kg	☼	11/26/13 15:23	11/27/13 06:58	50
Ethylbenzene	0.038	J	0.11	0.011	mg/Kg	☼	11/26/13 15:23	11/27/13 06:58	50
Toluene	<0.011		0.11	0.011	mg/Kg	☼	11/26/13 15:23	11/27/13 06:58	50
Xylenes, Total	0.13	J	0.33	0.011	mg/Kg	☼	11/26/13 15:23	11/27/13 06:58	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*85*		*50 - 135*	*11/26/13 15:23*	*11/27/13 06:58*	*50*
4-Bromofluorobenzene (Surr)	*82*		*37 - 138*	*11/26/13 15:23*	*11/27/13 06:58*	*50*
Dibromofluoromethane (Surr)	*74*		*55 - 135*	*11/26/13 15:23*	*11/27/13 06:58*	*50*
1,2-Dichloroethane-d4 (Surr)	*95*		*60 - 145*	*11/26/13 15:23*	*11/27/13 06:58*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	<1.5		62	1.5	mg/Kg	☼	12/10/13 12:19	12/10/13 12:24	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1100		62	6.2	mg/Kg	☼		12/02/13 13:50	1

Client Sample ID: Trip Blank

Lab Sample ID: 560-43952-5
Date Collected: 11/21/13 00:00
Matrix: Water
Date Received: 11/25/13 08:30

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			11/30/13 17:45	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			11/30/13 17:45	1

Client: MWH Americas Inc
Project/Site: K-31 Line Drip Soil Analysis

TestAmerica Job ID: 560-43952-1
SDG: November 2013

Client Sample ID: Trip Blank
Date Collected: 11/21/13 00:00
Date Received: 11/25/13 08:30

Lab Sample ID: 560-43952-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<0.00030		0.0010	0.00030	mg/L			11/30/13 17:45	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			11/30/13 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*70 - 130*		*11/30/13 17:45*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*11/30/13 17:45*	*1*

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

Lab Sample ID: MB 560-95552/1-A
Matrix: Solid
Analysis Batch: 95568

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95552

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.020		0.10	0.020	mg/Kg		11/26/13 15:23	11/26/13 23:49	50
Ethylbenzene	<0.010		0.10	0.010	mg/Kg		11/26/13 15:23	11/26/13 23:49	50
Toluene	<0.010		0.10	0.010	mg/Kg		11/26/13 15:23	11/26/13 23:49	50
Xylenes, Total	<0.010		0.30	0.010	mg/Kg		11/26/13 15:23	11/26/13 23:49	50

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*50 - 135*	*11/26/13 15:23*	*11/26/13 23:49*	*50*
4-Bromofluorobenzene (Surr)	*96*		*37 - 138*	*11/26/13 15:23*	*11/26/13 23:49*	*50*
Dibromofluoromethane (Surr)	*95*		*55 - 135*	*11/26/13 15:23*	*11/26/13 23:49*	*50*
1,2-Dichloroethane-d4 (Surr)	*119*		*60 - 145*	*11/26/13 15:23*	*11/26/13 23:49*	*50*

Lab Sample ID: LCS 560-95552/2-A
Matrix: Solid
Analysis Batch: 95568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	2.50	2.47		mg/Kg		99	70 - 130
Ethylbenzene	2.50	2.35		mg/Kg		94	70 - 130
Toluene	2.50	2.33		mg/Kg		93	70 - 130
Xylenes, Total	5.00	4.67		mg/Kg		93	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*108*		*50 - 135*
4-Bromofluorobenzene (Surr)	*101*		*37 - 138*
Dibromofluoromethane (Surr)	*116*		*55 - 135*
1,2-Dichloroethane-d4 (Surr)	*118*		*60 - 145*

Lab Sample ID: MB 560-95650/8
Matrix: Solid
Analysis Batch: 95650

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			11/29/13 14:42	1
Ethylbenzene	<0.00045		0.0050	0.00045	mg/Kg			11/29/13 14:42	1
Toluene	<0.00090		0.0050	0.00090	mg/Kg			11/29/13 14:42	1
Xylenes, Total	<0.00050		0.015	0.00050	mg/Kg			11/29/13 14:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*65 - 139*		*11/29/13 14:42*	*1*
4-Bromofluorobenzene (Surr)	*102*		*61 - 136*		*11/29/13 14:42*	*1*
Dibromofluoromethane (Surr)	*103*		*50 - 136*		*11/29/13 14:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*65 - 152*		*11/29/13 14:42*	*1*

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

Lab Sample ID: LCS 560-95650/3
Matrix: Solid
Analysis Batch: 95650

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0492		mg/Kg		98	70 - 130
Ethylbenzene	0.0500	0.0506		mg/Kg		101	70 - 130
Toluene	0.0500	0.0496		mg/Kg		99	70 - 130
Xylenes, Total	0.100	0.102		mg/Kg		102	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*65 - 139*
4-Bromofluorobenzene (Surr)	*89*		*61 - 136*
Dibromofluoromethane (Surr)	*99*		*50 - 136*
1,2-Dichloroethane-d4 (Surr)	*90*		*65 - 152*

Lab Sample ID: 560-43952-2 MS
Matrix: Solid
Analysis Batch: 95650

Client Sample ID: K-31-MW-9-17.5'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00023		0.0504	0.0505		mg/Kg	☼	100	56 - 132
Ethylbenzene	<0.00046		0.0504	0.0479		mg/Kg	☼	95	48 - 138
Toluene	<0.00091		0.0504	0.0483		mg/Kg	☼	96	48 - 135
Xylenes, Total	<0.00051		0.101	0.0971		mg/Kg	☼	96	49 - 137

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*65 - 139*
4-Bromofluorobenzene (Surr)	*95*		*61 - 136*
Dibromofluoromethane (Surr)	*101*		*50 - 136*
1,2-Dichloroethane-d4 (Surr)	*102*		*65 - 152*

Lab Sample ID: 560-43952-2 MSD
Matrix: Solid
Analysis Batch: 95650

Client Sample ID: K-31-MW-9-17.5'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00023		0.0505	0.0475		mg/Kg	☼	94	56 - 132	6	40.0
Ethylbenzene	<0.00046		0.0505	0.0447		mg/Kg	☼	89	48 - 138	7	40.0
Toluene	<0.00091		0.0505	0.0441		mg/Kg	☼	87	48 - 135	9	40.0
Xylenes, Total	<0.00051		0.101	0.0974		mg/Kg	☼	96	49 - 137	0	40.0

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*65 - 139*
4-Bromofluorobenzene (Surr)	*118*		*61 - 136*
Dibromofluoromethane (Surr)	*99*		*50 - 136*
1,2-Dichloroethane-d4 (Surr)	*97*		*65 - 152*

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

Lab Sample ID: MB 560-95666/8
Matrix: Water
Analysis Batch: 95666

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			11/30/13 13:33	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			11/30/13 13:33	1
Toluene	<0.00030		0.0010	0.00030	mg/L			11/30/13 13:33	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			11/30/13 13:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*70 - 130*		*11/30/13 13:33*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*11/30/13 13:33*	*1*

Lab Sample ID: LCS 560-95666/3
Matrix: Water
Analysis Batch: 95666

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		100	70 - 130
Ethylbenzene	0.0250	0.0257		mg/L		103	70 - 130
Toluene	0.0250	0.0246		mg/L		98	70 - 130
Xylenes, Total	0.0500	0.0518		mg/L		104	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Method: 9071B - HEM and SGT-HEM

Lab Sample ID: MB 600-122471/1-A
Matrix: Solid
Analysis Batch: 122472

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 122471

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	<1.2		50	1.2	mg/Kg		12/10/13 14:17	12/10/13 14:17	1

Lab Sample ID: LCS 600-122471/2-A
Matrix: Solid
Analysis Batch: 122472

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 122471

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
TPH (1664A)	2000	1960		mg/Kg		98	70 - 130

Lab Sample ID: LCSD 600-122471/17-A
Matrix: Solid
Analysis Batch: 122472

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 122471

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
TPH (1664A)	2000	1950		mg/Kg		97	70 - 130	1	30

Method: 9251 - Chloride

Lab Sample ID: MB 560-95714/1-A
Matrix: Solid
Analysis Batch: 95702

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.89	J	5.0	0.50	mg/Kg			12/02/13 13:31	1

Lab Sample ID: LCS 560-95714/2-A
Matrix: Solid
Analysis Batch: 95702

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			150	145		mg/Kg		97	85 - 115		

GC/MS VOA

Prep Batch: 95552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Total/NA	Solid	5030B	
560-43952-3	K-31-MW-7-22.5'	Total/NA	Solid	5030B	
560-43952-4	K-31-MW-6-17.5'	Total/NA	Solid	5030B	
LCS 560-95552/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 560-95552/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 95568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Total/NA	Solid	8260B	95552
560-43952-3	K-31-MW-7-22.5'	Total/NA	Solid	8260B	95552
560-43952-4	K-31-MW-6-17.5'	Total/NA	Solid	8260B	95552
LCS 560-95552/2-A	Lab Control Sample	Total/NA	Solid	8260B	95552
MB 560-95552/1-A	Method Blank	Total/NA	Solid	8260B	95552

Analysis Batch: 95650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-2	K-31-MW-9-17.5'	Total/NA	Solid	8260B	
560-43952-2 MS	K-31-MW-9-17.5'	Total/NA	Solid	8260B	
560-43952-2 MSD	K-31-MW-9-17.5'	Total/NA	Solid	8260B	
LCS 560-95650/3	Lab Control Sample	Total/NA	Solid	8260B	
MB 560-95650/8	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 95666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-5	Trip Blank	Total/NA	Water	8260B	
LCS 560-95666/3	Lab Control Sample	Total/NA	Water	8260B	
MB 560-95666/8	Method Blank	Total/NA	Water	8260B	

General Chemistry

Analysis Batch: 95505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Total/NA	Solid	Moisture	
560-43952-2	K-31-MW-9-17.5'	Total/NA	Solid	Moisture	
560-43952-3	K-31-MW-7-22.5'	Total/NA	Solid	Moisture	
560-43952-4	K-31-MW-6-17.5'	Total/NA	Solid	Moisture	

Analysis Batch: 95702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Soluble	Solid	9251	95714
560-43952-2	K-31-MW-9-17.5'	Soluble	Solid	9251	95714
560-43952-3	K-31-MW-7-22.5'	Soluble	Solid	9251	95714
560-43952-4	K-31-MW-6-17.5'	Soluble	Solid	9251	95714
LCS 560-95714/2-A	Lab Control Sample	Soluble	Solid	9251	95714
MB 560-95714/1-A	Method Blank	Soluble	Solid	9251	95714

Leach Batch: 95714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Soluble	Solid	DI Leach	
560-43952-2	K-31-MW-9-17.5'	Soluble	Solid	DI Leach	

General Chemistry (Continued)

Leach Batch: 95714 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-3	K-31-MW-7-22.5'	Soluble	Solid	DI Leach	
560-43952-4	K-31-MW-6-17.5'	Soluble	Solid	DI Leach	
LCS 560-95714/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 560-95714/1-A	Method Blank	Soluble	Solid	DI Leach	

Prep Batch: 122471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Total/NA	Solid	9071B	
560-43952-2	K-31-MW-9-17.5'	Total/NA	Solid	9071B	
560-43952-3	K-31-MW-7-22.5'	Total/NA	Solid	9071B	
560-43952-4	K-31-MW-6-17.5'	Total/NA	Solid	9071B	
LCS 600-122471/2-A	Lab Control Sample	Total/NA	Solid	9071B	
LCSD 600-122471/17-A	Lab Control Sample Dup	Total/NA	Solid	9071B	
MB 600-122471/1-A	Method Blank	Total/NA	Solid	9071B	

Analysis Batch: 122472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43952-1	K-31-MW-8-22.5'	Total/NA	Solid	9071B	122471
560-43952-2	K-31-MW-9-17.5'	Total/NA	Solid	9071B	122471
560-43952-3	K-31-MW-7-22.5'	Total/NA	Solid	9071B	122471
560-43952-4	K-31-MW-6-17.5'	Total/NA	Solid	9071B	122471
LCS 600-122471/2-A	Lab Control Sample	Total/NA	Solid	9071B	122471
LCSD 600-122471/17-A	Lab Control Sample Dup	Total/NA	Solid	9071B	122471
MB 600-122471/1-A	Method Blank	Total/NA	Solid	9071B	122471

Client Sample ID: K-31-MW-8-22.5'

Lab Sample ID: 560-43952-1
Date Collected: 11/21/13 13:00
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			95552	11/26/13 15:23	ANT	TAL CC
Total/NA	Analysis	8260B		100	95568	11/27/13 06:08	RJT	TAL CC
Total/NA	Analysis	Moisture		1	95505	11/25/13 14:56	DRB	TAL CC
Soluble	Leach	DI Leach			95714	12/02/13 11:00	LPO	TAL CC
Soluble	Analysis	9251		1	95702	12/02/13 13:49	LPO	TAL CC
Total/NA	Prep	9071B			122471	12/10/13 12:19	FNC	TAL HOU
Total/NA	Analysis	9071B		1	122472	12/10/13 12:24	FNC	TAL HOU

Client Sample ID: K-31-MW-9-17.5'

Lab Sample ID: 560-43952-2
Date Collected: 11/21/13 15:30
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 88.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	95650	11/29/13 15:08	RJT	TAL CC
Total/NA	Analysis	Moisture		1	95505	11/25/13 14:56	DRB	TAL CC
Soluble	Leach	DI Leach			95714	12/02/13 11:00	LPO	TAL CC
Soluble	Analysis	9251		1	95702	12/02/13 13:49	LPO	TAL CC
Total/NA	Prep	9071B			122471	12/10/13 12:19	FNC	TAL HOU
Total/NA	Analysis	9071B		1	122472	12/10/13 12:24	FNC	TAL HOU

Client Sample ID: K-31-MW-7-22.5'

Lab Sample ID: 560-43952-3
Date Collected: 11/21/13 11:10
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 83.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			95552	11/26/13 15:23	ANT	TAL CC
Total/NA	Analysis	8260B		50	95568	11/27/13 06:33	RJT	TAL CC
Total/NA	Analysis	Moisture		1	95505	11/25/13 14:56	DRB	TAL CC
Soluble	Leach	DI Leach			95714	12/02/13 11:00	LPO	TAL CC
Soluble	Analysis	9251		1	95702	12/02/13 13:37	LPO	TAL CC
Total/NA	Prep	9071B			122471	12/10/13 12:19	FNC	TAL HOU
Total/NA	Analysis	9071B		1	122472	12/10/13 12:24	FNC	TAL HOU

Client Sample ID: K-31-MW-6-17.5'

Lab Sample ID: 560-43952-4
Date Collected: 11/21/13 13:15
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			95552	11/26/13 15:23	ANT	TAL CC
Total/NA	Analysis	8260B		50	95568	11/27/13 06:58	RJT	TAL CC
Total/NA	Analysis	Moisture		1	95505	11/25/13 14:56	DRB	TAL CC
Soluble	Leach	DI Leach			95714	12/02/13 11:00	LPO	TAL CC

Lab Chronicle

Client: MWH Americas Inc
Project/Site: K-31 Line Drip Soil Analysis

TestAmerica Job ID: 560-43952-1
SDG: November 2013

Client Sample ID: K-31-MW-6-17.5'

Lab Sample ID: 560-43952-4

Date Collected: 11/21/13 13:15
Matrix: Solid
Date Received: 11/25/13 08:30
Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Analysis	9251		1	95702	12/02/13 13:50	LPO	TAL CC
Total/NA	Prep	9071B			122471	12/10/13 12:19	FNC	TAL HOU
Total/NA	Analysis	9071B		1	122472	12/10/13 12:24	FNC	TAL HOU

Client Sample ID: Trip Blank

Lab Sample ID: 560-43952-5

Date Collected: 11/21/13 00:00
Matrix: Water
Date Received: 11/25/13 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	95666	11/30/13 17:45	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: K-31 Line Drip Soil Analysis

TestAmerica Job ID: 560-43952-1
SDG: November 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

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	08-04-14
Louisiana	NELAP	6	30643	06-30-14
Oklahoma	State Program	6	1309	08-31-14
Texas	NELAP	6	T104704223	10-31-14
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	TX00083	10-31-14

Method Summary

Client: MWH Americas Inc
Project/Site: K-31 Line Drip Soil Analysis

TestAmerica Job ID: 560-43952-1
SDG: November 2013

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: K-31 Line Drip Soil Analysis

TestAmerica Job ID: 560-43952-1
SDG: November 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-43952-1	K-31-MW-8-22.5'	Solid	11/21/13 13:00	11/25/13 08:30
560-43952-2	K-31-MW-9-17.5'	Solid	11/21/13 15:30	11/25/13 08:30
560-43952-3	K-31-MW-7-22.5'	Solid	11/21/13 11:10	11/25/13 08:30
560-43952-4	K-31-MW-6-17.5'	Solid	11/21/13 13:15	11/25/13 08:30
560-43952-5	Trip Blank	Water	11/21/13 00:00	11/25/13 08:30

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: Tony Bow	Lab PM: Kellogg, Timothy L.	Carrier Tracking No(s):	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
Company: MWH Americas Inc				Job #: Loc: 560 43952
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: K-31 Line Drip	SSOW#:			

Analysis Requested

Preservation Codes: A - HCL; B - NaOH; C - Zn Acet.; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; P - Na2O4S; 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		
K-31-MW-8-22.5'	112113	1300	C	Solid			X	X	X			
K-31-MW-9-17.5'	112113	1530	C	Solid			X	X	X			
K-31-MW-7-22.5'	112213	1110	C	Solid			X	X	X			
K-31-MW-6-17.5'	112213	1315	C	Solid			X	X	X			
				Solid								
				Solid								
				Solid								
Trip Blank				Water						X		

560-43952 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: FED-EX 8995 2775 7381

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		11-23-13 1200	MWH		11-25-13 @ 0830	TACC
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: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.5°C / 2.1°C IR4

12/17/2013

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-43952-1
SDG Number: November 2013

Login Number: 43952
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.	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").	N/A	
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: 560-43952-1
SDG Number: November 2013

Login Number: 43952
List Number: 1
Creator: Lopez, Sandro R

List Source: TestAmerica Houston
List Creation: 11/26/13 11:04 AM

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	1.2
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: 560-40548-1
TestAmerica Sample Delivery Group: June 2013
Client Project/Site: K-31

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

Attn: Mr. Daniel Wade

Authorized for release by:
6/19/2013 9:16:24 AM

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)
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: K-31

TestAmerica Job ID: 560-40548-1
SDG: June 2013

Job ID: 560-40548-1

Laboratory: TestAmerica Corpus Christi

Narrative

Receipt

The samples were received on 6/12/2013 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C. No analytical or quality issues were noted.

Detection Summary

Client: MWH Americas Inc
Project/Site: K-31

TestAmerica Job ID: 560-40548-1
SDG: June 2013

Client Sample ID: MW-1 — Lab Sample ID: 560-40548-1

No Detections.

Client Sample ID: MW-2 — Lab Sample ID: 560-40548-2

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 560-40548-3

No Detections.

Client Sample ID: MW-5 — Lab Sample ID: 560-40548-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0017		0.0010	0.00014	mg/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1

Lab Sample ID: 560-40548-1

Date Collected: 06/08/13 14:35

Matrix: Water

Date Received: 06/12/13 10:00

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			06/16/13 11:04	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/16/13 11:04	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/16/13 11:04	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/16/13 11:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*06/16/13 11:04*	*1*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*06/16/13 11:04*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*06/16/13 11:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*06/16/13 11:04*	*1*

Client Sample ID: MW-2

Lab Sample ID: 560-40548-2

Date Collected: 06/08/13 14:30

Matrix: Water

Date Received: 06/12/13 10:00

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			06/13/13 19:40	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/13/13 19:40	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/13/13 19:40	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/13/13 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*06/13/13 19:40*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*06/13/13 19:40*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*06/13/13 19:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*70 - 130*		*06/13/13 19:40*	*1*

Client Sample ID: MW-4

Lab Sample ID: 560-40548-3

Date Collected: 06/08/13 14:45

Matrix: Water

Date Received: 06/12/13 10:00

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			06/16/13 11:29	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/16/13 11:29	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/16/13 11:29	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/16/13 11:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*70 - 130*		*06/16/13 11:29*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*06/16/13 11:29*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*06/16/13 11:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*06/16/13 11:29*	*1*

Client: MWH Americas Inc
Project/Site: K-31

TestAmerica Job ID: 560-40548-1
SDG: June 2013

Client Sample ID: MW-5
Date Collected: 06/08/13 15:00
Date Received: 06/12/13 10:00

Lab Sample ID: 560-40548-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0017**		0.0010	0.00014	mg/L			06/16/13 11:55	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/16/13 11:55	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/16/13 11:55	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/16/13 11:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*06/16/13 11:55*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*06/16/13 11:55*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*06/16/13 11:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*06/16/13 11:55*	*1*

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

Lab Sample ID: MB 560-89039/9
Matrix: Water
Analysis Batch: 89039

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			06/13/13 11:48	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/13/13 11:48	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/13/13 11:48	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/13/13 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/13/13 11:48*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*06/13/13 11:48*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*06/13/13 11:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*70 - 130*		*06/13/13 11:48*	*1*

Lab Sample ID: LCS 560-89039/3
Matrix: Water
Analysis Batch: 89039

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	0.0246		mg/L		98	70 - 130
Ethylbenzene	0.0250	0.0247		mg/L		99	70 - 130
Toluene	0.0250	0.0246		mg/L		99	70 - 130
Xylenes, Total	0.0750	0.0761		mg/L		102	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*

Lab Sample ID: MB 560-89164/8
Matrix: Water
Analysis Batch: 89164

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			06/16/13 09:48	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/16/13 09:48	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/16/13 09:48	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/16/13 09:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*06/16/13 09:48*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*06/16/13 09:48*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*06/16/13 09:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*06/16/13 09:48*	*1*

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

Lab Sample ID: LCS 560-89164/3
Matrix: Water
Analysis Batch: 89164

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	0.0281		mg/L		112	70 - 130		
Ethylbenzene			0.0250	0.0246		mg/L		98	70 - 130		
Toluene			0.0250	0.0277		mg/L		111	70 - 130		
Xylenes, Total			0.0750	0.0741		mg/L		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*70 - 130*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
Dibromofluoromethane (Surr)	*105*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*

Lab Chronicle

Client: MWH Americas Inc
Project/Site: K-31

TestAmerica Job ID: 560-40548-1
SDG: June 2013

Client Sample ID: MW-1
Lab Sample ID: 560-40548-1

Date Collected: 06/08/13 14:35
Matrix: Water
Date Received: 06/12/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89164	06/16/13 11:04	RT	TAL CC

Client Sample ID: MW-2
Lab Sample ID: 560-40548-2

Date Collected: 06/08/13 14:30
Matrix: Water
Date Received: 06/12/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89039	06/13/13 19:40	MHR	TAL CC

Client Sample ID: MW-4
Lab Sample ID: 560-40548-3

Date Collected: 06/08/13 14:45
Matrix: Water
Date Received: 06/12/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89164	06/16/13 11:29	RT	TAL CC

Client Sample ID: MW-5
Lab Sample ID: 560-40548-4

Date Collected: 06/08/13 15:00
Matrix: Water
Date Received: 06/12/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	89164	06/16/13 11:55	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: K-31

TestAmerica Job ID: 560-40548-1
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: K-31

TestAmerica Job ID: 560-40548-1
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: K-31

TestAmerica Job ID: 560-40548-1
SDG: June 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-40548-1	MW-1	Water	06/08/13 14:35	06/12/13 10:00
560-40548-2	MW-2	Water	06/08/13 14:30	06/12/13 10:00
560-40548-3	MW-4	Water	06/08/13 14:45	06/12/13 10:00
560-40548-4	MW-5	Water	06/08/13 15:00	06/12/13 10:00

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

No. [illegible]

CHAIN OF CUSTODY RECORD

Loc: 560

40548

560-40548 Chain of Custody

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	MWH	PROJECT NAME/NUMBER:	K-31
SEND REPORT TO:	Daniel Wade	BILLING INFORMATION	
ADDRESS:	1801 California St. Suite 2900 Denver, CO 80202	BILL TO:	Kinder Morgan
		ADDRESS:	Houston, Tx
PHONE:	303-291-2250	PHONE:	
FAX:		FAX:	PO NO:

SEAL INTACT: Yes
TEMP C: 3.3C
CORR TEMP C: 2.5C
IR GUN ID: 4
INITIAL/DATE: VM DLE 6/13

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CO	8260	REMARKS/PRECAUTIONS.
	mw-1	6/8/13	1435	GW	VOA	HCL	3	X	
	mw-2	6/8/13	1430	GW	VOA	None	3	X	* NOT Preserved *
	mw-4	6/8/13	1445	GW	VOA	HCL	3	X	
	mw-5	6/8/13	1500	GW	VOA	HCL	3	X	

SAMPLER: Daniel Wade SHIPMENT METHOD: FedEX AIRBILL NO.: 8022 4442 6456

REQUIRED TURNAROUND: ☒ 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 ~~6/10/13~~ 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:			SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY:		TIME	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: 560-40548-1
SDG Number: June 2013

Login Number: 40548
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

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ANALYTICAL REPORT

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

TestAmerica Job ID: 560-42536-1
TestAmerica Sample Delivery Group: September 2013
Client Project/Site: K-31 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 11:07:40 AM
Lindy Maingot, Project Manager I
lindy.maingot@testamericainc.com

Designee for

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)
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)

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-42536-1
SDG: September 2013

Job ID: 560-42536-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-42536-1

Comments
No additional comments.

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

Except:

The following sample was listed on the Chain of Custody (COC); however, no sample was received: MW-3 (560-42536-3). SX 3 was not received

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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-42536-1
SDG: September 2013

Client Sample ID: MW-1 — Lab Sample ID: 560-42536-1

No Detections.

Client Sample ID: MW-2 — Lab Sample ID: 560-42536-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.00024	J	0.0010	0.00014	mg/L	1		8260B	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 560-42536-4

No Detections.

Client Sample ID: MW-5 — Lab Sample ID: 560-42536-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0016		0.0010	0.00014	mg/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1

Lab Sample ID: 560-42536-1

Date Collected: 09/10/13 11:40
Matrix: Water
Date Received: 09/14/13 10:05

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			09/18/13 17:12	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 17:12	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 17:12	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/18/13 17:12*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*09/18/13 17:12*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*09/18/13 17:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 140*		*09/18/13 17:12*	*1*

Client Sample ID: MW-2

Lab Sample ID: 560-42536-2

Date Collected: 09/10/13 11:30
Matrix: Water
Date Received: 09/14/13 10:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.00024**	**J**	0.0010	0.00014	mg/L			09/18/13 17:37	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 17:37	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 17:37	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/18/13 17:37*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*09/18/13 17:37*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*09/18/13 17:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 140*		*09/18/13 17:37*	*1*

Client Sample ID: MW-4

Lab Sample ID: 560-42536-4

Date Collected: 09/10/13 11:25
Matrix: Water
Date Received: 09/14/13 10:05

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			09/18/13 18:02	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 18:02	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 18:02	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/18/13 18:02*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*09/18/13 18:02*	*1*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*09/18/13 18:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 140*		*09/18/13 18:02*	*1*

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-42536-1
SDG: September 2013

Client Sample ID: MW-5
Date Collected: 09/10/13 11:20
Date Received: 09/14/13 10:05

Lab Sample ID: 560-42536-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0016**		0.0010	0.00014	mg/L			09/18/13 18:27	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 18:27	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 18:27	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/18/13 18:27*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*09/18/13 18:27*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*09/18/13 18:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 140*		*09/18/13 18:27*	*1*

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

Lab Sample ID: MB 560-92870/8
Matrix: Water
Analysis Batch: 92870

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 12:35	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 12:35	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 12:35	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 12:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/18/13 12:35*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*09/18/13 12:35*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*09/18/13 12:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 140*		*09/18/13 12:35*	*1*

Lab Sample ID: LCS 560-92870/3
Matrix: Water
Analysis Batch: 92870

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	0.0239		mg/L		96	70 - 130
Ethylbenzene	0.0250	0.0247		mg/L		99	70 - 130
Toluene	0.0250	0.0243		mg/L		97	70 - 130
Xylenes, Total	0.0750	0.0731		mg/L		97	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 140*

Certification Summary

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-42536-1
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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-42536-1
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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-42536-1
SDG: September 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-42536-1	MW-1	Water	09/10/13 11:40	09/14/13 10:05
560-42536-2	MW-2	Water	09/10/13 11:30	09/14/13 10:05
560-42536-4	MW-4	Water	09/10/13 11:25	09/14/13 10:05
560-42536-5	MW-5	Water	09/10/13 11:20	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 Custody

560-42536 Chain of Custody

TestAmerica

Loc: 560
42536

Client Information	Sampler: DAW	Lab PM: Kellogg, Timothy	COC No: 560-10718-1157
Client Contact: Mr. Daniel Wade	Phone: 303-917-2625	E-Mail: tim.kellogg@testamericainc.com	Page: Page _ of _
Company: MWH Americas Inc			Job #:
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: K-31	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - 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)	8260B - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-1	9/10/13	1140	G	Water			X		
MW-2	9/10/13	1130	G	Water			X		
MW-3	9/10/13	1135	G	Water			X		
MW-4	9/10/13	1125	G	Water			X		
MW-5	9/10/13	1120	G	Water			X		
				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: Fedex Std

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	9/13/13 1200			9/14/13 1005	TMCA
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: Coolers 1.4 1K4

Page 11 of 12

10/3/2013

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-42536-1
SDG Number: September 2013

Login Number: 42536
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: 560-44358-1
TestAmerica Sample Delivery Group: December 2013
Client Project/Site: K-31 Groundwater Analysis

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 7:33:57 PM

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Qualifiers

GC 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)

Job ID: 560-44358-1

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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

Client Sample ID: MW-1 — Lab Sample ID: 560-44358-1

No Detections.

Client Sample ID: MW-2 — Lab Sample ID: 560-44358-2

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 560-44358-3

No Detections.

Client Sample ID: MW-5 — Lab Sample ID: 560-44358-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.00070	J	0.0020	0.00020	mg/L	1		8021B	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 560-44358-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0026		0.0020	0.00020	mg/L	1		8021B	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 560-44358-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.0072		0.0020	0.00038	mg/L	1		8021B	Total/NA
Ethylbenzene	0.014		0.0020	0.00020	mg/L	1		8021B	Total/NA
Xylenes, Total	0.062		0.0020	0.00065	mg/L	1		8021B	Total/NA

Client Sample ID: MW-8 — Lab Sample ID: 560-44358-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.025		0.0020	0.00020	mg/L	1		8021B	Total/NA
Toluene	0.018		0.0020	0.00038	mg/L	1		8021B	Total/NA
Ethylbenzene	0.0016	J	0.0020	0.00020	mg/L	1		8021B	Total/NA
Xylenes, Total	0.011		0.0020	0.00065	mg/L	1		8021B	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 560-44358-8

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: 560-44358-9

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1

Lab Sample ID: 560-44358-1

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

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 18:07	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/19/13 18:07	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 18:07	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/19/13 18:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*58 - 129*		*12/19/13 18:07*	*1*
Trifluorotoluene (Surr)	*88*		*54 - 130*		*12/19/13 18:07*	*1*

Client Sample ID: MW-2

Lab Sample ID: 560-44358-2

Date Collected: 12/11/13 10:50
Matrix: Water
Date Received: 12/17/13 10:40

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 18:34	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/19/13 18:34	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 18:34	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/19/13 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*58 - 129*		*12/19/13 18:34*	*1*
Trifluorotoluene (Surr)	*88*		*54 - 130*		*12/19/13 18:34*	*1*

Client Sample ID: MW-4

Lab Sample ID: 560-44358-3

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

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 19:01	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/19/13 19:01	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 19:01	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/19/13 19:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*58 - 129*		*12/19/13 19:01*	*1*
Trifluorotoluene (Surr)	*90*		*54 - 130*		*12/19/13 19:01*	*1*

Client Sample ID: MW-5

Lab Sample ID: 560-44358-4

Date Collected: 12/11/13 10:20
Matrix: Water
Date Received: 12/17/13 10:40

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.00070**	**J**	0.0020	0.00020	mg/L			12/19/13 19:29	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/19/13 19:29	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 19:29	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/19/13 19:29	1

Client Sample ID: MW-5

Lab Sample ID: 560-44358-4

Date Collected: 12/11/13 10:20

Matrix: Water

Date Received: 12/17/13 10:40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*83*		*58 - 129*		*12/19/13 19:29*	*1*
Trifluorotoluene (Surr)	*87*		*54 - 130*		*12/19/13 19:29*	*1*

Client Sample ID: MW-6

Lab Sample ID: 560-44358-5

Date Collected: 12/11/13 10:25

Matrix: Water

Date Received: 12/17/13 10:40

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0026**		0.0020	0.00020	mg/L			12/19/13 19:56	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/19/13 19:56	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 19:56	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/19/13 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*84*		*58 - 129*		*12/19/13 19:56*	*1*
Trifluorotoluene (Surr)	*87*		*54 - 130*		*12/19/13 19:56*	*1*

Client Sample ID: MW-7

Lab Sample ID: 560-44358-6

Date Collected: 12/11/13 10:30

Matrix: Water

Date Received: 12/17/13 10:40

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 20:23	1
Toluene	**0.0072**		0.0020	0.00038	mg/L			12/19/13 20:23	1
Ethylbenzene	**0.014**		0.0020	0.00020	mg/L			12/19/13 20:23	1
Xylenes, Total	**0.062**		0.0020	0.00065	mg/L			12/19/13 20:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*87*		*58 - 129*		*12/19/13 20:23*	*1*
Trifluorotoluene (Surr)	*90*		*54 - 130*		*12/19/13 20:23*	*1*

Client Sample ID: MW-8

Lab Sample ID: 560-44358-7

Date Collected: 12/11/13 11:00

Matrix: Water

Date Received: 12/17/13 10:40

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.025**		0.0020	0.00020	mg/L			12/19/13 20:50	1
Toluene	**0.018**		0.0020	0.00038	mg/L			12/19/13 20:50	1
Ethylbenzene	**0.0016**	**J**	0.0020	0.00020	mg/L			12/19/13 20:50	1
Xylenes, Total	**0.011**		0.0020	0.00065	mg/L			12/19/13 20:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*83*		*58 - 129*		*12/19/13 20:50*	*1*
Trifluorotoluene (Surr)	*88*		*54 - 130*		*12/19/13 20:50*	*1*

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

Client Sample ID: MW-9

Lab Sample ID: 560-44358-8

Date Collected: 12/11/13 10:35
Matrix: Water
Date Received: 12/17/13 10:40

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/20/13 10:52	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/20/13 10:52	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/20/13 10:52	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/20/13 10:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*58 - 129*		*12/20/13 10:52*	*1*
Trifluorotoluene (Surr)	*83*		*54 - 130*		*12/20/13 10:52*	*1*

Client Sample ID: Trip Blank

Lab Sample ID: 560-44358-9

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

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/20/13 11:27	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/20/13 11:27	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/20/13 11:27	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/20/13 11:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*58 - 129*		*12/20/13 11:27*	*1*
Trifluorotoluene (Surr)	*84*		*54 - 130*		*12/20/13 11:27*	*1*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 560-96379/5
Matrix: Water
Analysis Batch: 96379

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 09:53	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/19/13 09:53	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/19/13 09:53	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/19/13 09:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*58 - 129*		*12/19/13 09:53*	*1*
Trifluorotoluene (Surr)	*86*		*54 - 130*		*12/19/13 09:53*	*1*

Lab Sample ID: LCS 560-96379/4
Matrix: Water
Analysis Batch: 96379

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	0.0364		mg/L		91	70 - 130
Toluene	0.0400	0.0361		mg/L		90	70 - 130
Ethylbenzene	0.0400	0.0367		mg/L		92	70 - 130
Xylenes, Total	0.120	0.108		mg/L		90	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*58 - 129*
Trifluorotoluene (Surr)	*89*		*54 - 130*

Lab Sample ID: MB 560-96456/5
Matrix: Water
Analysis Batch: 96456

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00020		0.0020	0.00020	mg/L			12/20/13 10:21	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/20/13 10:21	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/20/13 10:21	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/20/13 10:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*58 - 129*		*12/20/13 10:21*	*1*
Trifluorotoluene (Surr)	*85*		*54 - 130*		*12/20/13 10:21*	*1*

Lab Sample ID: LCS 560-96456/4
Matrix: Water
Analysis Batch: 96456

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	0.0350		mg/L		87	70 - 130
Toluene	0.0400	0.0350		mg/L		87	70 - 130
Ethylbenzene	0.0400	0.0356		mg/L		89	70 - 130
Xylenes, Total	0.120	0.104		mg/L		87	70 - 130

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

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

Lab Sample ID: LCS 560-96456/4
Matrix: Water
Analysis Batch: 96456

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*89*		*58 - 129*
Trifluorotoluene (Surr)	*86*		*54 - 130*

Lab Chronicle

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

Client Sample ID: MW-1
Lab Sample ID: 560-44358-1
Date Collected: 12/11/13 10:40
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	8021B		1	96379	12/19/13 18:07	RQH	TAL CC

Client Sample ID: MW-2
Lab Sample ID: 560-44358-2
Date Collected: 12/11/13 10:50
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	8021B		1	96379	12/19/13 18:34	RQH	TAL CC

Client Sample ID: MW-4
Lab Sample ID: 560-44358-3
Date Collected: 12/11/13 10:15
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	8021B		1	96379	12/19/13 19:01	RQH	TAL CC

Client Sample ID: MW-5
Lab Sample ID: 560-44358-4
Date Collected: 12/11/13 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	8021B		1	96379	12/19/13 19:29	RQH	TAL CC

Client Sample ID: MW-6
Lab Sample ID: 560-44358-5
Date Collected: 12/11/13 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	8021B		1	96379	12/19/13 19:56	RQH	TAL CC

Client Sample ID: MW-7
Lab Sample ID: 560-44358-6
Date Collected: 12/11/13 10:30
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	8021B		1	96379	12/19/13 20:23	RQH	TAL CC

Lab Chronicle

Client: MWH Americas Inc
Project/Site: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

Client Sample ID: MW-8

Lab Sample ID: 560-44358-7

Date Collected: 12/11/13 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	8021B		1	96379	12/19/13 20:50	RQH	TAL CC

Client Sample ID: MW-9

Lab Sample ID: 560-44358-8

Date Collected: 12/11/13 10:35
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	8021B		1	96456	12/20/13 10:52	RQH	TAL CC

Client Sample ID: Trip Blank

Lab Sample ID: 560-44358-9

Date Collected: 12/11/13 00:00
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	8021B		1	96456	12/20/13 11:27	RQH	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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	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: K-31 Groundwater Analysis

TestAmerica Job ID: 560-44358-1
SDG: December 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-44358-1	MW-1	Water	12/11/13 10:40	12/17/13 10:40
560-44358-2	MW-2	Water	12/11/13 10:50	12/17/13 10:40
560-44358-3	MW-4	Water	12/11/13 10:15	12/17/13 10:40
560-44358-4	MW-5	Water	12/11/13 10:20	12/17/13 10:40
560-44358-5	MW-6	Water	12/11/13 10:25	12/17/13 10:40
560-44358-6	MW-7	Water	12/11/13 10:30	12/17/13 10:40
560-44358-7	MW-8	Water	12/11/13 11:00	12/17/13 10:40
560-44358-8	MW-9	Water	12/11/13 10:35	12/17/13 10:40
560-44358-9	Trip Blank	Water	12/11/13 00:00	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 #: 44358
Address: 1801 California Street Suite 2900	Due Date Requested:			Loc: 560
City: Denver	TAT Requested (days): STANDARD			
State, Zip: CO, 80202	PO #: Purchase Order not required			
Phone: 713-420-3414(Tel)	WO #: TWO # C-STLI-			
Email: christopher.c.lee@mwhglobal.com ~~Daniel.A.Wade@us.mwhglobal.com~~	Project #: 56000058			
Project Name: San Juan River Basin Pit Sites	SSOW#:			
Site: K-31				

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Ace
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
P - Na2O4S
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)	8260B - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-1	12/11/13	1040	G	Water			X		
MW-2	12/11/13	1050	G	Water			X		
~~MW-3~~ CCL	~~12/11/13~~	~~1045~~	G	Water			X		NOT SAMPLED
MW-4	12/11/13	1015	G	Water			X		
MW-5	12/11/13	1020	G	Water			X		
MW-6	12/11/13	1025	G	Water			X		
MW-7	12/11/13	1030	G	Water			X		
MW-8	12/11/13	1100	G	Water			X		
MW-9	12/11/13	1035	G	Water			X		
				Water					
Trip Blank				Water					

560-44358 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
Chris Lee	12/16/2013 0900		MWH	12-17-13 10:40	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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

Page 15 of 16

12/30/2013

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-44358-1
SDG Number: December 2013

Login Number: 44358
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	