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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

Johnston Fed #4
Meter Code: 70194
T31N, R09W, Sec 33, Unit H

SITE DETAILS

Site Location: Latitude: 36.862800 N, Longitude: -107.771983 W
Land Type: State
Operator: Burlington Resources

SITE BACKGROUND

- **Site Assessment:** 8/94
- **Excavation:** 9/94 (60 cy)

Johnston Fed #4 (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 Burlington Resources Oil & Gas Company LP and is active.

The Site is located on State/Fee land. Various site investigations have occurred since 1994. Monitoring wells were installed in 1995 (MW-1, MW-2, MW-3), 2006 (MW-4, TMW-5), and 2013 (MW-6 through MW-12). Temporary piezometers PH-PZ-1, PH-PZ-2, and PH-PZ-3 were installed and abandoned in 1997. Free product has been observed and periodically recovered. Currently, groundwater sampling is conducted on a semi-annual basis and free product was observed in 2013.

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 wells MW-1, MW-2, MW-3, MW-4 and TMW-5.

Seven new wells (MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12) were drilled in November 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 existing monitoring wells and all new monitoring wells (completed in November 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, 0.010-inch, continuous, factory-slotted PVC screen and schedule 40 blank PVC casing. The well screen was installed from 65 feet below ground surface (bgs) to 35 feet bgs and bisects the observed water table located at depths ranging from 48-52 feet below the top of the monitoring well casings during 2013 gauging events. A 3-foot seal of bentonite chips was placed above the sandpack and the remaining annular space filled with bentonite grout. The wells were completed as stick-up wells with locking protective casings and a concrete

surface completion. Four protective bollards were installed around each new monitoring well. Borehole logs and well construction diagrams are provided in Appendix A

Monitoring wells MW-7, MW-8, and MW-11 were installed along the eastern perimeter of the known groundwater plume in order to better delineate groundwater impacts down gradient from the former EPC pit. Monitoring well MW-9 was installed between the former EPCGP pit and the current operator's production structure. Monitoring well MW-6 was installed northeast of MW-1 to provide better delineation on the north side of the former EPCGP pit and MW-10 and MW-12 were installed on either side of TMW-5 to provide delineation between EPCGP's release and ConocoPhillips release. Pertinent Site features and soil boring/monitoring well locations are shown on Figures 1 through 6. Borehole logs and well construction diagrams are provided in Appendix A.

During the drilling of the Site soil borings completed in November 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 or the well ran dry. 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 9 and September 9, 2013, groundwater levels were gauged at MW-1, MW-2, MW-3, MW-4, and TMW-5 and groundwater samples were collected from MW-2, MW-3, MW-4 and TMW-5 using a HydraSleeve™ (HydraSleeve); a disposable, no-purge passive groundwater sampling device. Monitoring well MW-1 was sampled on June 9 using a disposable 2 inch bailer. Groundwater samples were not collected from MW-1 during the September sampling event due to the presence of free product. On December 12, 2013, MW-1 through MW-4, TMW-5 and the new monitoring wells MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, and MW-12 were gauged for water levels and samples were collected from each well that did not contain free product. The new wells were sampled with a 2 inch disposable bailer and MW-2 through TMW-5 were sampled with a HydraSleeve. The HydraSleeves were set during the previous sampling event approximately 0.5 foot above termination depth of the monitoring wells using a suspension tether and weights to collect a sample from the screened interval. Groundwater samples were placed into laboratory supplied sample containers, packed on ice and shipped under standard chain of custody protocols to Test America Laboratories in Corpus Christi, Texas where they were analyzed for BTEX. A selective free product recovery sock kit was removed from monitoring well MW-3 during the June 2013 monitoring event. Additional field parameters were collected including dissolved oxygen, temperature, conductivity, pH, and ORP using a YSI multi-parameter instrument, if free product was not present and temperatures were above freezing. 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. When free product was present, static water level elevations were corrected for measurable thicknesses of free product (specific gravity of 0.75).

SITE MAPS

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

ANALYTICAL LAB REPORTS

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

RESULTS

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

- Approximately 0.07 foot of free product was detected in MW-1 during the June 2013 sampling event. Concentrations of benzene, toluene and total xylenes in groundwater collected from MW-1 were above their respective New Mexico Water Quality Control Commission (NMWQCC) standards during the June event. Ethylbenzene was detected below standard in June. Approximately 0.06 foot of free product was detected in September and 0.05 foot of free product was detected in December. Groundwater samples were not collected from MW-1 during September or December due to the presence of free product.

- BTEX constituents were not detected above NMWQCC standards in groundwater collected from MW-2 during the three 2013 quarterly sampling events.

- Approximately 0.87 foot of free product was measured in MW-3 during the June 2013 sampling event. Concentrations of BTEX in groundwater collected from MW-3 were above NMWQCC standards during the June event. Approximately 1.07 feet of free product was detected in September and 1.09 feet of free product was detected in December. Groundwater samples were not collected from MW-3 during September or December due to the presence of free product.

- BTEX constituents were not detected in groundwater samples from MW-4 during any of the three 2013 quarterly sampling events.

- Concentrations of benzene in groundwater collected from TMW-5 were above NMWQCC standard during each 2013 quarterly sampling event. Concentrations of toluene, ethylbenzene and total xylenes were detected but below NMWQCC standards in 2013.

- Approximately 0.03 foot of free product was detected in MW-6 during the December 2013 sampling event. Groundwater samples were not collected due to the presence of free product.

- Benzene concentrations were above the NMWQCC standard in groundwater collected from MW-7 during the December 2013 sampling event. Toluene, ethylbenzene, and total xylenes were detected but below NMWQCC standards.

- Approximately 1.14 feet of free product was detected in MW-8 during the December sampling event. Groundwater samples were not collected due to the presence of free product.

- Benzene concentrations were above the NMWQCC standard in groundwater collected from MW-9 during the December 2013 sampling event. Toluene, ethylbenzene, and total xylenes were detected but below NMWQCC standards.

- Benzene, toluene, and total xylene concentrations were above NMWQCC standards in groundwater collected from MW-10 during the December 2013 sampling event. Ethylbenzene was detected at concentrations below the NMWQCC standard in December.

- Approximately 0.83 foot of free product was detected in MW-11 during the December sampling event. Groundwater samples were not collected due to the presence of free product.

- BTEX constituents were not detected above NMWQCC standards in groundwater collected from MW-12 during the December quarterly sampling event.

Soil samples were collected from the borings for monitoring wells MW-6 through MW-12. Sample locations were based on elevated soil screening results. For benzene, all sample results were either non-detect or below the reporting limit (J-flagged). Toluene results ranged from non-detect (MW-12) to a high of 0.51 milligrams per kilogram of soil (mg/kg) at MW-9. Ethylbenzne results ranged from non-detect (MW-12) to 0.37 mg/kg at MW-7. Total xylenes concentrations ranged from non-detect (MW-12) to 5.1 mg/kg at MW-7. Total petroleum hydrocarbons were reported at all seven sampled locations and ranged from 33 mg/kg at MW-7 to a high of 630 mg/kg at MW-10. Chloride was reported below the reporting limit (J-flagged) at three locations with a high concentration of 83 mg/kg at MW-8.

PLANNED FUTURE ACTIVITIES

Monitoring wells MW-1 through MW-4, TMW-5, and MW-6 through MW-12 will be gauged and sampled on a semi-annual basis in 2014. Free product recovery activities will be implemented for the site. Additional groundwater monitoring wells will be installed to delineate dissolved hydrocarbon concentrations in groundwater, and EPCGP will contact Burlington regarding the nature of a release on another portion of the site. Groundwater elevation and analytical data collected during 2014 will be evaluated and presented in the 2014 Annual Groundwater Report issued in early 2015.

TABLES

TABLE 1 - SOIL ANALYTICAL RESULTS

Johnston Fed. #4							
Location	**Date**	**Benzene (mg/Kg)**	**Toluene (mg/Kg)**	**Ethylbenzene (mg/Kg)**	**Total Xylenes (mg/Kg)**	**TPH (mg/Kg)**	**Chloride (mg/Kg)**
MW-6(47.5-50)	11/06/13	0.037 J	0.5	0.17	2.0	150	81
MW-7(43-45)	11/02/13	<0.019	0.24	0.37	5.1	33J	59
MW-8(47.5-50)	11/04/13	<0.019	0.19	0.17	2.4	620	83
MW-9(53-55)	11/07/13	0.031 J	0.51	0.32	3.1	150	27 J
MW-10(52.5-55)	11/06/13	0.018 J	0.09	0.023 J	0.27	630	32 J
MW-11(50-52.5)	11/04/13	<0.020	0.040 J	0.098 J	1.6	170	82
MW-12(52.5-55)	11/05/13	<0.00021	<0.00040	<0.00081	<0.00045	120	18 J

Notes:
"J" = Result is less than the reporting limit but greater than or equal to the method detection limit and the result in an approximate value.
"<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit).

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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	08/08/95	590	2040	137	1764	50.08	-	-
MW-1	01/04/96	7380	20900	1480	14600	50.23	-	-
MW-1	12/17/96	762	1930	107	1270	50.50	49.94	0.56
MW-1	03/06/97	483	1110	66.1	678	50.38	49.99	0.39
MW-1	06/22/01					49.96	49.82	0.14
MW-1	09/04/01					50.05	49.94	0.11
MW-1	03/04/02					50.40	50.23	0.17
MW-1	06/03/02					50.50	50.31	0.19
MW-1	09/10/02					50.70	50.51	0.19
MW-1	12/12/02					50.83	50.60	0.23
MW-1	03/14/03					50.90	50.73	0.17
MW-1	06/18/03					51.28	50.74	0.54
MW-1	09/16/03					51.70	50.78	0.92
MW-1	12/17/03					51.15	50.92	0.23
MW-1	03/16/04					51.14	50.98	0.16
MW-1	06/22/04					51.15	51.02	0.13
MW-1	09/22/04					51.18	51.06	0.12
MW-1	12/21/04					51.15	51.08	0.07
MW-1	03/23/05					51.13	-	-
MW-1	06/23/05					51.09	-	-
MW-1	09/20/05					51.12	-	-
MW-1	12/14/05					51.02	-	-
MW-1	12/15/05					51.02	-	-
MW-1	03/27/06					51.86	-	-
MW-1	06/07/06					50.92	-	-
MW-1	09/25/06					51.09	-	-
MW-1	12/07/06					51.06	-	-
MW-1	03/28/07					50.85	-	-
MW-1	06/18/07					50.90	-	-
MW-1	09/17/07					51.04	-	-
MW-1	12/17/07					51.05	-	-
MW-1	03/10/08					50.93	-	-
MW-1	06/17/08					50.14	-	-
MW-1	09/10/08					49.81	-	-
MW-1	12/02/08					49.66	-	-
MW-1	03/03/09					49.60	-	-
MW-1	06/09/09	1630	3000	268	3880	49.61	-	-
MW-1	08/28/09					49.71	-	-
MW-1	11/04/09					49.83	-	-
MW-1	02/11/10					49.93	-	-
MW-1	06/07/10	1630	3130	213	3840	50.12	-	-
MW-1	09/24/10					50.33	-	-
MW-1	11/02/10					50.40	-	-
MW-1	02/07/11					50.53	-	-
MW-1	05/10/11	1000	1710	206	2400	50.69	-	-
MW-1	09/23/11					50.93	-	-
MW-1	11/01/11					50.99	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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	02/21/12					51.15	-	-
MW-1	05/14/12	1200	2170	152	2580	51.24	-	-
MW-1	06/09/13	3900	14000	610	10000	51.68	51.61	0.07
MW-1	09/09/13					51.84	51.78	0.06
MW-1	12/12/13					51.85	51.80	0.05

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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	01/04/96	1104	5107	479	4640	48.71	-	-
MW-2	12/17/96	5900	8970	197	4670	48.84	-	-
MW-2	03/06/97	4500	6480	236	4920	48.94	-	-
MW-2	06/22/01	2800	180	41	140	48.62	-	-
MW-2	09/04/01					48.78	-	-
MW-2	06/03/02	370	11	24	18	49.15	-	-
MW-2	09/10/02					49.27	-	-
MW-2	12/12/02					49.42	-	-
MW-2	06/18/03	186	<5	34.9	16.8	49.62	-	-
MW-2	09/16/03					49.76	-	-
MW-2	12/17/03					49.72	-	-
MW-2	03/16/04					49.78	-	-
MW-2	06/22/04	88.9	24	32.9	15.2	49.82	-	-
MW-2	09/22/04					49.84	-	-
MW-2	12/21/04					49.86	-	-
MW-2	03/23/05					49.89	-	-
MW-2	06/23/05	283	9.4	27.7	64.5	49.87	-	-
MW-2	09/20/05					49.89	-	-
MW-2	12/14/05					49.75	-	-
MW-2	03/27/06					49.62	-	-
MW-2	06/07/06	92.1	18.4	4.4	5.9	49.67	-	-
MW-2	09/25/06					49.85	-	-
MW-2	12/07/06					49.82	-	-
MW-2	03/28/07					49.63	-	-
MW-2	06/19/07	83	<1	7.3	7.2	49.67	-	-
MW-2	09/17/07					49.82	-	-
MW-2	12/17/07					49.82	-	-
MW-2	03/10/08					49.92	-	-
MW-2	06/17/08	201	4.2	16.6	17.9	48.93	-	-
MW-2	09/10/08					48.60	-	-
MW-2	12/02/08					48.43	-	-
MW-2	03/03/09					48.37	-	-
MW-2	06/04/09					48.38	-	-
MW-2	06/09/09	18.5	0.82 J	2.8	6.9	48.43	-	-
MW-2	08/28/09					48.50	-	-
MW-2	11/04/09					48.62	-	-
MW-2	02/11/10					48.72	-	-
MW-2	06/07/10	5.6	0.99 J	<2	<6	48.98	-	-
MW-2	09/24/10					49.11	-	-
MW-2	11/02/10					49.17	-	-
MW-2	02/07/11					49.33	-	-
MW-2	05/10/11	5.3	1.2	0.046 J	J2.3	49.45	-	-
MW-2	09/23/11					49.72	-	-
MW-2	11/01/11					49.77	-	-
MW-2	02/21/12					49.91	-	-
MW-2	05/14/12	7.2	1.4	0.56 J	2.7 J	50.00	-	-
MW-2	06/09/13	1.8	<0.30	<0.20	<0.23	50.38	-	-
MW-2	09/09/13	1.7	<0.30	<0.20	<0.23	50.56	-	-
MW-2	12/12/13	1.5 J	<0.38	<0.20	0.80 J	50.56	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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	03/19/96	3660	5410	436	3730	49.81	-	-
MW-3	12/17/96	3910	8210	530	5020	49.84	-	-
MW-3	03/06/97	6670	12700	759	7020	49.87	49.83	0.04
MW-3	06/22/01					49.66	49.58	0.08
MW-3	09/04/01					49.76	49.70	0.06
MW-3	03/04/02					50.35	49.91	0.44
MW-3	06/03/02					50.62	49.96	0.66
MW-3	09/10/02					50.79	50.12	0.67
MW-3	12/12/02					50.95	50.25	0.70
MW-3	03/14/03					51.03	50.34	0.69
MW-3	06/18/03					51.16	50.45	0.71
MW-3	09/16/03					51.30	50.59	0.71
MW-3	12/17/03					51.08	50.60	0.48
MW-3	03/16/04					51.10	50.68	0.42
MW-3	06/22/04					51.22	50.68	0.54
MW-3	09/22/04					51.30	50.69	0.61
MW-3	12/21/04					51.32	50.71	0.61
MW-3	03/23/05					51.85	50.76	1.09
MW-3	06/23/05					51.20	50.76	0.44
MW-3	09/20/05					51.43	-	-
MW-3	12/14/05					51.31	-	-
MW-3	12/15/05					51.32	50.92	0.40
MW-3	03/27/06					50.92	50.58	0.34
MW-3	06/07/06					51.01	50.56	0.45
MW-3	09/25/06					51.27	50.80	0.47
MW-3	12/07/06					51.07	50.77	0.30
MW-3	03/28/07					50.99	50.66	0.33
MW-3	06/18/07					50.97	50.58	0.39
MW-3	09/17/07					51.15	50.78	0.37
MW-3	12/17/07					51.08	50.78	0.30
MW-3	03/10/08					50.90	50.75	0.15
MW-3	06/17/08					49.98	49.89	0.09
MW-3	09/10/08					49.77	-	-
MW-3	12/02/08					49.58	-	-
MW-3	03/03/09					49.55	-	-
MW-3	06/09/09	6100	8700	627	6630	49.39	-	-
MW-3	08/28/09					49.65	-	-
MW-3	11/04/09					49.63	-	-
MW-3	02/11/10					49.83	-	-
MW-3	06/07/10	7440	10800	578	7170	49.90	49.70	0.20
MW-3	09/24/10					50.19	-	-
MW-3	11/02/10					50.26	-	-
MW-3	02/07/11					50.40	-	-
MW-3	05/10/11	4180	4990	421	3780	50.46	-	-
MW-3	09/23/11					50.73	-	-
MW-3	11/01/11					50.82	-	-
MW-3	02/21/12					51.36	50.86	0.50
MW-3	05/14/12	8100	15800	1040	11100	51.50	50.84	0.66
MW-3	06/09/13	5100	12000	870	11000	52.02	51.15	0.87
MW-3	09/09/13					52.36	51.29	1.07
MW-3	12/12/13					52.39	51.30	1.09

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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	12/07/06					50.40	-	-
MW-4	03/28/07					50.19	-	-
MW-4	06/19/07	<1	<1	<1	<2	50.21	-	-
MW-4	09/17/07					50.34	-	-
MW-4	12/17/07					49.78	-	-
MW-4	03/10/08					50.30	-	-
MW-4	06/17/08	<1	<1	<1	<2	49.50	-	-
MW-4	09/10/08					49.17	-	-
MW-4	12/02/08					49.00	-	-
MW-4	03/03/09					48.93	-	-
MW-4	06/09/09	<1	0.47 J	<1	0.77 J	48.94	-	-
MW-4	08/28/09					49.04	-	-
MW-4	11/04/09					49.16	-	-
MW-4	02/11/10					49.26	-	-
MW-4	06/07/10	<2	<2	<2	<6	49.45	-	-
MW-4	09/24/10					49.15	-	-
MW-4	11/02/10					49.73	-	-
MW-4	02/07/11					49.86	-	-
MW-4	05/10/11	<1	<1	<1	<3	49.98	-	-
MW-4	09/23/11					50.09	-	-
MW-4	11/01/11					50.31	-	-
MW-4	02/21/12					50.46	-	-
MW-4	05/14/12	0.41 J	0.36 J	0.33 J	<1	50.55	-	-
MW-4	06/09/13	<0.14	<0.30	<0.20	<0.23	50.93	-	-
MW-4	09/09/13	<0.14	<0.30	<0.20	<0.23	51.11	-	-
MW-4	12/12/13	<0.20	<0.38	<0.20	<0.65	51.12	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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
TMW-5	12/07/06					49.83	-	-
TMW-5	03/28/07					49.58	-	-
TMW-5	06/19/07	2730	7.6	680	1160	49.64	-	-
TMW-5	09/17/07					49.77	-	-
TMW-5	12/17/07					50.38	-	-
TMW-5	03/10/08					46.59	-	-
TMW-5	06/17/08	3190	217	651	1220	48.87	-	-
TMW-5	09/10/08					48.56	-	-
TMW-5	12/02/08					48.44	-	-
TMW-5	03/03/09					44.40	-	-
TMW-5	06/09/09	1540	285	568	784	48.38	-	-
TMW-5	08/28/09					DRY	-	-
TMW-5	11/04/09					48.58	-	-
TMW-5	02/11/10					48.67	-	-
TMW-5	06/07/10	1970	207	591	746	48.81	-	-
TMW-5	09/24/10					49.04	-	-
TMW-5	11/02/10					49.12	-	-
TMW-5	02/07/11					49.30	-	-
TMW-5	05/10/11	3730	124	459	221	49.41	-	-
TMW-5	09/23/11					49.70	-	-
TMW-5	11/01/11					49.71	-	-
TMW-5	02/21/12					49.87	-	-
TMW-5	05/14/12	6180	52.6	614	243	49.96	-	-
TMW-5	06/09/13	6400	210	400	180	50.31	-	-
TMW-5	09/09/13	5600	26	470	100	50.48	-	-
TMW-5	12/12/13	3900	29 J	400	120	50.53	-	-

TABLE 2 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4								
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	12/12/13					51.13	51.10	0.03
MW-7	12/12/13	120	110	49 J	490	51.12	-	-
MW-8	12/12/13					51.94	50.80	1.14
MW-9	12/12/13	180	310	46	430	51.85	-	-
MW-10	12/12/13	1200	3500	300	3200	51.79	-	-
MW-11	12/12/13					52.43	51.60	0.83
MW-12	12/12/13	<0.14	<0.30	<0.20	0.39 J	48.13	-	-

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

FIGURES

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JOHNSTON FED #4\2013 MAPS\JFed_#4_GARM_2Q_2013.mxd

SMA BENCHMARK
ELEV 6070.54'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

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

6073

AREA OF FORMER PIT
OR EXCAVATION

GP-3

FORMER EPC PIT

MW-1
MW-1
B: 3900
T: 14000
E: 610
X: 10000

MW-3
MW-3
B: 5100
T: 12000
E: 870
X: 11000

GP-4

GP-5

MW-2
MW-2
B: 1.8
T: <0.30
E: <0.20
X: <0.23

GP-6

Conoco
Phillips
MW-2

6071

Conoco
Phillips
MW-1

6072

6074

Conoco
Phillips
MW-4

TMW-5
TMW-5
B: 6400
T: 210
E: 400
X: 180

Conoco
Phillips
MW-3

6070

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

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- GEOPROBE BORING LOCATION
- CONOCO PHILLIPS MONITORING WELL

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/15/2013	CCL	CCL	DAW

TITLE:

JOHNSTON FED #4
GROUNDWATER ANALYTICAL RESULTS
SAMPLED JUNE 9, 2013

PROJECT:

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

MWH

Figure No.:

1

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JOHNSTON FED #4\2013 MAPS\JFed_#4_GECM_2Q_2013.mxd

SMA BENCHMARK
ELEV 6070.54'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AREA OF FORMER PIT
OR EXCAVATION

FORMER EPC PIT

MW-4
6021.78

MW-1
6021.82

MW-3
6021.74

MW-2
6021.76

TMW-5
6021.98

GP-3
GP-4
GP-5
GP-6

Conoco Phillips MW-2
Conoco Phillips MW-1
Conoco Phillips MW-4
Conoco Phillips MW-3

6073
6074
6072
6070

6021.77
6021.79
6021.81
6021.83
6021.85
6021.87
6021.89
6021.91
6021.93
6021.95
6021.97

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

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- GEOPROBE BORING LOCATION
- CONOCO PHILLIPS MONITORING WELL
- FP — FREE PRODUCT

NOTES:

5318.24 — GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

5317 — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.2 FOOT CONTOUR INTERVAL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	2/24/2014	CCL	CCL	DAW

TITLE:

JOHNSTON FED #4
GROUNDWATER ELEVATION MAP
GAUGED JUNE 9, 2013

PROJECT:

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

MWH

Figure No.: 2

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JOHNSTON FED #4\2013 MAPS\JFed_#4_GARM_3Q_2013.mxd

SMA BENCHMARK
ELEV 6070.54'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

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

6073

AREA OF FORMER PIT
OR EXCAVATION

GP-3

FORMER EPC PIT

MW-1
FP
MW-1

MW-3
FP
MW-3

GP-4

GP-5

MW-2
MW-2
B: 1.7
T: <0.30
E: <0.20
X: <0.23

GP-6

Conoco
Phillips
MW-2

6071

Conoco
Phillips
MW-1

6072

6071

Conoco
Phillips
MW-4

TMW-5
TMW-5
B: **5600**
T: 26
E: 470
X: 100

Conoco
Phillips
MW-3

6070

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

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- GEOPROBE BORING LOCATION
- CONOCO PHILLIPS MONITORING WELL
- FP — FREE PRODUCT

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/15/2013	CCL	CCL	DAW

TITLE:
JOHNSTON FED #4
GROUNDWATER ANALYTICAL RESULTS
SAMPLED SEPTEMBER 9, 2013

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

MWH

Figure No.: 3

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JOHNSTON FED #4\2013 MAPS\JFed_#4_GECM_3Q_2013.mxd

SMA BENCHMARK
ELEV 6070.54'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

MW-4
6021.60
MW-4

AREA OF FORMER PIT
OR EXCAVATION

GP-3

FORMER EPC PIT

MW-1
6021.65
MW-1

MW-3
6021.55
MW-3

MW-2
6021.58
MW-2

GP-4

GP-5

GP-6

TMW-5
6021.81
TMW-5

Conoco Phillips MW-2

Conoco Phillips MW-1

Conoco Phillips MW-4

Conoco Phillips MW-3

6073
6074
6072
6070
6021.62
6021.64
6021.66
6021.68
6021.7
6021.72
6021.74
6021.76
6021.78
6021.58
6021.6

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

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- GEOPROBE BORING LOCATION
- CONOCO PHILLIPS MONITORING WELL
- FP — FREE PRODUCT

NOTES:

- 6021.62 — GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL
- 6021.62 — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.2 FOOT CONTOUR INTERVAL)
- DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	2/24/2014	CCL	CCL	DAW

TITLE:

JOHNSTON FED #4
GROUNDWATER ELEVATION MAP
GAUGED SEPTEMBER 9, 2013

PROJECT:

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

MWH

Figure No.: 4

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JOHNSTON FED #4\2013 MAPS\JFed_#4_GARM_4Q_2013.mxd

SMA BENCHMARK
ELEV 6070.54'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

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

AREA OF FORMER PIT
OR EXCAVATION

GP-3

MW-6
FP

FORMER EPC PIT

MW-1
FP

MW-3
FP

MW-7
B: **120**
T: 110
E: 49J
X: 490

MW-9
B: **180**
T: 310
E: 46
X: 430

GP-4

MW-2
B: 1.5J
T: <0.38
E: <0.20
X: 0.80J

GP-5

MW-8
FP

GP-6

MW-10
B: **1200**
T: **3500**
E: 300
X: **3200**

MW-11
FP

TMW-5
B: **3900**
T: 29J
E: 400
X: 120

MW-12
B: <0.14
T: <0.30
E: <0.20
X: 0.39J

Conoco Phillips MW-2

Conoco Phillips MW-1

Conoco Phillips MW-4

Conoco Phillips MW-3

6073
6071
6072
6074
6070

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

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- GEOPROBE BORING LOCATION
- CONOCO PHILLIPS MONITORING WELL
- FP — FREE PRODUCT

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	1/7/2014	CCL	CCL	DAW

TITLE:

JOHNSTON FED #4
GROUNDWATER ANALYTICAL RESULTS
SAMPLED DECEMBER 12, 2013

PROJECT:

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

MWH

Figure No.: 5

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\JOHNSTON FED #4\2013 MAPS\JFed_#4_GECM_4Q_2013.mxd

SMA BENCHMARK
ELEV 6070.54'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AREA OF FORMER PIT
OR EXCAVATION

FORMER EPC PIT

MW-4 6021.59
MW-6 6021.63
MW-1 6021.64
MW-3 6021.54
MW-7 6021.51
MW-9 6021.78
MW-2 6021.58
MW-8 6021.54
MW-10 6021.65
MW-11 6021.57
TMW-5 6021.76
MW-12*

GP-3
GP-4
GP-5
GP-6

Conoco Phillips MW-2
Conoco Phillips MW-1
Conoco Phillips MW-4
Conoco Phillips MW-3

6021.70
6021.65
6021.60
6021.55
6021.75
6021.70
6021.55
6021.55
6021.60

6073
6072
6071
6070

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

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- GEOPROBE BORING LOCATION
- CONOCO PHILLIPS MONITORING WELL
- FP — FREE PRODUCT

NOTES:

- 6021.62 — GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL
- -6021.62- — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.2 FOOT CONTOUR INTERVAL)
- DIRECTION OF GROUNDWATER FLOW
- * INITIAL GROUNDWATER ELEVATION APPEARS ANOMALOUS FOR MW-12 AND WAS NOT INCLUDED IN THE FLOW ANALYSIS.

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	2/27/2014	CCL	CCL	DAW

TITLE:
JOHNSTON FED #4
GROUNDWATER ELEVATION MAP
GAUGED DECEMBER 12, 2013

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

MWH

Figure No.: 6

APPENDICES

APPENDIX A - BOREHOLE AND WELL CONSTRUCTION LOGS

APPENDIX B - NOVEMBER SOIL SAMPLING ANALYTICAL REPORT

APPENDIX C - JUNE 9, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT
SEPTEMBER 9, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT
DECEMBER 12, 2013 GROUNDWATER SAMPLING ANALYTICAL REPORT

APPENDIX A

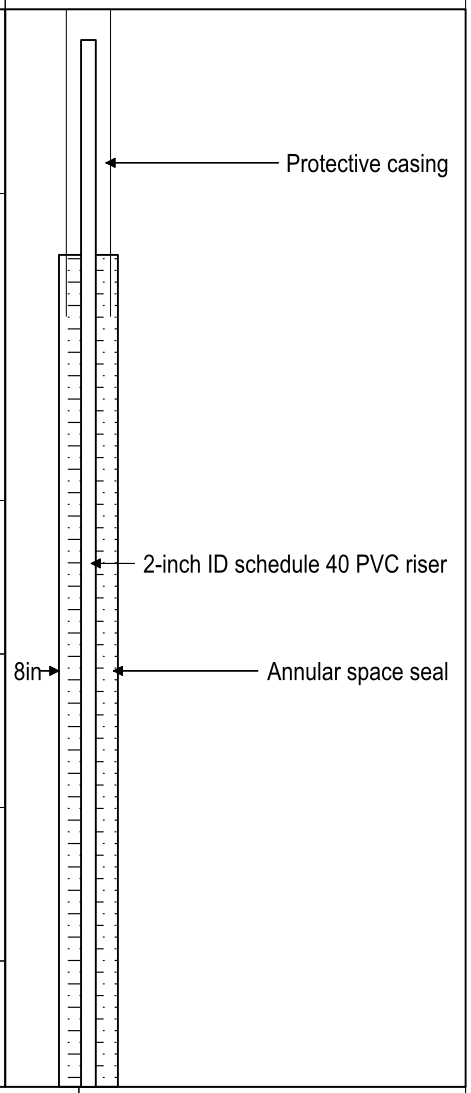
MW-6
MW-7
MW-8
MW-9
MW-10
MW-11
MW-12

GEOLOGIST: Doug Burr	COMPLETION DATE: November 6, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6069.7
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6072.8
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133386.7 Easting 2740991.7

Groundwater seepage encountered at 50.0 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)
		0				
		2			0%	NA
		4				
Silty sand, yellowish brown 10YR 5/4, loose, dry, weak cementation, non plastic, no odor, predominantly fine sand 20% silt.	- Hand augered to 5' bgs (no sample recovered)	6		SM	0%	NA
		8			100%	16.9
		10			0%	NA
	- as above	12			50%	19.8
		14				

WELL CONSTRUCTION

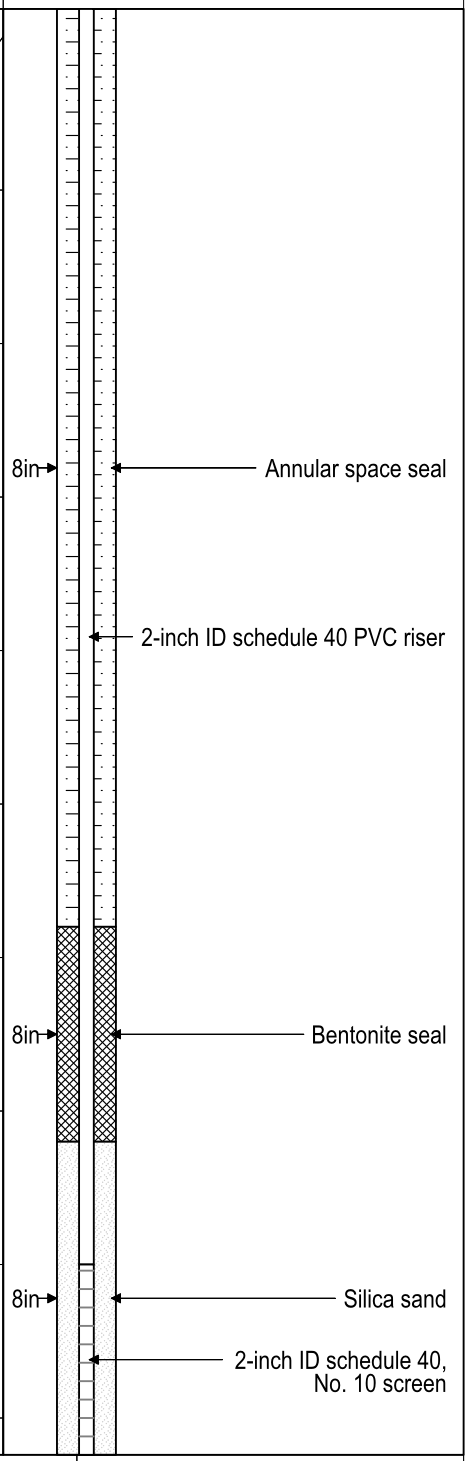


MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-6

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)
		16		SM	0%	19.8 NA
		18			75%	15.2
Poorly graded sand, yellowish brown, 10YR 5/4, loose, dry-moist, no cementation, 50% medium sand, trace coarse sand, trace gravel (2"), angular-subangular.		20		SP	0%	NA
	- as above, no gravel, moist	22			50%	8.2
		24			0%	NA
	- as above, Iron oxide staining present	26			100%	15.6
		28			0%	NA
	- as above, trace gravel present (1")	30			75%	13.5
		32			0%	NA
	- as above	34				16.6
		36				



MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-6

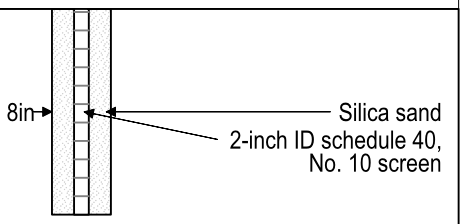
Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		40		SP	100%	16.6	
					50%	111	
Sandy silt, very dark greyish brown, 2.5Y 3/2, moist, stiff, medium-plasticity, TPH odor.		42		ML			
		44			100%	283	
		46			0%	NA	
Silty sand, 2.5Y 4/2 dark greyish brown, moist, non plastic, mottled with Gley 4/5 GY dark greenish grey, TPH odor.	- sampled Johnston Fed #4 MW-6-47.5' at 1430	48		SM	100%	13575	
Poorly graded sand, yellowish brownm 10YR 5/4, wet, loose, no cementation, minor Iron oxide staining, predominantly quartz, some silts.		50		SP	50%	1264	8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
	- as above	52					
		54			100%	354	
		56			0%	NA	
	- as above, no silt, color change to 10YR 6/6, brownish yellow	58			100%	761	
		60			0%	NA	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-6

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	- as above	62		SP	0%	NA	
		64			100%	245	
	- as above, minor Iron oxide staining at 66.5'	66			100%	335	
	Total depth = 67.5' bgs	68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-6

Johnston Fed #4

GEOLOGIST: Doug Burr	COMPLETION DATE: November 2, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6069.5
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6072.6
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133362.5 Easting 2741048.0

Groundwater seepage encountered at 49.0 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					Protective casing
		2			0%	NA	
		4					
Silty sand, yellowish brown, 10YR 5/4, loose, dry, weak cementation, non plastic, no odor, predominantly fine sand.	- Hand augered to 5' bgs (no sample recovered)	6		SM		81.7	2-inch ID schedule 40 PVC riser
		8			90%	70.3	8in → Annular space seal
		10			0%	NA	
		12				72.5	
Poorly sorted sand, yellowish brown 10YR 5/4, loose, dry, no cementation, 75%		14		SP	100%		

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-7

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
medium sand, subangular, 50% quartz.	- driller indicates loose material may be falling out of core sampler when device is removed from boring	16		SP	0%	72.5 NA	
	- as above, decrease in medium sand to 50%, trace gravel (1")	18			100%	40.7	
		20			0%	NA	
		22					8in → Annular space seal
	- as above				100%	158.4	
	- as above, trace gravel (1.5")	24					← 2-inch ID schedule 40 PVC riser
		26			0%	NA	
		28			0%	92.1	
		30			0%	NA	8in → Bentonite seal
		32					
		34			100%	166.4	
Silt clay, with trace sand, 10YR 3/3, soft, moist, weak cementation, medium plasticity, slight TPH odor.	- as above	36		CL	100%	4600 4449	8in → Silica sand ← 2-inch ID schedule 40, No. 10 screen

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-7

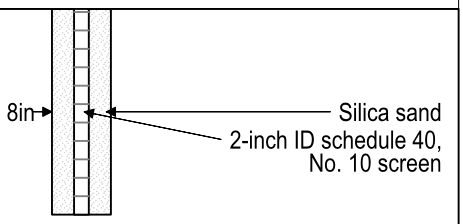
Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	- dark grey mottling 2.5Y 4/1, slight TPH odor	40		CL		4449	
		42			0%	NA	
Silty sand, dark grey 2.5Y 4/1, soft, moist, weak cementation, non-plastic, strong TPH odor.	- sampled Johnston Fed #4 MW-7-43' collected at 1230	44		SM	100%	15000+	
		46			0%	NA	
		48			100%	178.6	
Sand with silt, yellowish brown, 10YR 5/6, loose, wet, weak consolidation, non plastic, Iron oxide staining.		50		SM-SP		496.1	8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
Poorly sorted sand, yellowish brown 10YR 5/4, loose, wet, weak cementation, 50% medium sand, no odor, trace fines.		52		SP	100%	160.2	
		54					
		56			0%	NA	
	- as above, trace coarse sand	58			100%	174.3	
	- clay lense at 60'	60				390.5	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-7

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	- as above, TPH odor	62		SP	100%	390.5	
		64				391.0	
	Total depth = 65' bgs	66					
		68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-7

Johnston Fed #4

GEOLOGIST: Doug Burr	COMPLETION DATE: November 4, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6069.6
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6072.6
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133328.0 Easting 2741025.0

Groundwater seepage encountered at 52.5 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		0					Protective casing
		2			0%	NA	
		4					
Silty sand, yellowish brown 10YR 5/4, loose, dry, weak cementation, non plastic, no odor, predominantly fine sand 15% silt.	- Hand augered to 5' bgs (no sample recovered)	6		SM	0%	NA	2-inch ID schedule 40 PVC riser
		8			100%	230.1	8in Annular space seal
		10			0%	NA	
		12				117.2	
Very silty sand, yellowish		14		SM-ML	100%		

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-8

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
brown 10YR 5/4, medium dense, dry, moderate cementation, low plasticity.		16		SM-ML	0%	117.2 NA	
Poorly graded sand, yellowish brown 10YR 5/4, loose, dry, no cementation, 50% medium sand angular-subangular, 50% quartz.		18		SP	100%	183	
		20			0%	NA	8in → Annular space seal
	- as above	22			100%	140	
Very silty sand, yellowish brown 10YR 5/4, loose, dry moderate cementation, low plasticity, very fine sands.		24		SM-ML			← 2-inch ID schedule 40 PVC riser
		26			0%	NA	
Poorly graded sand, yellowish brown 10YR 5/4, loose, dry, moderate cementation, one Iron oxide concretion (1'5"), predominantly quartz (subangular-angular).		28		SP	100%	207	
		30			0%	NA	8in → Bentonite seal
		32			100%	115	
Very silty sand, light yellowish brown, 10YR 6/4, medium dense dry, moderate cementation, low plasticity, very fine sands.		34		SM-ML			
Silty clay with trace sand, 10YR 6/4, medium dense dry, moderate cementation, low plasticity, very fine sands.		36		CL		995	8in → Silica sand 2-inch ID schedule 40, No. 10 screen
				SM-ML	100%	1775	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-8

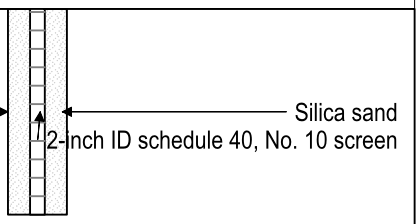
Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
34', strong TPH odor.				SM-ML		1775	
SP as described at 27.5'.				SP			
Silty clay with trace sand, 10YR 3/3, soft, moist, weak cementation, medium platicity, charcoal present (1/2").		40		CL		15000+	
		42			100%	15000+	
Silty sand with trace gravel, light olive brown 2.5Y 5/4, moist moderate cementation, medium sand and gravel is angular to sub-angular gravel up to 3/4", TPH odor.		44		SM			
		46			0%	NA	
	- color change to dark grey 2.5Y 4/1, strong TPH odor, trace clay nodules	48			100%	15000+	
	- sample Johnston Fed #4 MW-8 - 47.5' collected at 0930	50			50%	15000+	8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
		52					
Poorly graded sand, Gley 3.5/10Y (greenish black), wet, loose, strong TPH odor.				SP		527	
Very silty sand, yellowish brown 10YR 5/4, wet, weak cementation, low plasticity, TPH odor.		54		SM-ML	100%		
		56			0%	NA	
Poorly graded sand with trace silt, yellowish brown 10YR 5/8, wet, loose, weak cementation, 75% medium sand, angular - sub angular, predominantly quartz, some Iron oxide staining		58		SM-SP	100%	446	
	- well consolidated sand, sample refused, drillers proceeded to TD with only auger	60			100%	690	
						NA	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-8

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		62		SM-SP	0%	NA NA	
	Total depth = 65' bgs	64					
		66					
		68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-8

Johnston Fed #4

GEOLOGIST: Doug Burr	COMPLETION DATE: November 7, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6070.7
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6073.6
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133347.7 Easting 2740938.4

Groundwater seepage encountered at 52.5 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		0					Protective casing
					0%	NA	
		2					
		4					
Silty sand, yellowish brown, 10YR 5/4, loose, weak cementation, non plastic, no odor, very fine sands, 15-30% silt, moist.	- Hand augered to 5' bgs (no sample recovered)	6		SM	0%	NA	2-inch ID schedule 40 PVC riser
		8			100%	24.3	8in Cement/with surface casing
Slightly silty sand, yellowish brown 10YR 5/4, loose, moist, weak cementation, 30% medium sand, subangular, predominantly quartz.		10		SP-SM	0%	NA	
		12					
					75%	24.9	
		14					

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-9

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
				SP-SM		24.9	
		16			0%	NA	
		18				23	
Poorly graded sand, yellowish brown, 10YR 5/4, loose, moist, weak cementation, non consolidated, 50% medium sand, angular-subangular, predominantly quartz, minor Iron oxide staining.				SP	50%		
		20				NA	
					0%		8in → Cement/with surface casing
		22					
	- 5-10% coarse sand present, subangular - subrounded					23.5	
		24			50%		← 2-inch ID schedule 40 PVC riser
						NA	
		26			0%		
		28				16.6	
	- as above				50%		
		30				NA	
					0%		8in → Bentonite seal
		32					
						33	
	- color change at 34' to dark olive 5Y 2.5/1, strong TPH odor	34			50%		
Sandy silt, dark grey 10YR 4/1, moderate cementation, moist, low plasticity, very fine sands.				ML		248	8in → Silica sand
		36					← 2-inch ID schedule 40, No. 10 screen
					100%	565	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-9

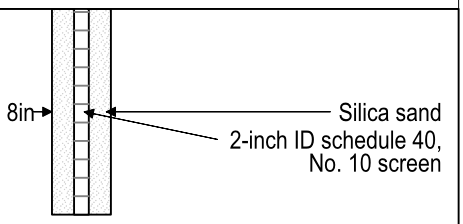
Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	- color change at 38' to brown 10YR 4/3			ML		565	
Very silty sand, brown 10YR 4/3, moist, weak cementation, very fine sands, trace gravel.		40		SM-ML	100%	96	
Poorly graded sands, dark greyish brown 2.5Y 4/2, weak cementation, trace silt.		42		SP		227	
		44					
		46			50%	55	
		48			100%	5349	
	- black layer (Gley 2.5/N) at 49.5'	50			0%	NA	8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
	- black layer as described at 49.5', soil is wet - Sampled Johnston Fed #4 MW-9 - 53' collected at 1030 - color change to yellowish brown 10YR 5/6	52			75%	11205	
		54					
		56			0%	NA	
	- as above, soil very saturated, increase in coarse sands to 10%, trace gravel (2")	58			50%	220	
		60				NA	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-9

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		62		SP	0%	NA	
		64				NA	
	Total depth = 65' bgs	66					
		68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-9

Johnston Fed #4

GEOLOGIST: Doug Burr	COMPLETION DATE: November 6, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6070.2
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6073.4
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133321.5 Easting 2740980.4

Groundwater seepage encountered at 52.5 ft depth during drilling.
Soil colors classified using the Munsell soil color charts

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		0					Protective casing
					0%	NA	
		2					
		4					
Silty sand, yellowish brown 10YR 5/4, loose, dry, weak cementation, non-plastic, no odor, very fine sand, 15-30% silt.	- Hand augered to 5' bgs (no sample recovered)	6		SM	0%	NA	2-inch ID schedule 40 PVC riser
		8			75%	110	8in Annular space seal
		10			0%	NA	
	- as above, increase in medium sands, moderate consolidation	12			0	100	
		14					

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-10

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		16		SM	0%	100 NA	
		18			50%	126	
Poorly graded sand, yellowish brown 10YR 5/4, loose, dry, weak cementation, non consolidated, 50% medium sand, subangular - angular, predominantly quartz.		20		SP	0%	NA	8in → Annular space seal
		22			100%	79	
	- as above	24					→ 2-inch ID schedule 40 PVC riser
		26			0%	NA	
	- as above, trace coarse sand (rounded - sub rounded)	28			75%	46	
		30			0%	NA	8in → Bentonite seal
		32			100%	69	
Sandy silt, yellowish brown 10YR 5/6, dry-moist, moderately consolidated, moderate cementation, low plasticity.		34		ML			
	- as above, charcoal present (1/2")	36			100%	170 15000+	8in → Silica sand → 2-inch ID schedule 40, No. 10 screen

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-10

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		40		ML		15000+	
						1175	
Silty sand, yellowish brown 10YR 5/4, loose, moderate consolidation, moist, non plastic, trace coarse sand.		42		SM	100%	783	
		44					
		46			0%	NA	
Poorly graded sand, dark greyish brown, 2.5Y 4/2, loose, weak cementation, predominantly fine and medium sands.		48		SP	100%	15000+	8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
		50			0%	NA	
	- sample Johnston Fed #4 MW-10 - 52.5' collected at 0930 - color change to 10YR 5/6 yellowish brown, soild saturated	52					
	- color change to dark greenish grey, Gley 4/5G mottled with black-Gley 2.5/N, strong TPH odor	54			0	15000+	
	- Driller indicated heavy sands - As above, increase in medium sands, no dark greenish grey or black, color light olive brown 2.5Y 5/3, trace gravel up to 1.5", TPH odor.	56			100%	15000+	
Medium dense, strong cementation, sampler refusal at 58'. Drillers will proceed with augers only to depth.		58		SP?	20%	15000+	
		60				NA	

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-10

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		62		SP?	0%	NA	
		64				NA	8in → Silica sand 2-inch ID schedule 40, No. 10 screen
	Total depth = 65' bgs	66					
		68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

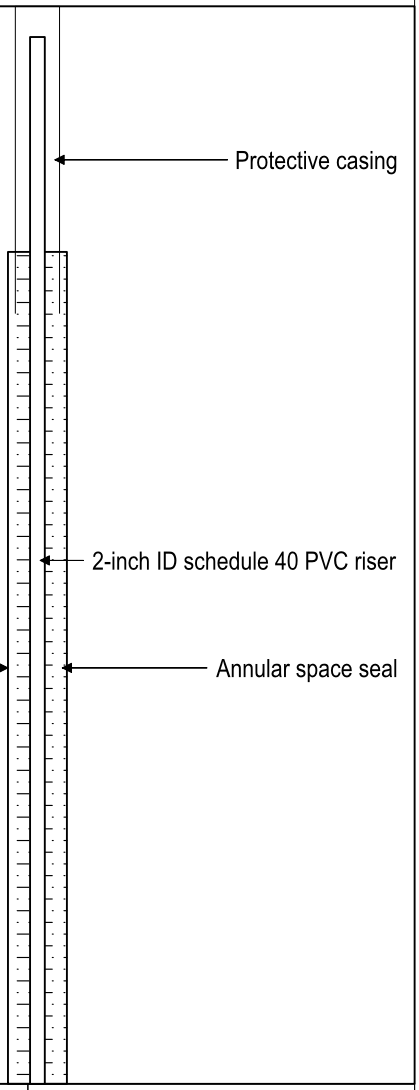
LOG & RECORD OF WELL CONSTRUCTION
MW-10

Johnston Fed #4

GEOLOGIST: Doug Burr	COMPLETION DATE: November 4, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6069.9
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6073.4
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133304.9 Easting 2741004.5

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

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		0					
		2			0%	NA	
		4					
Silty sand, yellowish brown 10YR 5/4, loose, dry, moderate cementation, non plastic, no odor, very fine sand 15-30% silt.	- Hand augered to 5' bgs (no sample recovered)	6		SM	0%	NA	
		8			100%	113	
		10			0%	NA	
		12				31.5	
		14			100%		



MWH

LOG & RECORD OF WELL CONSTRUCTION MW-11

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		16		SM	0%	31.5 NA	
Poorly graded sand, yellowish brown 10YR 5/4, loose, dry, weak cementation, 50% medium sand, trace coarse sand, subangular - angular predominantly quartz.		18		SP	100%	161	
		20			0%	NA	8in → Annular space seal
	- as above, some Iron concentrations, trace gravel (1")	22			100%	120	
		24					← 2-inch ID schedule 40 PVC riser
	- as above	26			0%	NA	
	- as above	28			100%	52	
		30			0%	NA	8in → Bentonite seal
		32					
Very silty sand, 10YR 5/4, moderately consolidated, dry - moist.		34		SM-ML ML-CL	100%	114	
Silty clay with trace sand, dark yellowish brown 10YR 4/4, moist, well consolidated, medium plasticity, charcoal present (1/4").		36			100%	4329 15000+	8in → Silica sand ← 2-inch ID schedule 40, No. 10 screen

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-11

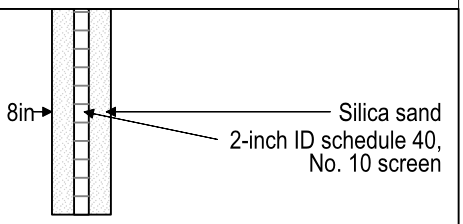
Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		40		ML-CL		15000+	
					75%	1106	
Sandy silt, brown 10YR 4/3, moist, moderately consolidated, medium - low plasticity, TPH odor.		42		ML			
					100%	1030	
Silty sand, brown 10YR 4/3, moist, weakly consolidated, low plasticity.		44		SM			
Poorly graded sand, greyish brown, 2.5Y 5/2, medium dense, dry - moist, moderate cementation, 25% medium sand angular - subangular, TPH odor trace concentrations.	- color change to very dark grey 2.5Y 3/1, strong TPH odor			SP		1343	
		46			50%		
	- as above	48				15000+	
					100%		
	- sample Johnston Fed #4 MW-11 - 50' collected at 1430	50				15000+	8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
Very silty sand, dark greyish green, Gley 3/2 5G, moist, well consolidated, strong cementation, strong TPH odor.		52		SM-ML	75%		
						875	
	- color change to 2.5Y 6/4 mottled with Gley 3/2 5G	54			100%		
	- Sample refusal at 55' bgs, drillers proceed to TD with augers only					NA	
		56					
		58					
		60			0%		

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-11

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		62		SM-ML		NA	
	Total depth = 65' bgs	64					
		66					
		68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-11

Johnston Fed #4

GEOLOGIST: Doug Burr	COMPLETION DATE: November 5, 2013
DRILLER: Miguel Alveredo	GROUND SURFACE ELEV (ft MSL) 6070.3
DRILLING COMPANY: National	TOP OF CASING ELEV (ft, MSL) 6073.3
DRILLING METHOD: Hollow Stem Auger	STATE PLANE COORDINATES (ft)
HOLE DIAMETER (IN): 8.0	Northing 2133262.3 Easting 2740970.0

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

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		0					Protective casing
		2			0%		
		4					
Silty sand, yellowish brown 10YR 5/4, loose - medium dense, moderate cementation, non plastic, no odor, very fine sands.	- Hand augered to 5' bgs (no sample recovered)	6		SM	0%	NA	2-inch ID schedule 40 PVC riser
		8			100%	58.7	8in Annular space seal
		10			0%	NA	
		12				62	
	- increase in medium sands	14			50%		

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-12

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	to 20%	16		SM	0%	62 NA	
		18			50%	79	
Poorly graded sand, yellowish brown 10YR 5/4, loose, dry, weak cementation, 50% medium sands, trace coarse sand, angular to subangular, predominantly quartz.		20		SP	0%	NA	8in → Annular space seal
	- increase in coarse sand 5-10%, trace Iron oxide concretions	22			100%	61	
		24					→ 2-inch ID schedule 40 PVC riser
		26			0%	NA	
	- as above - sample Johnston Fed #4 MW-12 - 27.5' collected at 1000	28			100%	165	
		30			0%	NA	8in → Bentonite seal
		32					
Sandy silt, dark yellowish brown, 10YR 3/4, moist, well consolidation, strong cementation, 15% medium sand, low - moderate plasticity, no odor, charcoal present (1/4").		34		ML	100%	131	
	- color change to strong brown 7.5YR 5/6, trace medium sand	36			100%	95 82	8in → Silica sand → 2-inch ID schedule 40, No. 10 screen

MWH

LOG & RECORD OF WELL CONSTRUCTION MW-12

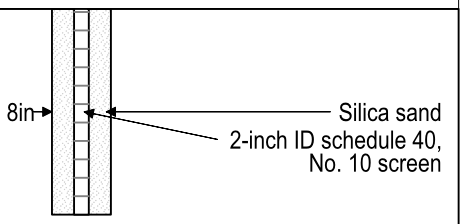
Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
	- color change to light yellowish brown 2.5Y 5/2, white veins present	40		ML		82	
					0%	NA	
		42					
	- color change to light yellowish brown 2.5Y 6/4, mottled with light greenish grey Gley 7/5GY, very strong cementation					47	
		44			100%		
						124	
		46			50%		
Very fine sand with some silt, greenish - grey, Gley 6/10Y, dry, very strong consolidation, strong cementation, abundant mica, trace coarse sand.				SM			
	- sample refusal at 48' bgs, drillers proceed to depth with auger only	48				120	
					20%		
		50					8in → Silica sand; 2-inch ID schedule 40, No. 10 screen
						NA	
		52					
		54					
		56					
					0%		
		58					
		60					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-12

Johnston Fed #4

SOIL DESCRIPTION	COMMENTS	DEPTH (ft)	LITHOLOGY	SOIL	RECOVERY	PID/OVA (ppm)	WELL CONSTRUCTION
		62		SM		NA	
	Total depth = 65' bgs	64					
		66					
		68					
		70					
		72					
		74					
		76					
		78					
		80					
		82					
		84					

MWH

LOG & RECORD OF WELL CONSTRUCTION
MW-12

Johnston Fed #4

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: 560-43612-1
TestAmerica Sample Delivery Group: November 2013
Client Project/Site: Johnston Federal #4 Soil Analysis

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

Attn: Cary Rubel

Authorized for release by:
11/21/2013 5:07:41 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/MS VOA

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
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
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
SDG: November 2013

Job ID: 560-43612-1

Laboratory: TestAmerica Corpus Christi

Narrative

Receipt

The samples were received on 11/8/2013 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.8º C. It was noted that a trip blank was listed on the chain of custody (COC) however, no sample was received. analysis was performed on the samples as received.

GC/MS VOA

Method(s) 8260B: Please note that sample 560-43612-5 was diluted due to the abundance of non-target analytes. Elevated reporting limits (RLs) are provided.

Method(s) 8260B: It was noted that the matrix spike duplicate (MSD) recoveries for total xylenes on sample 560-43612-2 was slightly outside of the control limits. The associated laboratory control sample (LCS) and matrix spike (MS) recoveries met acceptance criteria therefore the data was qualified and reported. No other analytical or quality issues were noted.

Client Sample ID: JFED #4 - MW-7-43'

Lab Sample ID: 560-43612-1

Date Collected: 11/02/13 12:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 90.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.019		0.095	0.019	mg/Kg	☼	11/11/13 10:22	11/11/13 12:36	50
Ethylbenzene	**0.37**		0.095	0.0095	mg/Kg	☼	11/11/13 10:22	11/11/13 12:36	50
Toluene	**0.24**		0.095	0.0095	mg/Kg	☼	11/11/13 10:22	11/11/13 12:36	50
Xylenes, Total	**5.1**		0.28	0.0095	mg/Kg	☼	11/11/13 10:22	11/11/13 12:36	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*119*		*50 - 135*	*11/11/13 10:22*	*11/11/13 12:36*	*50*
4-Bromofluorobenzene (Surr)	*109*		*37 - 138*	*11/11/13 10:22*	*11/11/13 12:36*	*50*
Dibromofluoromethane (Surr)	*87*		*55 - 135*	*11/11/13 10:22*	*11/11/13 12:36*	*50*
1,2-Dichloroethane-d4 (Surr)	*98*		*60 - 145*	*11/11/13 10:22*	*11/11/13 12:36*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	**33**	**J B**	55	1.3	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**59**		50	5.0	mg/Kg			11/20/13 15:53	1

Client Sample ID: JFED #4 - MW-8-47.5'

Lab Sample ID: 560-43612-2

Date Collected: 11/04/13 09:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 89.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.019		0.095	0.019	mg/Kg	☼	11/11/13 10:22	11/11/13 13:01	50
Ethylbenzene	**0.17**		0.095	0.0095	mg/Kg	☼	11/11/13 10:22	11/11/13 13:01	50
Toluene	**0.19**		0.095	0.0095	mg/Kg	☼	11/11/13 10:22	11/11/13 13:01	50
Xylenes, Total	**2.4**		0.28	0.0095	mg/Kg	☼	11/11/13 10:22	11/11/13 13:01	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*116*		*50 - 135*	*11/11/13 10:22*	*11/11/13 13:01*	*50*
4-Bromofluorobenzene (Surr)	*109*		*37 - 138*	*11/11/13 10:22*	*11/11/13 13:01*	*50*
Dibromofluoromethane (Surr)	*85*		*55 - 135*	*11/11/13 10:22*	*11/11/13 13:01*	*50*
1,2-Dichloroethane-d4 (Surr)	*100*		*60 - 145*	*11/11/13 10:22*	*11/11/13 13:01*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	**620**	**B**	55	1.3	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**83**		50	5.0	mg/Kg			11/20/13 15:55	1

Client Sample ID: JFED #4 - MW-11-50'

Lab Sample ID: 560-43612-3

Date Collected: 11/04/13 14:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 87.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.020		0.10	0.020	mg/Kg	☼	11/11/13 10:22	11/11/13 13:26	50

Client Sample ID: JFED #4 - MW-11-50'

Lab Sample ID: 560-43612-3
Date Collected: 11/04/13 14:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 87.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.098	J	0.10	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 13:26	50
Toluene	0.040	J	0.10	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 13:26	50
Xylenes, Total	1.6		0.31	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 13:26	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*50 - 135*	*11/11/13 10:22*	*11/11/13 13:26*	*50*
4-Bromofluorobenzene (Surr)	*106*		*37 - 138*	*11/11/13 10:22*	*11/11/13 13:26*	*50*
Dibromofluoromethane (Surr)	*87*		*55 - 135*	*11/11/13 10:22*	*11/11/13 13:26*	*50*
1,2-Dichloroethane-d4 (Surr)	*98*		*60 - 145*	*11/11/13 10:22*	*11/11/13 13:26*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	170	B	56	1.3	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	82		50	5.0	mg/Kg			11/20/13 15:56	1

Client Sample ID: JFED #4 - MW-12-27.5'

Lab Sample ID: 560-43612-4
Date Collected: 11/05/13 10:00
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 97.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00021		0.0045	0.00021	mg/Kg	☼		11/11/13 16:58	1
Ethylbenzene	<0.00040		0.0045	0.00040	mg/Kg	☼		11/11/13 16:58	1
Toluene	<0.00081		0.0045	0.00081	mg/Kg	☼		11/11/13 16:58	1
Xylenes, Total	<0.00045		0.013	0.00045	mg/Kg	☼		11/11/13 16:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*65 - 139*		*11/11/13 16:58*	*1*
4-Bromofluorobenzene (Surr)	*91*		*61 - 136*		*11/11/13 16:58*	*1*
Dibromofluoromethane (Surr)	*108*		*50 - 136*		*11/11/13 16:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*65 - 152*		*11/11/13 16:58*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	120	B	50	1.2	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18	J	50	5.0	mg/Kg			11/20/13 15:56	1

Client Sample ID: JFED #4 - MW-10-52.5'

Lab Sample ID: 560-43612-5
Date Collected: 11/06/13 09:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 84.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.018	J	0.028	0.0013	mg/Kg	☼		11/11/13 18:17	1
Ethylbenzene	0.023	J	0.028	0.0025	mg/Kg	☼		11/11/13 18:17	1

Client Sample ID: JFED #4 - MW-10-52.5'

Lab Sample ID: 560-43612-5
Date Collected: 11/06/13 09:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 84.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.090		0.028	0.0050	mg/Kg	☼		11/11/13 18:17	1
Xylenes, Total	0.27		0.084	0.0028	mg/Kg	☼		11/11/13 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*124*		*65 - 139*		*11/11/13 18:17*	*1*
4-Bromofluorobenzene (Surr)	*99*		*61 - 136*		*11/11/13 18:17*	*1*
Dibromofluoromethane (Surr)	*110*		*50 - 136*		*11/11/13 18:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*65 - 152*		*11/11/13 18:17*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	630	B	59	1.4	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32	J	50	5.0	mg/Kg	☼		11/20/13 15:57	1

Client Sample ID: JFED #4 - MW-6-47.5'

Lab Sample ID: 560-43612-6
Date Collected: 11/06/13 14:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 86.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.037	J	0.10	0.020	mg/Kg	☼	11/11/13 10:22	11/11/13 15:14	50
Ethylbenzene	0.17		0.10	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 15:14	50
Toluene	0.50		0.10	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 15:14	50
Xylenes, Total	2.0		0.30	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 15:14	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*114*		*50 - 135*	*11/11/13 10:22*	*11/11/13 15:14*	*50*
4-Bromofluorobenzene (Surr)	*112*		*37 - 138*	*11/11/13 10:22*	*11/11/13 15:14*	*50*
Dibromofluoromethane (Surr)	*91*		*55 - 135*	*11/11/13 10:22*	*11/11/13 15:14*	*50*
1,2-Dichloroethane-d4 (Surr)	*102*		*60 - 145*	*11/11/13 10:22*	*11/11/13 15:14*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	150	B	58	1.4	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	81		50	5.0	mg/Kg	☼		11/20/13 15:57	1

Client Sample ID: JFED #4 - MW-9-53'

Lab Sample ID: 560-43612-7
Date Collected: 11/07/13 10:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 84.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.031	J	0.10	0.021	mg/Kg	☼	11/11/13 10:22	11/11/13 15:39	50
Ethylbenzene	0.32		0.10	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 15:39	50
Toluene	0.51		0.10	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 15:39	50

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
SDG: November 2013

Client Sample ID: JFED #4 - MW-9-53'
Date Collected: 11/07/13 10:30
Date Received: 11/08/13 09:25

Lab Sample ID: 560-43612-7
Matrix: Solid
Percent Solids: 84.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	3.1		0.31	0.010	mg/Kg	☼	11/11/13 10:22	11/11/13 15:39	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*118*		*50 - 135*	*11/11/13 10:22*	*11/11/13 15:39*	*50*
4-Bromofluorobenzene (Surr)	*113*		*37 - 138*	*11/11/13 10:22*	*11/11/13 15:39*	*50*
Dibromofluoromethane (Surr)	*87*		*55 - 135*	*11/11/13 10:22*	*11/11/13 15:39*	*50*
1,2-Dichloroethane-d4 (Surr)	*96*		*60 - 145*	*11/11/13 10:22*	*11/11/13 15:39*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH (1664A)	150	B	59	1.4	mg/Kg	☼	11/13/13 12:32	11/13/13 12:32	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27	J	50	5.0	mg/Kg			11/20/13 15:58	1

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

Lab Sample ID: MB 560-94882/8
Matrix: Solid
Analysis Batch: 94882

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			11/11/13 11:34	1
Ethylbenzene	<0.00045		0.0050	0.00045	mg/Kg			11/11/13 11:34	1
Toluene	<0.00090		0.0050	0.00090	mg/Kg			11/11/13 11:34	1
Xylenes, Total	<0.00050		0.015	0.00050	mg/Kg			11/11/13 11:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*65 - 139*		*11/11/13 11:34*	*1*
4-Bromofluorobenzene (Surr)	*95*		*61 - 136*		*11/11/13 11:34*	*1*
Dibromofluoromethane (Surr)	*100*		*50 - 136*		*11/11/13 11:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*65 - 152*		*11/11/13 11:34*	*1*

Lab Sample ID: LCS 560-94882/3
Matrix: Solid
Analysis Batch: 94882

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	0.0389		mg/Kg		97	70 - 130
Ethylbenzene	0.0400	0.0403		mg/Kg		101	70 - 130
Toluene	0.0400	0.0399		mg/Kg		100	70 - 130
Xylenes, Total	0.0800	0.0817		mg/Kg		102	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*65 - 139*
4-Bromofluorobenzene (Surr)	*99*		*61 - 136*
Dibromofluoromethane (Surr)	*99*		*50 - 136*
1,2-Dichloroethane-d4 (Surr)	*100*		*65 - 152*

Lab Sample ID: MB 560-94905/1-A
Matrix: Solid
Analysis Batch: 94893

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94905

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.020		0.10	0.020	mg/Kg		11/11/13 10:22	11/11/13 12:10	50
Ethylbenzene	<0.010		0.10	0.010	mg/Kg		11/11/13 10:22	11/11/13 12:10	50
Toluene	<0.010		0.10	0.010	mg/Kg		11/11/13 10:22	11/11/13 12:10	50
Xylenes, Total	<0.010		0.30	0.010	mg/Kg		11/11/13 10:22	11/11/13 12:10	50

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*111*		*50 - 135*	*11/11/13 10:22*	*11/11/13 12:10*	*50*
4-Bromofluorobenzene (Surr)	*113*		*37 - 138*	*11/11/13 10:22*	*11/11/13 12:10*	*50*
Dibromofluoromethane (Surr)	*94*		*55 - 135*	*11/11/13 10:22*	*11/11/13 12:10*	*50*
1,2-Dichloroethane-d4 (Surr)	*106*		*60 - 145*	*11/11/13 10:22*	*11/11/13 12:10*	*50*

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

Lab Sample ID: LCS 560-94905/2-A
Matrix: Solid
Analysis Batch: 94893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94905

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	2.50	2.25		mg/Kg		90	70 - 130
Ethylbenzene	2.50	2.46		mg/Kg		98	70 - 130
Toluene	2.50	2.43		mg/Kg		97	70 - 130
Xylenes, Total	5.00	4.82		mg/Kg		96	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*117*		*50 - 135*
4-Bromofluorobenzene (Surr)	*113*		*37 - 138*
Dibromofluoromethane (Surr)	*112*		*55 - 135*
1,2-Dichloroethane-d4 (Surr)	*106*		*60 - 145*

Lab Sample ID: 560-43612-2 MS
Matrix: Solid
Analysis Batch: 94893

Client Sample ID: JFED #4 - MW-8-47.5'
Prep Type: Total/NA
Prep Batch: 94905

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.019		2.44	2.16		mg/Kg	☼	89	66 - 130
Ethylbenzene	0.17		2.44	2.46		mg/Kg	☼	94	64 - 130
Toluene	0.19		2.44	2.36		mg/Kg	☼	89	60 - 130
Xylenes, Total	2.4		4.88	5.81		mg/Kg	☼	70	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*113*		*50 - 135*
4-Bromofluorobenzene (Surr)	*112*		*37 - 138*
Dibromofluoromethane (Surr)	*105*		*55 - 135*
1,2-Dichloroethane-d4 (Surr)	*101*		*60 - 145*

Lab Sample ID: 560-43612-2 MSD
Matrix: Solid
Analysis Batch: 94893

Client Sample ID: JFED #4 - MW-8-47.5'
Prep Type: Total/NA
Prep Batch: 94905

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.019		2.43	2.13		mg/Kg	☼	88	66 - 130	2	40.0
Ethylbenzene	0.17		2.43	2.42		mg/Kg	☼	93	64 - 130	2	40.0
Toluene	0.19		2.43	2.32		mg/Kg	☼	88	60 - 130	2	40.0
Xylenes, Total	2.4		4.85	5.70	F	mg/Kg	☼	68	70 - 130	2	40.0

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*110*		*50 - 135*
4-Bromofluorobenzene (Surr)	*108*		*37 - 138*
Dibromofluoromethane (Surr)	*103*		*55 - 135*
1,2-Dichloroethane-d4 (Surr)	*97*		*60 - 145*

Method: 9071B - HEM and SGT-HEM

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

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

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

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

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

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

Method: 9251 - Chloride

Lab Sample ID: MB 560-95305/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 95300

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.19	J	5.0	0.50	mg/Kg			11/20/13 15:51	1

Lab Sample ID: LCS 560-95305/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 95300

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

Lab Sample ID: 560-43612-1 MS — **Client Sample ID: JFED #4 - MW-7-43'**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 95300

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	59		2000	2010		mg/Kg		97	85 - 115

Lab Sample ID: 560-43612-1 MSD — **Client Sample ID: JFED #4 - MW-7-43'**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 95300

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	59		2000	1980		mg/Kg		96	85 - 115	1	30

GC/MS VOA

Analysis Batch: 94882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-4	JFED #4 - MW-12-27.5'	Total/NA	Solid	8260B	
560-43612-5	JFED #4 - MW-10-52.5'	Total/NA	Solid	8260B	
LCS 560-94882/3	Lab Control Sample	Total/NA	Solid	8260B	
MB 560-94882/8	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 94893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Total/NA	Solid	8260B	94905
560-43612-2	JFED #4 - MW-8-47.5'	Total/NA	Solid	8260B	94905
560-43612-2 MS	JFED #4 - MW-8-47.5'	Total/NA	Solid	8260B	94905
560-43612-2 MSD	JFED #4 - MW-8-47.5'	Total/NA	Solid	8260B	94905
560-43612-3	JFED #4 - MW-11-50'	Total/NA	Solid	8260B	94905
560-43612-6	JFED #4 - MW-6-47.5'	Total/NA	Solid	8260B	94905
560-43612-7	JFED #4 - MW-9-53'	Total/NA	Solid	8260B	94905
LCS 560-94905/2-A	Lab Control Sample	Total/NA	Solid	8260B	94905
MB 560-94905/1-A	Method Blank	Total/NA	Solid	8260B	94905

Prep Batch: 94905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Total/NA	Solid	5030B	
560-43612-2	JFED #4 - MW-8-47.5'	Total/NA	Solid	5030B	
560-43612-2 MS	JFED #4 - MW-8-47.5'	Total/NA	Solid	5030B	
560-43612-2 MSD	JFED #4 - MW-8-47.5'	Total/NA	Solid	5030B	
560-43612-3	JFED #4 - MW-11-50'	Total/NA	Solid	5030B	
560-43612-6	JFED #4 - MW-6-47.5'	Total/NA	Solid	5030B	
560-43612-7	JFED #4 - MW-9-53'	Total/NA	Solid	5030B	
LCS 560-94905/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 560-94905/1-A	Method Blank	Total/NA	Solid	5030B	

General Chemistry

Analysis Batch: 94848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Total/NA	Solid	Moisture	
560-43612-2	JFED #4 - MW-8-47.5'	Total/NA	Solid	Moisture	
560-43612-3	JFED #4 - MW-11-50'	Total/NA	Solid	Moisture	
560-43612-4	JFED #4 - MW-12-27.5'	Total/NA	Solid	Moisture	
560-43612-5	JFED #4 - MW-10-52.5'	Total/NA	Solid	Moisture	
560-43612-6	JFED #4 - MW-6-47.5'	Total/NA	Solid	Moisture	
560-43612-7	JFED #4 - MW-9-53'	Total/NA	Solid	Moisture	

Analysis Batch: 95300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Soluble	Solid	9251	95305
560-43612-1 MS	JFED #4 - MW-7-43'	Soluble	Solid	9251	95305
560-43612-1 MSD	JFED #4 - MW-7-43'	Soluble	Solid	9251	95305
560-43612-2	JFED #4 - MW-8-47.5'	Soluble	Solid	9251	95305
560-43612-3	JFED #4 - MW-11-50'	Soluble	Solid	9251	95305
560-43612-4	JFED #4 - MW-12-27.5'	Soluble	Solid	9251	95305
560-43612-5	JFED #4 - MW-10-52.5'	Soluble	Solid	9251	95305

General Chemistry (Continued)

Analysis Batch: 95300 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-6	JFED #4 - MW-6-47.5'	Soluble	Solid	9251	95305
560-43612-7	JFED #4 - MW-9-53'	Soluble	Solid	9251	95305
LCS 560-95305/2-A	Lab Control Sample	Soluble	Solid	9251	95305
MB 560-95305/1-A	Method Blank	Soluble	Solid	9251	95305

Leach Batch: 95305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Soluble	Solid	DI Leach	
560-43612-1 MS	JFED #4 - MW-7-43'	Soluble	Solid	DI Leach	
560-43612-1 MSD	JFED #4 - MW-7-43'	Soluble	Solid	DI Leach	
560-43612-2	JFED #4 - MW-8-47.5'	Soluble	Solid	DI Leach	
560-43612-3	JFED #4 - MW-11-50'	Soluble	Solid	DI Leach	
560-43612-4	JFED #4 - MW-12-27.5'	Soluble	Solid	DI Leach	
560-43612-5	JFED #4 - MW-10-52.5'	Soluble	Solid	DI Leach	
560-43612-6	JFED #4 - MW-6-47.5'	Soluble	Solid	DI Leach	
560-43612-7	JFED #4 - MW-9-53'	Soluble	Solid	DI Leach	
LCS 560-95305/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 560-95305/1-A	Method Blank	Soluble	Solid	DI Leach	

Prep Batch: 120370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Total/NA	Solid	9071B	
560-43612-2	JFED #4 - MW-8-47.5'	Total/NA	Solid	9071B	
560-43612-3	JFED #4 - MW-11-50'	Total/NA	Solid	9071B	
560-43612-4	JFED #4 - MW-12-27.5'	Total/NA	Solid	9071B	
560-43612-5	JFED #4 - MW-10-52.5'	Total/NA	Solid	9071B	
560-43612-6	JFED #4 - MW-6-47.5'	Total/NA	Solid	9071B	
560-43612-7	JFED #4 - MW-9-53'	Total/NA	Solid	9071B	
LCS 600-120370/2-A	Lab Control Sample	Total/NA	Solid	9071B	
LCSD 600-120370/3-A	Lab Control Sample Dup	Total/NA	Solid	9071B	
MB 600-120370/1-A	Method Blank	Total/NA	Solid	9071B	

Analysis Batch: 120371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
560-43612-1	JFED #4 - MW-7-43'	Total/NA	Solid	9071B	120370
560-43612-2	JFED #4 - MW-8-47.5'	Total/NA	Solid	9071B	120370
560-43612-3	JFED #4 - MW-11-50'	Total/NA	Solid	9071B	120370
560-43612-4	JFED #4 - MW-12-27.5'	Total/NA	Solid	9071B	120370
560-43612-5	JFED #4 - MW-10-52.5'	Total/NA	Solid	9071B	120370
560-43612-6	JFED #4 - MW-6-47.5'	Total/NA	Solid	9071B	120370
560-43612-7	JFED #4 - MW-9-53'	Total/NA	Solid	9071B	120370
LCS 600-120370/2-A	Lab Control Sample	Total/NA	Solid	9071B	120370
LCSD 600-120370/3-A	Lab Control Sample Dup	Total/NA	Solid	9071B	120370
MB 600-120370/1-A	Method Blank	Total/NA	Solid	9071B	120370

Client Sample ID: JFED #4 - MW-7-43'

Lab Sample ID: 560-43612-1

Date Collected: 11/02/13 12:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 90.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			94905	11/11/13 10:22	ANT	TAL CC
Total/NA	Analysis	8260B		50	94893	11/11/13 12:36	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC
Soluble	Analysis	9251		1	95300	11/20/13 15:53	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Client Sample ID: JFED #4 - MW-8-47.5'

Lab Sample ID: 560-43612-2

Date Collected: 11/04/13 09:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			94905	11/11/13 10:22	ANT	TAL CC
Total/NA	Analysis	8260B		50	94893	11/11/13 13:01	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC
Soluble	Analysis	9251		1	95300	11/20/13 15:55	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Client Sample ID: JFED #4 - MW-11-50'

Lab Sample ID: 560-43612-3

Date Collected: 11/04/13 14:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			94905	11/11/13 10:22	ANT	TAL CC
Total/NA	Analysis	8260B		50	94893	11/11/13 13:26	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC
Soluble	Analysis	9251		1	95300	11/20/13 15:56	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Client Sample ID: JFED #4 - MW-12-27.5'

Lab Sample ID: 560-43612-4

Date Collected: 11/05/13 10:00
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 97.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	94882	11/11/13 16:58	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC

Lab Chronicle

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
SDG: November 2013

Client Sample ID: JFED #4 - MW-12-27.5'

Lab Sample ID: 560-43612-4

Date Collected: 11/05/13 10:00
Matrix: Solid
Date Received: 11/08/13 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Analysis	9251		1	95300	11/20/13 15:56	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Client Sample ID: JFED #4 - MW-10-52.5'

Lab Sample ID: 560-43612-5

Date Collected: 11/06/13 09:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	94882	11/11/13 18:17	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC
Soluble	Analysis	9251		1	95300	11/20/13 15:57	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Client Sample ID: JFED #4 - MW-6-47.5'

Lab Sample ID: 560-43612-6

Date Collected: 11/06/13 14:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			94905	11/11/13 10:22	ANT	TAL CC
Total/NA	Analysis	8260B		50	94893	11/11/13 15:14	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC
Soluble	Analysis	9251		1	95300	11/20/13 15:57	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Client Sample ID: JFED #4 - MW-9-53'

Lab Sample ID: 560-43612-7

Date Collected: 11/07/13 10:30
Matrix: Solid
Date Received: 11/08/13 09:25
Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			94905	11/11/13 10:22	ANT	TAL CC
Total/NA	Analysis	8260B		50	94893	11/11/13 15:39	ANT	TAL CC
Total/NA	Analysis	Moisture		1	94848	11/08/13 15:27	DRB	TAL CC
Soluble	Leach	DI Leach			95305	11/20/13 14:00	LPO	TAL CC
Soluble	Analysis	9251		1	95300	11/20/13 15:58	LPO	TAL CC
Total/NA	Prep	9071B			120370	11/13/13 12:32	FNC	TAL HOU
Total/NA	Analysis	9071B		1	120371	11/13/13 12:32	FNC	TAL HOU

Lab Chronicle

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
SDG: November 2013

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: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
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	9503	08-31-13 *
Texas	NELAP	6	T104704223	10-31-14
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	TX00083	10-31-13 *

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

Method Summary

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
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: Johnston Federal #4 Soil Analysis

TestAmerica Job ID: 560-43612-1
SDG: November 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-43612-1	JFED #4 - MW-7-43'	Solid	11/02/13 12:30	11/08/13 09:25
560-43612-2	JFED #4 - MW-8-47.5'	Solid	11/04/13 09:30	11/08/13 09:25
560-43612-3	JFED #4 - MW-11-50'	Solid	11/04/13 14:30	11/08/13 09:25
560-43612-4	JFED #4 - MW-12-27.5'	Solid	11/05/13 10:00	11/08/13 09:25
560-43612-5	JFED #4 - MW-10-52.5'	Solid	11/06/13 09:30	11/08/13 09:25
560-43612-6	JFED #4 - MW-6-47.5'	Solid	11/06/13 14:30	11/08/13 09:25
560-43612-7	JFED #4 - MW-9-53'	Solid	11/07/13 10:30	11/08/13 09:25

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

Chain of Custo

560-43612 Chain of Custody

TestAmerica

Loc: 560
43612

Client Information	Sampler: Davy BW	Lab PM: Kellogg, Timothy L	COC No: 560-11420-1198.1
Client Contact: Mr. Daniel Wade	Phone: 466 7613793	E-Mail: tim.kellogg@testamericainc.com	Page: Page 1 of 1
Company: MWH Americas Inc			Job #:
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: Johnston Federal #4	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300 - Chloride	Moisture, TX_1005	8260B - BTEX	8260B - BTEX	Total Number of containers	Special Instructions/Note:
Preservation Code:							N	N	N	A		
~~JFED#4-MW-7-43'~~	110213	1230	C	Solid			X	X	X			
~~SEL~~ ~~JFED#4-MW-8-47.5'~~	110413	0930	C	Solid			X	X	X			
JFED#4-MW-11-50'	110413	1430	C	Solid			X	X	X			
~~JFED#4~~-MW-12-27.5'	110513	1000	C	Solid			X	X	X			
JFED#4-MW-10-52.5'	110613	0930	C	Solid			X	X	X			
~~JFED#4~~-MW-6-47.5'	110613	1430	C	Solid			X	X	X			
~~JFED#4~~-MW-9-53'	110713	1030	C	Solid			X	X	X			
Trip Blank				Water						X		

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:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	110713 1200	MWH		110813@0925	TAcc
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: 5.5°C / 5.8°C IR4

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11/21/2013

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-43612-1
SDG Number: November 2013

Login Number: 43612
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").	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: 560-43612-1
SDG Number: November 2013

Login Number: 43612
List Number: 1
Creator: Lopez, Sandro R

List Source: TestAmerica Houston
List Creation: 11/12/13 10:43 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	3.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX C

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 560-40557-1
TestAmerica Sample Delivery Group: June 2013
Client Project/Site: Johnston Fed #4

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

Attn: Mr. Daniel Wade

Authorized for release by:
6/19/2013 9:34:28 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)

Job ID: 560-40557-1

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 4.0º C. No analytical or quality issues were noted.

Detection Summary

Client: MWH Americas Inc
Project/Site: Johnston Fed #4

TestAmerica Job ID: 560-40557-1
SDG: June 2013

Client Sample ID: MW-1 — Lab Sample ID: 560-40557-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.9		0.20	0.028	mg/L	200		8260B	Total/NA
Ethylbenzene	0.61		0.20	0.040	mg/L	200		8260B	Total/NA
Toluene	14		0.20	0.060	mg/L	200		8260B	Total/NA
Xylenes, Total	10		0.60	0.045	mg/L	200		8260B	Total/NA

Client Sample ID: MW-2 — Lab Sample ID: 560-40557-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0018		0.0010	0.00014	mg/L	1		8260B	Total/NA

Client Sample ID: MW-3 — Lab Sample ID: 560-40557-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.1		0.10	0.014	mg/L	100		8260B	Total/NA
Ethylbenzene	0.87		0.10	0.020	mg/L	100		8260B	Total/NA
Toluene	12		0.10	0.030	mg/L	100		8260B	Total/NA
Xylenes, Total	11		0.30	0.023	mg/L	100		8260B	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 560-40557-4

No Detections.

Client Sample ID: TMW-5 — Lab Sample ID: 560-40557-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6.4		0.050	0.0070	mg/L	50		8260B	Total/NA
Ethylbenzene	0.40		0.050	0.010	mg/L	50		8260B	Total/NA
Toluene	0.21		0.050	0.015	mg/L	50		8260B	Total/NA
Xylenes, Total	0.18		0.15	0.011	mg/L	50		8260B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 560-40557-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1

Lab Sample ID: 560-40557-1

Date Collected: 06/09/13 09:50
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	**3.9**		0.20	0.028	mg/L			06/17/13 14:38	200
Ethylbenzene	**0.61**		0.20	0.040	mg/L			06/17/13 14:38	200
Toluene	**14**		0.20	0.060	mg/L			06/17/13 14:38	200
Xylenes, Total	**10**		0.60	0.045	mg/L			06/17/13 14:38	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*70 - 130*		*06/17/13 14:38*	*200*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*06/17/13 14:38*	*200*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*06/17/13 14:38*	*200*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*06/17/13 14:38*	*200*

Client Sample ID: MW-2

Lab Sample ID: 560-40557-2

Date Collected: 06/09/13 09:40
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	**0.0018**		0.0010	0.00014	mg/L			06/16/13 17:48	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/16/13 17:48	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/16/13 17:48	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/16/13 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*06/16/13 17:48*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*06/16/13 17:48*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*06/16/13 17:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*06/16/13 17:48*	*1*

Client Sample ID: MW-3

Lab Sample ID: 560-40557-3

Date Collected: 06/09/13 10:15
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	**5.1**		0.10	0.014	mg/L			06/17/13 15:03	100
Ethylbenzene	**0.87**		0.10	0.020	mg/L			06/17/13 15:03	100
Toluene	**12**		0.10	0.030	mg/L			06/17/13 15:03	100
Xylenes, Total	**11**		0.30	0.023	mg/L			06/17/13 15:03	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*70 - 130*		*06/17/13 15:03*	*100*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*06/17/13 15:03*	*100*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*06/17/13 15:03*	*100*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*		*06/17/13 15:03*	*100*

Client Sample ID: MW-4

Date Collected: 06/09/13 09:30
Date Received: 06/12/13 10:00

Lab Sample ID: 560-40557-4
Matrix: Water

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			06/17/13 15:29	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/17/13 15:29	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/17/13 15:29	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/17/13 15:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/17/13 15:29*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*		*06/17/13 15:29*	*1*
Dibromofluoromethane (Surr)	*108*		*70 - 130*		*06/17/13 15:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*06/17/13 15:29*	*1*

Client Sample ID: TMW-5

Date Collected: 06/09/13 10:00
Date Received: 06/12/13 10:00

Lab Sample ID: 560-40557-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.4**		0.050	0.0070	mg/L			06/17/13 15:54	50
Ethylbenzene	**0.40**		0.050	0.010	mg/L			06/17/13 15:54	50
Toluene	**0.21**		0.050	0.015	mg/L			06/17/13 15:54	50
Xylenes, Total	**0.18**		0.15	0.011	mg/L			06/17/13 15:54	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/17/13 15:54*	*50*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*06/17/13 15:54*	*50*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*06/17/13 15:54*	*50*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*06/17/13 15:54*	*50*

Client Sample ID: Trip Blank

Date Collected: 06/09/13 00:00
Date Received: 06/12/13 10:00

Lab Sample ID: 560-40557-6
Matrix: Water

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 18:13	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/16/13 18:13	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/16/13 18:13	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/16/13 18:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*06/16/13 18:13*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*06/16/13 18:13*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*06/16/13 18:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*		*06/16/13 18:13*	*1*

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

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*

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 Sample ID: MB 560-89169/8
Matrix: Water
Analysis Batch: 89169

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00014		0.0010	0.00014	mg/L			06/17/13 12:32	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			06/17/13 12:32	1
Toluene	<0.00030		0.0010	0.00030	mg/L			06/17/13 12:32	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			06/17/13 12:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*06/17/13 12:32*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*06/17/13 12:32*	*1*
Dibromofluoromethane (Surr)	*110*		*70 - 130*		*06/17/13 12:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*06/17/13 12:32*	*1*

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

Lab Sample ID: LCS 560-89169/3
Matrix: Water
Analysis Batch: 89169

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	0.0276		mg/L		110	70 - 130		
Ethylbenzene			0.0250	0.0245		mg/L		98	70 - 130		
Toluene			0.0250	0.0278		mg/L		111	70 - 130		
Xylenes, Total			0.0750	0.0736		mg/L		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*70 - 130*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*

Lab Chronicle

Client: MWH Americas Inc
Project/Site: Johnston Fed #4

TestAmerica Job ID: 560-40557-1
SDG: June 2013

Client Sample ID: MW-1
Lab Sample ID: 560-40557-1
Date Collected: 06/09/13 09:50
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		200	89169	06/17/13 14:38	RT	TAL CC

Client Sample ID: MW-2
Lab Sample ID: 560-40557-2
Date Collected: 06/09/13 09:40
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 17:48	RT	TAL CC

Client Sample ID: MW-3
Lab Sample ID: 560-40557-3
Date Collected: 06/09/13 10:15
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		100	89169	06/17/13 15:03	RT	TAL CC

Client Sample ID: MW-4
Lab Sample ID: 560-40557-4
Date Collected: 06/09/13 09:30
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	89169	06/17/13 15:29	RT	TAL CC

Client Sample ID: TMW-5
Lab Sample ID: 560-40557-5
Date Collected: 06/09/13 10:00
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		50	89169	06/17/13 15:54	RT	TAL CC

Client Sample ID: Trip Blank
Lab Sample ID: 560-40557-6
Date Collected: 06/09/13 00:00
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 18:13	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: Johnston Fed #4

TestAmerica Job ID: 560-40557-1
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: Johnston Fed #4

TestAmerica Job ID: 560-40557-1
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: Johnston Fed #4

TestAmerica Job ID: 560-40557-1
SDG: June 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-40557-1	MW-1	Water	06/09/13 09:50	06/12/13 10:00
560-40557-2	MW-2	Water	06/09/13 09:40	06/12/13 10:00
560-40557-3	MW-3	Water	06/09/13 10:15	06/12/13 10:00
560-40557-4	MW-4	Water	06/09/13 09:30	06/12/13 10:00
560-40557-5	TMW-5	Water	06/09/13 10:00	06/12/13 10:00
560-40557-6	Trip Blank	Water	06/09/13 00:00	06/12/13 10:00

TestAmerica
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No. 49413

CHAIN OF CUSTODY RECORD

Loc: 560
40557

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: MWH	PROJECT NAME/NUMBER: Johnston Fed #4
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:

560-40557 Chain of Custody

SEAL INTACT: Y
TEMP C: 4.8
CORR TEMP C: 4.0
IR GUN ID: 4
INITIAL/DATE: MW 06/12

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER RS	8260	REMARKS/PRECAUTIONS.
	MW-1	6/9/13	950	GW	VOA	HCL	3	X	
	MW-2	6/9/13	940	GW	VOA	HCL	3	X	
	MW-3	6/9/13	1015	GW	VOA	HCL	3	X	
	MW-4	6/9/13	930	GW	VOA	HCL	3	X	
	TMW-5	6/9/13	1000	GW	VOA	HCL	3	X	

SAMPLER: Daniel Wade
SHIPMENT METHOD: FedEx
AIRBILL NO.: 1957 8855 3894

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	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: MWH	TIME 1000	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE:	6/12/13	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY:	TIME 1100	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: 560-40557-1
SDG Number: June 2013

Login Number: 40557
List Number: 1
Creator: McDermott, Vivian

List Source: TestAmerica Corpus Christi

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 560-42535-1
TestAmerica Sample Delivery Group: September 2013
Client Project/Site: Johnston Fed #4 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 11:04:39 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)

Job ID: 560-42535-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-42535-1

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 samples were listed on the Chain of Custody (COC); however, no sample(s) was received: SX1 and 3

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: Johnston Fed #4 Groundwater Analysis

TestAmerica Job ID: 560-42535-1
SDG: September 2013

Client Sample ID: MW-2 — Lab Sample ID: 560-42535-2

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

Client Sample ID: MW-4 — Lab Sample ID: 560-42535-4

No Detections.

Client Sample ID: MW-5 — Lab Sample ID: 560-42535-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.6		0.050	0.0070	mg/L	50		8260B	Total/NA
Ethylbenzene	0.47		0.050	0.010	mg/L	50		8260B	Total/NA
Toluene	0.026	J	0.050	0.015	mg/L	50		8260B	Total/NA
Xylenes, Total	0.10	J	0.15	0.011	mg/L	50		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-2

Lab Sample ID: 560-42535-2

Date Collected: 09/09/13 11:00
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	**0.0017**		0.0010	0.00014	mg/L			09/18/13 20:07	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 20:07	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 20:07	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 20:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/18/13 20:07*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*09/18/13 20:07*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*09/18/13 20:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 140*		*09/18/13 20:07*	*1*

Client Sample ID: MW-4

Lab Sample ID: 560-42535-4

Date Collected: 09/09/13 10:55
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 20:33	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			09/18/13 20:33	1
Toluene	<0.00030		0.0010	0.00030	mg/L			09/18/13 20:33	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			09/18/13 20:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/18/13 20:33*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*09/18/13 20:33*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*09/18/13 20:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 140*		*09/18/13 20:33*	*1*

Client Sample ID: MW-5

Lab Sample ID: 560-42535-5

Date Collected: 09/09/13 11:15
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	**5.6**		0.050	0.0070	mg/L			09/18/13 20:58	50
Ethylbenzene	**0.47**		0.050	0.010	mg/L			09/18/13 20:58	50
Toluene	**0.026**	**J**	0.050	0.015	mg/L			09/18/13 20:58	50
Xylenes, Total	**0.10**	**J**	0.15	0.011	mg/L			09/18/13 20:58	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/18/13 20:58*	*50*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*09/18/13 20:58*	*50*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*09/18/13 20:58*	*50*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 140*		*09/18/13 20:58*	*50*

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: Johnston Fed #4 Groundwater Analysis

TestAmerica Job ID: 560-42535-1
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: Johnston Fed #4 Groundwater Analysis

TestAmerica Job ID: 560-42535-1
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: Johnston Fed #4 Groundwater Analysis

TestAmerica Job ID: 560-42535-1
SDG: September 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-42535-2	MW-2	Water	09/09/13 11:00	09/14/13 10:05
560-42535-4	MW-4	Water	09/09/13 10:55	09/14/13 10:05
560-42535-5	MW-5	Water	09/09/13 11:15	09/14/13 10:05

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

Chain of Custo

560-42535 Chain of Custody

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

Loc: 560
42535

Client Information	Sampler: DAW	Lab PM: Kellogg, Timothy L	COC No: 560-10718-1157
Client Contact: Mr. Daniel Wade	Phone: 303-912-2625	E-Mail: tim.kellogg@testamericainc.com	Page: Page 1 of 1
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: Johnston Fed #4	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-1	9/9/13	1110	G	Water			X		
MW-2	9/9/13	1100	G	Water			X		
MW-3	9/9/13	1105	G	Water			X		
MW-4	9/9/13	1050	G	Water			X		
TMW-5	9/9/13	1115	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 Sat

	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	9/13/13 1200			091413 1005	Ace
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: CUS 1.5c CMR 1.4c IR4

Page 10 of 11

10/3/2013

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-42535-1
SDG Number: September 2013

Login Number: 42535
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: 560-44359-1
TestAmerica Sample Delivery Group: December 2013
Client Project/Site: Johnston Federal #4 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 7:37:24 PM

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

Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

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.

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)

Case Narrative

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

Job ID: 560-44359-1

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 1.5º C. No analytical or quality issues were noted.

Detection Summary

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

Client Sample ID: MW-2 — Lab Sample ID: 560-44359-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0015	J	0.0020	0.00020	mg/L	1		8021B	Total/NA
Xylenes, Total	0.00080	J	0.0020	0.00065	mg/L	1		8021B	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 560-44359-2

No Detections.

Client Sample ID: MW-5 — Lab Sample ID: 560-44359-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.9		0.080	0.0080	mg/L	40		8021B	Total/NA
Toluene	0.029	J	0.080	0.015	mg/L	40		8021B	Total/NA
Ethylbenzene	0.40		0.080	0.0080	mg/L	40		8021B	Total/NA
Xylenes, Total	0.12		0.080	0.026	mg/L	40		8021B	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 560-44359-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.12		0.080	0.0080	mg/L	40		8021B	Total/NA
Toluene	0.11		0.080	0.015	mg/L	40		8021B	Total/NA
Ethylbenzene	0.049	J	0.080	0.0080	mg/L	40		8021B	Total/NA
Xylenes, Total	0.49		0.080	0.026	mg/L	40		8021B	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 560-44359-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.18		0.020	0.0020	mg/L	10		8021B	Total/NA
Toluene	0.31		0.020	0.0038	mg/L	10		8021B	Total/NA
Ethylbenzene	0.046		0.020	0.0020	mg/L	10		8021B	Total/NA
Xylenes, Total	0.43		0.020	0.0065	mg/L	10		8021B	Total/NA

Client Sample ID: MW-10 — Lab Sample ID: 560-44359-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.2		0.020	0.0028	mg/L	20		8260B	Total/NA
Ethylbenzene	0.30		0.020	0.0040	mg/L	20		8260B	Total/NA
Toluene	3.5		0.020	0.0060	mg/L	20		8260B	Total/NA
Xylenes, Total	3.2		0.060	0.0045	mg/L	20		8260B	Total/NA

Client Sample ID: MW-12 — Lab Sample ID: 560-44359-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	0.00039	J	0.0030	0.00023	mg/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-2

Lab Sample ID: 560-44359-1

Date Collected: 12/12/13 09:50
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	**0.0015**	**J**	0.0020	0.00020	mg/L			12/21/13 23:29	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/21/13 23:29	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/21/13 23:29	1
Xylenes, Total	**0.00080**	**J**	0.0020	0.00065	mg/L			12/21/13 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*58 - 129*		*12/21/13 23:29*	*1*
Trifluorotoluene (Surr)	*85*		*54 - 130*		*12/21/13 23:29*	*1*

Client Sample ID: MW-4

Lab Sample ID: 560-44359-2

Date Collected: 12/12/13 09:30
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			12/21/13 23:56	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/21/13 23:56	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/21/13 23:56	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/21/13 23:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*58 - 129*		*12/21/13 23:56*	*1*
Trifluorotoluene (Surr)	*87*		*54 - 130*		*12/21/13 23:56*	*1*

Client Sample ID: MW-5

Lab Sample ID: 560-44359-3

Date Collected: 12/12/13 10:10
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	**3.9**		0.080	0.0080	mg/L			12/22/13 00:23	40
Toluene	**0.029**	**J**	0.080	0.015	mg/L			12/22/13 00:23	40
Ethylbenzene	**0.40**		0.080	0.0080	mg/L			12/22/13 00:23	40
Xylenes, Total	**0.12**		0.080	0.026	mg/L			12/22/13 00:23	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*58 - 129*		*12/22/13 00:23*	*40*
Trifluorotoluene (Surr)	*86*		*54 - 130*		*12/22/13 00:23*	*40*

Client Sample ID: MW-7

Lab Sample ID: 560-44359-4

Date Collected: 12/12/13 09:55
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	**0.12**		0.080	0.0080	mg/L			12/22/13 02:39	40
Toluene	**0.11**		0.080	0.015	mg/L			12/22/13 02:39	40
Ethylbenzene	**0.049**	**J**	0.080	0.0080	mg/L			12/22/13 02:39	40
Xylenes, Total	**0.49**		0.080	0.026	mg/L			12/22/13 02:39	40

Client Sample ID: MW-7

Lab Sample ID: 560-44359-4

Date Collected: 12/12/13 09:55
Matrix: Water
Date Received: 12/17/13 10:40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		58 - 129		12/22/13 02:39	40
Trifluorotoluene (Surr)	86		54 - 130		12/22/13 02:39	40

Client Sample ID: MW-9

Lab Sample ID: 560-44359-5

Date Collected: 12/12/13 09:40
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	0.18		0.020	0.0020	mg/L			12/22/13 03:06	10
Toluene	0.31		0.020	0.0038	mg/L			12/22/13 03:06	10
Ethylbenzene	0.046		0.020	0.0020	mg/L			12/22/13 03:06	10
Xylenes, Total	0.43		0.020	0.0065	mg/L			12/22/13 03:06	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		58 - 129		12/22/13 03:06	10
Trifluorotoluene (Surr)	85		54 - 130		12/22/13 03:06	10

Client Sample ID: MW-10

Lab Sample ID: 560-44359-6

Date Collected: 12/12/13 09:45
Matrix: Water
Date Received: 12/17/13 10:40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.2		0.020	0.0028	mg/L			12/24/13 17:45	20
Ethylbenzene	0.30		0.020	0.0040	mg/L			12/24/13 17:45	20
Toluene	3.5		0.020	0.0060	mg/L			12/24/13 17:45	20
Xylenes, Total	3.2		0.060	0.0045	mg/L			12/24/13 17:45	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		70 - 130		12/24/13 17:45	20
4-Bromofluorobenzene (Surr)	102		70 - 130		12/24/13 17:45	20

Client Sample ID: MW-12

Lab Sample ID: 560-44359-7

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

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00014		0.0010	0.00014	mg/L			12/24/13 18:10	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			12/24/13 18:10	1
Toluene	<0.00030		0.0010	0.00030	mg/L			12/24/13 18:10	1
Xylenes, Total	0.00039	J	0.0030	0.00023	mg/L			12/24/13 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		70 - 130		12/24/13 18:10	1
4-Bromofluorobenzene (Surr)	98		70 - 130		12/24/13 18:10	1

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

Lab Sample ID: MB 560-96541/8
Matrix: Water
Analysis Batch: 96541

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00014		0.0010	0.00014	mg/L			12/24/13 11:54	1
Ethylbenzene	<0.00020		0.0010	0.00020	mg/L			12/24/13 11:54	1
Toluene	<0.00030		0.0010	0.00030	mg/L			12/24/13 11:54	1
Xylenes, Total	<0.00023		0.0030	0.00023	mg/L			12/24/13 11:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*70 - 130*		*12/24/13 11:54*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*12/24/13 11:54*	*1*

Lab Sample ID: LCS 560-96541/3
Matrix: Water
Analysis Batch: 96541

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	0.0263		mg/L		105	70 - 130
Ethylbenzene	0.0250	0.0242		mg/L		97	70 - 130
Toluene	0.0250	0.0259		mg/L		104	70 - 130
Xylenes, Total	0.0750	0.0731		mg/L		98	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 560-96483/5
Matrix: Water
Analysis Batch: 96483

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			12/21/13 21:49	1
Toluene	<0.00038		0.0020	0.00038	mg/L			12/21/13 21:49	1
Ethylbenzene	<0.00020		0.0020	0.00020	mg/L			12/21/13 21:49	1
Xylenes, Total	<0.00065		0.0020	0.00065	mg/L			12/21/13 21:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*58 - 129*		*12/21/13 21:49*	*1*
Trifluorotoluene (Surr)	*86*		*54 - 130*		*12/21/13 21:49*	*1*

Lab Sample ID: LCS 560-96483/4
Matrix: Water
Analysis Batch: 96483

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	0.0355		mg/L		89	70 - 130
Toluene	0.0400	0.0358		mg/L		90	70 - 130
Ethylbenzene	0.0400	0.0361		mg/L		90	70 - 130

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

Lab Sample ID: LCS 560-96483/4
Matrix: Water
Analysis Batch: 96483

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Xylenes, Total			0.120	0.106		mg/L		88	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*58 - 129*
Trifluorotoluene (Surr)	*87*		*54 - 130*

Lab Sample ID: 560-44359-3 MS
Matrix: Water
Analysis Batch: 96483

Client Sample ID: MW-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	3.9		1.60	5.12		mg/L		76	64 - 130		
Toluene	0.029	J	1.60	1.45		mg/L		89	59 - 130		
Ethylbenzene	0.40		1.60	1.81		mg/L		88	63 - 133		
Xylenes, Total	0.12		4.80	4.30		mg/L		87	53 - 147		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*58 - 129*
Trifluorotoluene (Surr)	*84*		*54 - 130*

Lab Sample ID: 560-44359-3 MSD
Matrix: Water
Analysis Batch: 96483

Client Sample ID: MW-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	3.9		1.60	5.15		mg/L		78	64 - 130	1	20
Toluene	0.029	J	1.60	1.44		mg/L		88	59 - 130	1	20
Ethylbenzene	0.40		1.60	1.79		mg/L		87	63 - 133	1	20
Xylenes, Total	0.12		4.80	4.27		mg/L		86	53 - 147	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*58 - 129*
Trifluorotoluene (Surr)	*85*		*54 - 130*

Lab Chronicle

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

Client Sample ID: MW-2
Lab Sample ID: 560-44359-1
Date Collected: 12/12/13 09:50
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	96483	12/21/13 23:29	RQH	TAL CC

Client Sample ID: MW-4
Lab Sample ID: 560-44359-2
Date Collected: 12/12/13 09:30
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	96483	12/21/13 23:56	RQH	TAL CC

Client Sample ID: MW-5
Lab Sample ID: 560-44359-3
Date Collected: 12/12/13 10:10
Matrix: Water
Date Received: 12/17/13 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		40	96483	12/22/13 00:23	RQH	TAL CC

Client Sample ID: MW-7
Lab Sample ID: 560-44359-4
Date Collected: 12/12/13 09:55
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		40	96483	12/22/13 02:39	RQH	TAL CC

Client Sample ID: MW-9
Lab Sample ID: 560-44359-5
Date Collected: 12/12/13 09:40
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		10	96483	12/22/13 03:06	RQH	TAL CC

Client Sample ID: MW-10
Lab Sample ID: 560-44359-6
Date Collected: 12/12/13 09:45
Matrix: Water
Date Received: 12/17/13 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	96541	12/24/13 17:45	RP56	TAL CC

Lab Chronicle

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

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

Lab Sample ID: 560-44359-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	96541	12/24/13 18:10	RP56	TAL CC

Laboratory References:

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

Certification Summary

Client: MWH Americas Inc
Project/Site: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
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: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CC
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: Johnston Federal #4 Groundwater Analysis

TestAmerica Job ID: 560-44359-1
SDG: December 2013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-44359-1	MW-2	Water	12/12/13 09:50	12/17/13 10:40
560-44359-2	MW-4	Water	12/12/13 09:30	12/17/13 10:40
560-44359-3	MW-5	Water	12/12/13 10:10	12/17/13 10:40
560-44359-4	MW-7	Water	12/12/13 09:55	12/17/13 10:40
560-44359-5	MW-9	Water	12/12/13 09:40	12/17/13 10:40
560-44359-6	MW-10	Water	12/12/13 09:45	12/17/13 10:40
560-44359-7	MW-12	Water	12/12/13 10:15	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 of
Company: MWH Americas Inc				Job #: 44359 Loc: 560
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~~ christopher.s.lee@mwhglobal.com	WO #: TWO # C-STLI-			
Project Name: San Juan River Basin Pit Sites	Project #: 56000058			
Site: Johnston Federal #4	SSOW#:			

Analysis Requested

560-44359 Chain of Custody

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)	8260B - BTEX	Total	Special Instructions/Note:
			Preservation Code:				A		
MW-1	12/12/13	1025	G	Water			X		NOT SAMPLED
MW-2	12/12/13	950	G	Water			X		
~~MW-3~~	~~12/12/13~~	1020	G	Water			X		NOT SAMPLED
MW-4	12/12/13	930	G	Water			X		
MW-5	12/12/13	1010	G	Water			X		
MW-6	12/12/13	935	G	Water			X		NOT SAMPLED
MW-7	12/12/13	955	G	Water			X		
MW-8	12/12/13	1000	G	Water			X		NOT SAMPLED
MW-9	12/12/13	940	G	Water			X		
MW-10	12/12/13	945	G	Water			X		
MW-11	12/12/13	1005	G	Water			X		NOT SAMPLED

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	12/18/2013 0900		[signature]	12-17-13 10:40	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: 1.3/1.5 IR4 Seal

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12/30/2013

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 2 of 2
Company: MWH Americas Inc				Job #:

Address: 1801 California Street Suite 2900	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Denver	TAT Requested (days): STANDARD		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)
State, Zip: CO, 80202			
Phone: 713-420-3414(Tel)	PO #: Purchase Order not required		
Email: Christopher.C.lee@mwhglobal.com Daniel.A.Wade@us.mwhglobal.com	WO #: TWO # C-STLI-		Other:
Project Name: San Juan River Basin Pit Sites	Project #: 56000058		
Site: Johnston Federal #4	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-12	12/12/13	1015	G	Water			X		
				Water					
Trip Blank				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:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Christopher Lee	12/16/2013 0900		RWM	12/17/13 10:40	TACC
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: 1.3/1.5 IR1 Seal

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12/30/2013

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-44359-1
SDG Number: December 2013

Login Number: 44359
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.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		