

2016 ANNUAL GROUNDWATER REPORT

Johnston Fed #4
NMOCD Case #: 3RP-201-0
Meter Code: 70194
T31N, R09W, Sec 33, Unit H

SITE DETAILS

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

SITE BACKGROUND

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

Environmental Remediation activities at the Johnston Fed #4 (Site) are 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 Private/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), 2013 (MW-6 through MW-12), and 2014 (MW-13 through MW-20). Temporary piezometers PH-PZ-1, PH-PZ-2, and PH-PZ-3 were installed and abandoned in 1997. Temporary monitoring well TMW-5 was plugged and abandoned in 2014. Free product has been observed at the site and is periodically recovered. In 2016, measureable free product was observed in MW-1, MW-3, MW-6, MW-8, and MW-11. Currently, groundwater sampling is conducted from selected monitoring wells on a semi-annual basis.

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GROUNDWATER SAMPLING ACTIVITIES

Groundwater monitoring and sampling was completed on April 16 and October 12, 2016. Water levels were gauged at wells MW-1 through MW-4 and MW-6 through MW-20. Monitoring wells MW-6, MW-7, MW-9, MW-13, MW-15, MW-16, MW-18, MW-19 and MW-20 were selected to be sampled in 2016. Groundwater samples were not collected from MW-1, MW-3, MW-8, and MW-11 in 2016 due to the presence of free product. Groundwater samples were collected from selected monitoring wells using HydraSleeve™ (HydraSleeve) no-purge groundwater sampling devices. 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 stainless steel weights to collect a sample from the screened interval.

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

FREE PRODUCT RECOVERY

Free product was manually recovered from MW-1, MW-3, MW-8 and MW-11 in 2016. Approximately 0.2 gallons of free product were manually recovered from MW-1, approximately 1.44 gallons of free product were recovered from MW-3, approximately 4.63 gallons of free product were recovered from MW-8, and 0.79 gallons of free product were recovered from MW-11 in 2016. During the April 2016 recovery event, field specific gravity measurements of 0.745, 0.745, and 0.75, were recorded from the free product recovered from MW-3, MW-8, and MW-11, respectively, using a hydrometer. Based on the data collected, transmissivity estimates of 0.00029 to 0.17 ft²/ day were obtained using Bouwer and Rice, and Cooper, Bredehoeff, and Papadopoulos models.

Mobile dual phase extraction (MDPE) events were completed on November 30 and December 1, 2016, by AcuVac Remediation, LLC, of Houston, Texas (AcuVac). The purpose of the MDPE events was to evaluate more aggressive free product recovery methods from monitoring wells MW-3 and MW-8. MDPE is a process combining soil vapor extraction (SVE) with groundwater depression to enhance the removal of liquid and vapor phase hydrocarbons. A submersible pump is used to simultaneously remove dissolved-phase contaminated groundwater, inducing a hydraulic gradient toward the extraction well, and creating groundwater depression to expose the hydrocarbon smear zone to SVE. Recovered liquids were transferred to a portable storage tank for off-site disposal. Recovered vapors were used as fuel and burned in the MDPE internal combustion engine (ICE), resulting in little to no emissions. Power generated by the ICE is used to create the induced vacuum for SVE.

2016 ANNUAL GROUNDWATER REPORT

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Two, 8-hour MDPE events were completed, one using MW-1 as an extraction well, and a second using MW-8 as an extraction well. Based on field data collected by AcuVac, approximately 6.7 gallons of hydrocarbons were recovered from MW-3, and approximately 15.27 gallons of hydrocarbons were recovered from MW-8. AcuVac's report summarizing the MDPE events at the Site is presented as Appendix A. Recovered fluids from the MDPE event were transported to Basin Disposal Inc. for disposal. Waste disposal documentation is included as Appendix B.

In order to confirm hydrocarbon recovery during the MDPE events, a vapor sample was collected at the extraction wellhead during each MDPE event. The vapor samples were collected in laboratory-provided Summa canisters, and shipped under chain-of-custody protocols to TestAmerica Laboratories, Inc. in Burlington, Vermont. The vapor samples were analyzed for TPH and BTEX constituents. The analytical results were used to supplement the field measurements collected by Acuvac in order to calculate constituent-specific mass removal for each extraction well. Based on the vapor concentrations, 53 pounds of hydrocarbons as TPH were removed from MW-3, and 32 pounds of hydrocarbons as TPH were removed from MW-8. The mass removal calculation tables and laboratory reports are included as Appendix C.

SUMMARY TABLES

Historic groundwater analytical results and well gauging data are summarized in Tables 1 and 2, respectively. When free product was present, static water level elevations were corrected for measurable thicknesses of free product (specific gravity of 0.75). Monthly free product recovery data is summarized in Table 3.

SITE MAPS

Groundwater analytical results (Figures 1 and 3) and groundwater elevation contour maps (Figures 2 and 4) summarize results of the 2016 groundwater sampling and gauging events.

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix D.

GROUNDWATER RESULTS

- The groundwater flow direction at the Site is generally to the east-southeast (see Figures 2 and 4). The elevations at MW-12 remained anomalous, consistent with past results.
- Free product was observed in MW-1, MW-3, MW-8, and MW-11 in 2016. No samples were collected from these monitoring wells.

2016 ANNUAL GROUNDWATER REPORT

Johnston Fed #4
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- One or more groundwater samples collected in 2016 from MW-6, MW-9, and MW-16 exceeded the New Mexico Water Quality Control Commission (NMWQCC) standard (10 micrograms per liter [$\mu\text{g/L}$]) for benzene in groundwater. Groundwater samples from the remaining monitoring wells sampled in 2016 were either below the NMWQCC standard for benzene or not detected.
- Concentrations of toluene were either below the NMWQCC standard (750 $\mu\text{g/L}$) or not detected in the Site monitoring wells sampled in 2016.
- Concentrations of ethylbenzene were either below the NMWQCC standard (750 $\mu\text{g/L}$) or not detected in the Site monitoring wells sampled in 2016.
- Concentrations of total xylenes were either below the NMWQCC standard (620 $\mu\text{g/L}$) or not detected in the Site monitoring wells sampled in 2016.

PLANNED FUTURE ACTIVITIES

Groundwater monitoring events will be conducted on a semi-annual basis, utilizing a selection of site monitoring wells which provides an adequate representation of site conditions. Free product recovery will also continue in 2017. A work plan will be submitted to the NMOCD for additional activities, if planned, for 2017. The 2017 Annual Report will be submitted in early 2018.

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TABLES

TABLE 1 – GROUNDWATER ANALYTICAL RESULTS

TABLE 2 – GROUNDWATER ELEVATION RESULTS

TABLE 3 – FREE PRODUCT RECOVERY RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-1	08/08/95	590	2040	137	1764
MW-1	01/04/96	7380	20900	1480	14600
MW-1	12/17/96	762	1930	107	1270
MW-1	03/06/97	483	1110	66.1	678
MW-1	06/22/01	NS	NS	NS	NS
MW-1	09/04/01	NS	NS	NS	NS
MW-1	03/04/02	NS	NS	NS	NS
MW-1	06/03/02	NS	NS	NS	NS
MW-1	09/10/02	NS	NS	NS	NS
MW-1	12/12/02	NS	NS	NS	NS
MW-1	03/14/03	NS	NS	NS	NS
MW-1	06/18/03	NS	NS	NS	NS
MW-1	09/16/03	NS	NS	NS	NS
MW-1	12/17/03	NS	NS	NS	NS
MW-1	03/16/04	NS	NS	NS	NS
MW-1	06/22/04	NS	NS	NS	NS
MW-1	09/22/04	NS	NS	NS	NS
MW-1	12/21/04	NS	NS	NS	NS
MW-1	03/23/05	NS	NS	NS	NS
MW-1	06/23/05	NS	NS	NS	NS
MW-1	09/20/05	NS	NS	NS	NS
MW-1	12/14/05	NS	NS	NS	NS
MW-1	12/15/05	NS	NS	NS	NS
MW-1	03/27/06	NS	NS	NS	NS
MW-1	06/07/06	NS	NS	NS	NS
MW-1	09/25/06	NS	NS	NS	NS
MW-1	12/07/06	NS	NS	NS	NS
MW-1	03/28/07	NS	NS	NS	NS

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Johnston Fed #4					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-1	06/18/07	NS	NS	NS	NS
MW-1	09/17/07	NS	NS	NS	NS
MW-1	12/17/07	NS	NS	NS	NS
MW-1	03/10/08	NS	NS	NS	NS
MW-1	06/17/08	NS	NS	NS	NS
MW-1	09/10/08	NS	NS	NS	NS
MW-1	12/02/08	NS	NS	NS	NS
MW-1	03/03/09	NS	NS	NS	NS
MW-1	06/09/09	1630	3000	268	3880
MW-1	08/28/09	NS	NS	NS	NS
MW-1	11/04/09	NS	NS	NS	NS
MW-1	02/11/10	NS	NS	NS	NS
MW-1	06/07/10	1630	3130	213	3840
MW-1	09/24/10	NS	NS	NS	NS
MW-1	11/02/10	NS	NS	NS	NS
MW-1	02/07/11	NS	NS	NS	NS
MW-1	05/10/11	1000	1710	206	2400
MW-1	09/23/11	NS	NS	NS	NS
MW-1	11/01/11	NS	NS	NS	NS
MW-1	02/21/12	NS	NS	NS	NS
MW-1	05/14/12	1200	2170	152	2580
MW-1	06/09/13	3900	14000	610	10000
MW-1	09/09/13	NS	NS	NS	NS
MW-1	12/12/13	NS	NS	NS	NS
MW-1	04/02/14	NS	NS	NS	NS
MW-1	10/23/14	NS	NS	NS	NS
MW-1	05/29/15	1600	4000	220	2400
MW-1	11/23/15	NS	NS	NS	NS
MW-1	04/16/16	NS	NS	NS	NS
MW-1	10/12/16	NS	NS	NS	NS

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Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-2	01/04/96	1104	5107	479	4640
MW-2	12/17/96	5900	8970	197	4670
MW-2	03/06/97	4500	6480	236	4920
MW-2	06/22/01	2800	180	41	140
MW-2	09/04/01	NS	NS	NS	NS
MW-2	06/03/02	370	11	24	18
MW-2	09/10/02	NS	NS	NS	NS
MW-2	12/12/02	NS	NS	NS	NS
MW-2	06/18/03	186	<5	34.9	16.8
MW-2	09/16/03	NS	NS	NS	NS
MW-2	12/17/03	NS	NS	NS	NS
MW-2	03/16/04	NS	NS	NS	NS
MW-2	06/22/04	88.9	24	32.9	15.2
MW-2	09/22/04	NS	NS	NS	NS
MW-2	12/21/04	NS	NS	NS	NS
MW-2	03/23/05	NS	NS	NS	NS
MW-2	06/23/05	283	9.4	27.7	64.5
MW-2	09/20/05	NS	NS	NS	NS
MW-2	12/14/05	NS	NS	NS	NS
MW-2	03/27/06	NS	NS	NS	NS
MW-2	06/07/06	92.1	18.4	4.4	5.9
MW-2	09/25/06	NS	NS	NS	NS
MW-2	12/07/06	NS	NS	NS	NS
MW-2	03/28/07	NS	NS	NS	NS
MW-2	06/19/07	83	<1	7.3	7.2
MW-2	09/17/07	NS	NS	NS	NS
MW-2	12/17/07	NS	NS	NS	NS

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Johnston Fed #4					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-2	03/10/08	NS	NS	NS	NS
MW-2	06/17/08	201	4.2	16.6	17.9
MW-2	09/10/08	NS	NS	NS	NS
MW-2	12/02/08	NS	NS	NS	NS
MW-2	03/03/09	NS	NS	NS	NS
MW-2	06/04/09	NS	NS	NS	NS
MW-2	06/09/09	18.5	0.82 J	2.8	6.9
MW-2	08/28/09	NS	NS	NS	NS
MW-2	11/04/09	NS	NS	NS	NS
MW-2	02/11/10	NS	NS	NS	NS
MW-2	06/07/10	5.6	0.99 J	<2	<6
MW-2	09/24/10	NS	NS	NS	NS
MW-2	11/02/10	NS	NS	NS	NS
MW-2	02/07/11	NS	NS	NS	NS
MW-2	05/10/11	5.3	1.2	0.046 J	J2.3
MW-2	09/23/11	NS	NS	NS	NS
MW-2	11/01/11	NS	NS	NS	NS
MW-2	02/21/12	NS	NS	NS	NS
MW-2	05/14/12	7.2	1.4	0.56 J	2.7 J
MW-2	06/09/13	1.8	<0.30	<0.20	<0.23
MW-2	09/09/13	1.7	<0.30	<0.20	<0.23
MW-2	12/12/13	1.5 J	<0.38	<0.20	0.80 J
MW-2	04/02/14	540	36	230	1500
MW-2	10/23/14	0.74 J	<0.70	<0.50	<1.6
MW-2	05/29/15	0.63 J	<5.0	<1.0	2.6 J
MW-2	11/23/15	<1.0	<1.0	<1.0	<3.0
MW-2	04/16/16	NS	NS	NS	NS
MW-2	10/12/16	NS	NS	NS	NS

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Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-3	03/19/96	3660	5410	436	3730
MW-3	12/17/96	3910	8210	530	5020
MW-3	03/06/97	6670	12700	759	7020
MW-3	06/22/01	NS	NS	NS	NS
MW-3	09/04/01	NS	NS	NS	NS
MW-3	03/04/02	NS	NS	NS	NS
MW-3	06/03/02	NS	NS	NS	NS
MW-3	09/10/02	NS	NS	NS	NS
MW-3	12/12/02	NS	NS	NS	NS
MW-3	03/14/03	NS	NS	NS	NS
MW-3	06/18/03	NS	NS	NS	NS
MW-3	09/16/03	NS	NS	NS	NS
MW-3	12/17/03	NS	NS	NS	NS
MW-3	03/16/04	NS	NS	NS	NS
MW-3	06/22/04	NS	NS	NS	NS
MW-3	09/22/04	NS	NS	NS	NS
MW-3	12/21/04	NS	NS	NS	NS
MW-3	03/23/05	NS	NS	NS	NS
MW-3	06/23/05	NS	NS	NS	NS
MW-3	09/20/05	NS	NS	NS	NS
MW-3	12/14/05	NS	NS	NS	NS
MW-3	12/15/05	NS	NS	NS	NS
MW-3	03/27/06	NS	NS	NS	NS
MW-3	06/07/06	NS	NS	NS	NS
MW-3	09/25/06	NS	NS	NS	NS
MW-3	12/07/06	NS	NS	NS	NS
MW-3	03/28/07	NS	NS	NS	NS
MW-3	06/18/07	NS	NS	NS	NS

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Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-3	09/17/07	NS	NS	NS	NS
MW-3	12/17/07	NS	NS	NS	NS
MW-3	03/10/08	NS	NS	NS	NS
MW-3	06/17/08	NS	NS	NS	NS
MW-3	09/10/08	NS	NS	NS	NS
MW-3	12/02/08	NS	NS	NS	NS
MW-3	03/03/09	NS	NS	NS	NS
MW-3	06/09/09	6100	8700	627	6630
MW-3	08/28/09	NS	NS	NS	NS
MW-3	11/04/09	NS	NS	NS	NS
MW-3	02/11/10	NS	NS	NS	NS
MW-3	06/07/10	7440	10800	578	7170
MW-3	09/24/10	NS	NS	NS	NS
MW-3	11/02/10	NS	NS	NS	NS
MW-3	02/07/11	NS	NS	NS	NS
MW-3	05/10/11	4180	4990	421	3780
MW-3	09/23/11	NS	NS	NS	NS
MW-3	11/01/11	NS	NS	NS	NS
MW-3	02/21/12	NS	NS	NS	NS
MW-3	05/14/12	8100	15800	1040	11100
MW-3	06/09/13	5100	12000	870	11000
MW-3	09/09/13	NS	NS	NS	NS
MW-3	12/12/13	NS	NS	NS	NS
MW-3	04/02/14	NS	NS	NS	NS
MW-3	10/23/14	NS	NS	NS	NS
MW-3	05/29/15	NS	NS	NS	NS
MW-3	11/23/15	NS	NS	NS	NS
MW-3	04/16/16	NS	NS	NS	NS
MW-3	10/12/16	NS	NS	NS	NS

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Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-4	12/07/06	NS	NS	NS	NS
MW-4	03/28/07	NS	NS	NS	NS
MW-4	06/19/07	<1	<1	<1	<2
MW-4	09/17/07	NS	NS	NS	NS
MW-4	12/17/07	NS	NS	NS	NS
MW-4	03/10/08	NS	NS	NS	NS
MW-4	06/17/08	<1	<1	<1	<2
MW-4	09/10/08	NS	NS	NS	NS
MW-4	12/02/08	NS	NS	NS	NS
MW-4	03/03/09	NS	NS	NS	NS
MW-4	06/09/09	<1	0.47 J	<1	0.77 J
MW-4	08/28/09	NS	NS	NS	NS
MW-4	11/04/09	NS	NS	NS	NS
MW-4	02/11/10	NS	NS	NS	NS
MW-4	06/07/10	<2	<2	<2	<6
MW-4	09/24/10	NS	NS	NS	NS
MW-4	11/02/10	NS	NS	NS	NS
MW-4	02/07/11	NS	NS	NS	NS
MW-4	05/10/11	<1	<1	<1	<3
MW-4	09/23/11	NS	NS	NS	NS
MW-4	11/01/11	NS	NS	NS	NS
MW-4	02/21/12	NS	NS	NS	NS
MW-4	05/14/12	0.41 J	0.36 J	0.33 J	<1
MW-4	06/09/13	<0.14	<0.30	<0.20	<0.23
MW-4	09/09/13	<0.14	<0.30	<0.20	<0.23
MW-4	12/12/13	<0.20	<0.38	<0.20	<0.65
MW-4	04/02/14	<0.20	<0.38	<0.20	<0.65
MW-4	10/23/14	<0.38	<0.70	<0.50	<1.6
MW-4	05/29/15	<1.0	1.3 J	<1.0	<5.0
MW-4	11/23/15	<1.0	<1.0	<1.0	<3.0
MW-4	04/16/16	NS	NS	NS	NS
MW-4	10/12/16	NS	NS	NS	NS

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Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
TMW-5	12/07/06	NS	NS	NS	NS
TMW-5	03/28/07	NS	NS	NS	NS
TMW-5	06/19/07	2730	7.6	680	1160
TMW-5	09/17/07	NS	NS	NS	NS
TMW-5	12/17/07	NS	NS	NS	NS
TMW-5	03/10/08	NS	NS	NS	NS
TMW-5	06/17/08	3190	217	651	1220
TMW-5	09/10/08	NS	NS	NS	NS
TMW-5	12/02/08	NS	NS	NS	NS
TMW-5	03/03/09	NS	NS	NS	NS
TMW-5	06/09/09	1540	285	568	784
TMW-5	08/28/09	NS	NS	NS	NS
TMW-5	11/04/09	NS	NS	NS	NS
TMW-5	02/11/10	NS	NS	NS	NS
TMW-5	06/07/10	1970	207	591	746
TMW-5	09/24/10	NS	NS	NS	NS
TMW-5	11/02/10	NS	NS	NS	NS
TMW-5	02/07/11	NS	NS	NS	NS
TMW-5	05/10/11	3730	124	459	221
TMW-5	09/23/11	NS	NS	NS	NS
TMW-5	11/01/11	NS	NS	NS	NS
TMW-5	02/21/12	NS	NS	NS	NS
TMW-5	05/14/12	6180	52.6	614	243
TMW-5	06/09/13	6400	210	400	180
TMW-5	09/09/13	5600	26	470	100
TMW-5	12/12/13	3900	29 J	400	120
TMW-5	04/02/14	4900	770	510	630
TMW-5	Well abandoned 8/11/2014				

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Johnston Fed #4					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-6	12/12/13	NS	NS	NS	NS
MW-6	04/02/14	NS	NS	NS	NS
MW-6	10/23/14	230	3.3	420	120
MW-6	05/29/15	130	4.8 J	210	86
MW-6	11/23/15	330	21	260	84
MW-6	04/16/16	49	52	140	40
MW-6	10/12/16	77	25	17	<5.0
MW-7	12/12/13	120	110	49 J	490
MW-7	04/02/14	3.5	3.6	4	<0.65
MW-7	10/23/14	4.6	<0.70	2.8	<1.6
MW-7	05/29/15	<1.0	<5.0	<1.0	<5.0
MW-7	11/23/15	<1.0	<1.0	<1.0	<3.0
MW-7	04/16/16	<1.0	<5.0	<1.0	<5.0
MW-7	10/12/16	<1.0	<5.0	<1.0	<5.0
MW-8	12/12/13	NS	NS	NS	NS
MW-8	04/02/14	NS	NS	NS	NS
MW-8	10/23/14	NS	NS	NS	NS
MW-8	05/29/15	NS	NS	NS	NS
MW-8	11/23/15	NS	NS	NS	NS
MW-8	04/16/16	NS	NS	NS	NS
MW-8	10/12/16	NS	NS	NS	NS
MW-9	12/12/13	180	310	46	430
MW-9	04/02/14	230	27	140	810
MW-9	10/23/14	10	1.6	9.4	2.9 J
MW-9	05/29/15	15	8.4 J	6	21
MW-9	11/23/15	9	2.8	<1.0	<3.0
MW-9	04/16/16	29	24	4.3	8.3
MW-9	10/12/16	1	8.7	<1.0	<5.0
MW-10	12/12/13	1200	3500	300	3200
MW-10	04/02/14	4.3	7	<0.20	13
MW-10	10/23/14	93	1.3	87	50
MW-10	05/29/15	130	8.5	31	13
MW-10	11/23/15	120	20	8.8	11
MW-10	04/16/16	NS	NS	NS	NS
MW-10	10/12/16	NS	NS	NS	NS
MW-11	12/12/13	NS	NS	NS	NS
MW-11	04/02/14	NS	NS	NS	NS
MW-11	10/23/14	NS	NS	NS	NS
MW-11	05/29/15	NS	NS	NS	NS
MW-11	11/23/15	NS	NS	NS	NS
MW-11	04/16/16	NS	NS	NS	NS
MW-11	10/12/16	NS	NS	NS	NS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-12	12/12/13	<0.14	<0.30	<0.20	0.39 J
MW-12	04/02/14	<0.20	0.54 J	<0.20	<0.65
MW-12	10/23/14	0.71 J	<0.70	0.59 J	<1.6
MW-12	05/29/15	<1.0	<5.0	<1.0	<5.0
MW-12	11/23/15	<1.0	<1.0	<1.0	<3.0
MW-12	04/16/16	NS	NS	NS	NS
MW-12	10/12/16	NS	NS	NS	NS
MW-13	10/23/14	710	2	7.8	21
MW-13	05/29/15	6.1	<5.0	0.81 J	2.4 J
MW-13	11/23/15	3.7	<1.0	<1.0	<3.0
MW-13	04/16/16	1.6	<5.0	<1.0	<5.0
MW-13	10/12/16	1.8	<5.0	<1.0	<5.0
MW-14	10/23/14	<0.38	<0.70	<0.50	<1.6
MW-14	05/29/15	<1.0	<5.0	<1.0	<5.0
MW-14	11/23/15	<1.0	<1.0	<1.0	<3.0
MW-14	04/16/16	NS	NS	NS	NS
MW-14	10/12/16	NS	NS	NS	NS
MW-15	10/23/14	61	1	18	120
MW-15	05/29/15	3200	1500	410	1700
MW-15	11/23/15	180	19	19	24
MW-15	04/16/16	5.8	9.5	<1.0	8.5
MW-15	10/12/16	8.3	7.6	<1.0	6.2
MW-16	10/23/14	0.93 J	<0.70	<0.50	3.4 J
MW-16	05/29/15	54	15	22	24
MW-16	11/23/15	4.2	1.1	2.3	<3.0
MW-16	04/16/16	590	120	140	430
MW-16	10/12/16	<1.0	<5.0	<1.0	<5.0

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Johnston Fed #4					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-17	10/23/14	3	<0.70	1.5	4.6 J
MW-17	05/29/15	6.7	0.98 J	3.4	16
MW-17	11/23/15	14	<1.0	5.9	12
MW-17	04/16/16	NS	NS	NS	NS
MW-17	10/12/16	NS	NS	NS	NS
MW-18	10/23/14	6.5	3.2	<0.50	11
MW-18	05/29/15	12	7.2	2.8	16
MW-18	11/23/15	18	10	3.6	24
MW-18	04/16/16	2.4	<5.0	1.1	7.5
MW-18	10/12/16	1.4	<5.0	<1.0	<5.0
MW-19	10/23/14	22	6	1.7	20
MW-19	05/29/15	3.7	<5.0	1.3	2.6 J
MW-19	11/23/15	67	18	15	40
MW-19	04/16/16	<1.0	<5.0	<1.0	<5.0
MW-19	10/12/16	<1.0	<5.0	<1.0	<5.0
MW-20	10/23/14	28	2.7	2.6	42
MW-20	05/29/15	28	3.7 J	10	6.3
MW-20	11/23/15	6.9	<1.0	12	<3.0
MW-20	04/16/16	<1.0	<5.0	<1.0	<5.0
MW-20	10/12/16	NS	NS	NS	NS

Notes:

"µg/L" = micrograms per liter

Results highlighted yellow exceed their respective New Mexico Water Quality Control Commission (NMWQCC) standards.

"J" = Result is less than the reporting limit but greater than or equal to the method detection limit and the result is an approximate value.

"<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit).

"NS" = Monitoring well not sampled

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	08/08/95	6073.45	50.08	NR		6023.37
MW-1	01/04/96	6073.45	50.23	NR		6023.22
MW-1	12/17/96	6073.45	50.50	49.94	0.56	6023.37
MW-1	03/06/97	6073.45	50.38	49.99	0.39	6023.36
MW-1	06/22/01	6073.45	49.96	49.82	0.14	6023.59
MW-1	09/04/01	6073.45	50.05	49.94	0.11	6023.48
MW-1	03/04/02	6073.45	50.40	50.23	0.17	6023.18
MW-1	06/03/02	6073.45	50.50	50.31	0.19	6023.09
MW-1	09/10/02	6073.45	50.70	50.51	0.19	6022.89
MW-1	12/12/02	6073.45	50.83	50.60	0.23	6022.79
MW-1	03/14/03	6073.45	50.90	50.73	0.17	6022.68
MW-1	06/18/03	6073.45	51.28	50.74	0.54	6022.57
MW-1	09/16/03	6073.45	51.70	50.78	0.92	6022.44
MW-1	12/17/03	6073.45	51.15	50.92	0.23	6022.47
MW-1	03/16/04	6073.45	51.14	50.98	0.16	6022.43
MW-1	06/22/04	6073.45	51.15	51.02	0.13	6022.40
MW-1	09/22/04	6073.45	51.18	51.06	0.12	6022.36
MW-1	12/21/04	6073.45	51.15	51.08	0.07	6022.35
MW-1	03/23/05	6073.45	51.13	ND		6022.32
MW-1	06/23/05	6073.45	51.09	ND		6022.36
MW-1	09/20/05	6073.45	51.12	ND		6022.33
MW-1	12/14/05	6073.45	51.02	ND		6022.43
MW-1	12/15/05	6073.45	51.02	ND		6022.43
MW-1	03/27/06	6073.45	51.86	ND		6021.59
MW-1	06/07/06	6073.45	50.92	ND		6022.53
MW-1	09/25/06	6073.45	51.09	ND		6022.36
MW-1	12/07/06	6073.45	51.06	ND		6022.39

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	03/28/07	6073.45	50.85	ND		6022.60
MW-1	06/18/07	6073.45	50.90	ND		6022.55
MW-1	09/17/07	6073.45	51.04	ND		6022.41
MW-1	12/17/07	6073.45	51.05	ND		6022.40
MW-1	03/10/08	6073.45	50.93	ND		6022.52
MW-1	06/17/08	6073.45	50.14	ND		6023.31
MW-1	09/10/08	6073.45	49.81	ND		6023.64
MW-1	12/02/08	6073.45	49.66	ND		6023.79
MW-1	03/03/09	6073.45	49.60	ND		6023.85
MW-1	06/09/09	6073.45	49.61	ND		6023.84
MW-1	08/28/09	6073.45	49.71	ND		6023.74
MW-1	11/04/09	6073.45	49.83	ND		6023.62
MW-1	02/11/10	6073.45	49.93	ND		6023.52
MW-1	06/07/10	6073.45	50.12	ND		6023.33
MW-1	09/24/10	6073.45	50.33	ND		6023.12
MW-1	11/02/10	6073.45	50.40	ND		6023.05
MW-1	02/07/11	6073.45	50.53	ND		6022.92
MW-1	05/10/11	6073.45	50.69	ND		6022.76
MW-1	09/23/11	6073.45	50.93	ND		6022.52
MW-1	11/01/11	6073.45	50.99	ND		6022.46
MW-1	02/21/12	6073.45	51.15	ND		6022.30
MW-1	05/14/12	6073.45	51.24	ND		6022.21
MW-1	06/09/13	6073.45	51.68	51.61	0.07	6021.82
MW-1	09/09/13	6073.45	51.84	51.78	0.06	6021.65
MW-1	12/12/13	6073.45	51.85	51.80	0.05	6021.64
MW-1	04/02/14	6073.45	51.81	ND		6021.64
MW-1	10/23/14	6073.45	52.04	51.95	TRACE	6021.48
MW-1	05/29/15	6073.45	52.02	ND		6021.43
MW-1	11/23/15	6073.45	51.76	51.76	TRACE	6021.69
MW-1	04/16/16	6073.45	51.68	51.61	0.07	6021.82
MW-1	10/12/16	6073.45	51.73	51.71	0.02	6021.73

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-2	01/04/96	6072.14	48.71	NR		6023.43
MW-2	12/17/96	6072.14	48.84	NR		6023.30
MW-2	03/06/97	6072.14	48.94	NR		6023.20
MW-2	06/22/01	6072.14	48.62	NR		6023.52
MW-2	09/04/01	6072.14	48.78	NR		6023.36
MW-2	06/03/02	6072.14	49.15	NR		6022.99
MW-2	09/10/02	6072.14	49.27	NR		6022.87
MW-2	12/12/02	6072.14	49.42	NR		6022.72
MW-2	06/18/03	6072.14	49.62	ND		6022.52
MW-2	09/16/03	6072.14	49.76	ND		6022.38
MW-2	12/17/03	6072.14	49.72	ND		6022.42
MW-2	03/16/04	6072.14	49.78	ND		6022.36
MW-2	06/22/04	6072.14	49.82	ND		6022.32
MW-2	09/22/04	6072.14	49.84	ND		6022.30
MW-2	12/21/04	6072.14	49.86	ND		6022.28
MW-2	03/23/05	6072.14	49.89	ND		6022.25
MW-2	06/23/05	6072.14	49.87	ND		6022.27
MW-2	09/20/05	6072.14	49.89	ND		6022.25
MW-2	12/14/05	6072.14	49.75	ND		6022.39
MW-2	03/27/06	6072.14	49.62	ND		6022.52
MW-2	06/07/06	6072.14	49.67	ND		6022.47
MW-2	09/25/06	6072.14	49.85	ND		6022.29
MW-2	12/07/06	6072.14	49.82	ND		6022.32
MW-2	03/28/07	6072.14	49.63	ND		6022.51
MW-2	06/19/07	6072.14	49.67	ND		6022.47
MW-2	09/17/07	6072.14	49.82	ND		6022.32
MW-2	12/17/07	6072.14	49.82	ND		6022.32

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-2	03/10/08	6072.14	49.92	ND		6022.22
MW-2	06/17/08	6072.14	48.93	ND		6023.21
MW-2	09/10/08	6072.14	48.60	ND		6023.54
MW-2	12/02/08	6072.14	48.43	ND		6023.71
MW-2	03/03/09	6072.14	48.37	ND		6023.77
MW-2	06/04/09	6072.14	48.38	ND		6023.76
MW-2	06/09/09	6072.14	48.43	ND		6023.71
MW-2	08/28/09	6072.14	48.50	ND		6023.64
MW-2	11/04/09	6072.14	48.62	ND		6023.52
MW-2	02/11/10	6072.14	48.72	ND		6023.42
MW-2	06/07/10	6072.14	48.98	ND		6023.16
MW-2	09/24/10	6072.14	49.11	ND		6023.03
MW-2	11/02/10	6072.14	49.17	ND		6022.97
MW-2	02/07/11	6072.14	49.33	ND		6022.81
MW-2	05/10/11	6072.14	49.45	ND		6022.69
MW-2	09/23/11	6072.14	49.72	ND		6022.42
MW-2	11/01/11	6072.14	49.77	ND		6022.37
MW-2	02/21/12	6072.14	49.91	ND		6022.23
MW-2	05/14/12	6072.14	50.00	ND		6022.14
MW-2	06/09/13	6072.14	50.38	ND		6021.76
MW-2	09/09/13	6072.14	50.56	ND		6021.58
MW-2	12/12/13	6072.14	50.56	ND		6021.58
MW-2	04/02/14	6072.14	50.59	ND		6021.55
MW-2	10/23/14	6072.14	50.73	ND		6021.41
MW-2	05/29/15	6072.14	50.80	ND		6021.34
MW-2	11/23/15	6072.14	50.54	ND		6021.60
MW-2	04/16/16	6072.14	50.39	ND		6021.75
MW-2	10/12/16	6072.14	50.47	ND		6021.67

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-3	03/19/96	6073.11	49.81	NR		6023.30
MW-3	12/17/96	6073.11	49.84	NR		6023.27
MW-3	03/06/97	6073.11	49.87	49.83	0.04	6023.27
MW-3	06/22/01	6073.11	49.66	49.58	0.08	6023.51
MW-3	09/04/01	6073.11	49.76	49.70	0.06	6023.39
MW-3	03/04/02	6073.11	50.35	49.91	0.44	6023.09
MW-3	06/03/02	6073.11	50.62	49.96	0.66	6022.98
MW-3	09/10/02	6073.11	50.79	50.12	0.67	6022.82
MW-3	12/12/02	6073.11	50.95	50.25	0.70	6022.68
MW-3	03/14/03	6073.11	51.03	50.34	0.69	6022.60
MW-3	06/18/03	6073.11	51.16	50.45	0.71	6022.48
MW-3	09/16/03	6073.11	51.30	50.59	0.71	6022.34
MW-3	12/17/03	6073.11	51.08	50.60	0.48	6022.39
MW-3	03/16/04	6073.11	51.10	50.68	0.42	6022.32
MW-3	06/22/04	6073.11	51.22	50.68	0.54	6022.29
MW-3	09/22/04	6073.11	51.30	50.69	0.61	6022.27
MW-3	12/21/04	6073.11	51.32	50.71	0.61	6022.25
MW-3	03/23/05	6073.11	51.85	50.76	1.09	6022.08
MW-3	06/23/05	6073.11	51.20	50.76	0.44	6022.24
MW-3	09/20/05	6073.11	51.43	ND		6021.68
MW-3	12/14/05	6073.11	51.31	ND		6021.80
MW-3	12/15/05	6073.11	51.32	50.92	0.40	6022.09
MW-3	03/27/06	6073.11	50.92	50.58	0.34	6022.44
MW-3	06/07/06	6073.11	51.01	50.56	0.45	6022.44
MW-3	09/25/06	6073.11	51.27	50.80	0.47	6022.19
MW-3	12/07/06	6073.11	51.07	50.77	0.30	6022.26
MW-3	03/28/07	6073.11	50.99	50.66	0.33	6022.37
MW-3	06/18/07	6073.11	50.97	50.58	0.39	6022.43

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-3	09/17/07	6073.11	51.15	50.78	0.37	6022.24
MW-3	12/17/07	6073.11	51.08	50.78	0.30	6022.25
MW-3	03/10/08	6073.11	50.90	50.75	0.15	6022.32
MW-3	06/17/08	6073.11	49.98	49.89	0.09	6023.20
MW-3	09/10/08	6073.11	49.77	ND		6023.34
MW-3	12/02/08	6073.11	49.58	ND		6023.53
MW-3	03/03/09	6073.11	49.55	ND		6023.56
MW-3	06/09/09	6073.11	49.39	ND		6023.72
MW-3	08/28/09	6073.11	49.65	ND		6023.46
MW-3	11/04/09	6073.11	49.63	ND		6023.48
MW-3	02/11/10	6073.11	49.83	ND		6023.28
MW-3	06/07/10	6073.11	49.90	49.70	0.20	6023.36
MW-3	09/24/10	6073.11	50.19	ND		6022.92
MW-3	11/02/10	6073.11	50.26	ND		6022.85
MW-3	02/07/11	6073.11	50.40	ND		6022.71
MW-3	05/10/11	6073.11	50.46	ND		6022.65
MW-3	09/23/11	6073.11	50.73	ND		6022.38
MW-3	11/01/11	6073.11	50.82	ND		6022.29
MW-3	02/21/12	6073.11	51.36	50.86	0.50	6022.12
MW-3	05/14/12	6073.11	51.50	50.84	0.66	6022.10
MW-3	06/09/13	6073.11	52.02	51.15	0.87	6021.74
MW-3	09/09/13	6073.11	52.36	51.29	1.07	6021.55
MW-3	12/12/13	6073.11	52.39	51.30	1.09	6021.54
MW-3	04/02/14	6073.11	52.41	51.30	1.11	6021.53
MW-3	10/23/14	6073.11	52.59	51.43	1.16	6021.39
MW-3	05/29/15	6073.11	52.64	51.51	1.13	6021.32
MW-3	11/23/15	6073.11	52.11	51.32	0.79	6021.59
MW-3	04/16/16	6073.11	51.90	51.20	0.70	6021.73
MW-3	10/12/16	6073.11	51.42	ND		6021.69

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-4	12/07/06	6072.71	50.40	ND		6022.31
MW-4	03/28/07	6072.71	50.19	ND		6022.52
MW-4	06/19/07	6072.71	50.21	ND		6022.50
MW-4	09/17/07	6072.71	50.34	ND		6022.37
MW-4	12/17/07	6072.71	49.78	ND		6022.93
MW-4	03/10/08	6072.71	50.30	ND		6022.41
MW-4	06/17/08	6072.71	49.50	ND		6023.21
MW-4	09/10/08	6072.71	49.17	ND		6023.54
MW-4	12/02/08	6072.71	49.00	ND		6023.71
MW-4	03/03/09	6072.71	48.93	ND		6023.78
MW-4	06/09/09	6072.71	48.94	ND		6023.77
MW-4	08/28/09	6072.71	49.04	ND		6023.67
MW-4	11/04/09	6072.71	49.16	ND		6023.55
MW-4	02/11/10	6072.71	49.26	ND		6023.45
MW-4	06/07/10	6072.71	49.45	ND		6023.26
MW-4	09/24/10	6072.71	49.15	ND		6023.56
MW-4	11/02/10	6072.71	49.73	ND		6022.98
MW-4	02/07/11	6072.71	49.86	ND		6022.85
MW-4	05/10/11	6072.71	49.98	ND		6022.73
MW-4	09/23/11	6072.71	50.09	ND		6022.62
MW-4	11/01/11	6072.71	50.31	ND		6022.40
MW-4	02/21/12	6072.71	50.46	ND		6022.25
MW-4	05/14/12	6072.71	50.55	ND		6022.16
MW-4	06/09/13	6072.71	50.93	ND		6021.78
MW-4	09/09/13	6072.71	51.11	ND		6021.60
MW-4	12/12/13	6072.71	51.12	ND		6021.59
MW-4	04/02/14	6072.71	51.14	ND		6021.57
MW-4	10/23/14	6072.71	51.26	ND		6021.45
MW-4	05/29/15	6072.71	51.33	ND		6021.38
MW-4	11/23/15	6072.71	51.08	ND		6021.63
MW-4	04/16/16	6072.71	50.92	ND		6021.79
MW-4	10/12/16	6072.71	51.01	ND		6021.70

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
TMW-5	12/07/06	6072.29	49.83	ND		6022.46
TMW-5	03/28/07	6072.29	49.58	ND		6022.71
TMW-5	06/19/07	6072.29	49.64	ND		6022.65
TMW-5	09/17/07	6072.29	49.77	ND		6022.52
TMW-5	12/17/07	6072.29	50.38	ND		6021.91
TMW-5	03/10/08	6072.29	46.59	ND		6025.70
TMW-5	06/17/08	6072.29	48.87	ND		6023.42
TMW-5	09/10/08	6072.29	48.56	ND		6023.73
TMW-5	12/02/08	6072.29	48.44	ND		6023.85
TMW-5	03/03/09	6072.29	44.40	ND		6027.89
TMW-5	06/09/09	6072.29	48.38	ND		6023.91
TMW-5	08/28/09	6072.29	DRY	ND		0.00
TMW-5	11/04/09	6072.29	48.58	ND		6023.71
TMW-5	02/11/10	6072.29	48.67	ND		6023.62
TMW-5	06/07/10	6072.29	48.81	ND		6023.48
TMW-5	09/24/10	6072.29	49.04	ND		6023.25
TMW-5	11/02/10	6072.29	49.12	ND		6023.17
TMW-5	02/07/11	6072.29	49.30	ND		6022.99
TMW-5	05/10/11	6072.29	49.41	ND		6022.88
TMW-5	09/23/11	6072.29	49.70	ND		6022.59
TMW-5	11/01/11	6072.29	49.71	ND		6022.58
TMW-5	02/21/12	6072.29	49.87	ND		6022.42
TMW-5	05/14/12	6072.29	49.96	ND		6022.33
TMW-5	06/09/13	6072.29	50.31	ND		6021.98
TMW-5	09/09/13	6072.29	50.48	ND		6021.81
TMW-5	12/12/13	6072.29	50.53	ND		6021.76
TMW-5	04/02/14	6072.29	50.54	ND		6021.75
TMW-5	Well abandoned 8/11/2014					

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-6	12/12/13	6072.74	51.13	51.10	0.03	6021.63
MW-6	04/02/14	6072.74	51.15	51.12	0.03	6021.61
MW-6	10/23/14	6072.74	51.26	ND		6021.48
MW-6	05/29/15	6072.74	51.34	ND		6021.40
MW-6	11/23/15	6072.74	51.08	ND		6021.66
MW-6	04/16/16	6072.74	50.89	ND		6021.85
MW-6	10/12/16	6072.74	51.02	ND		6021.72
MW-7	12/12/13	6072.63	51.12	ND		6021.51
MW-7	04/02/14	6072.63	51.13	ND		6021.50
MW-7	10/23/14	6072.63	51.25	ND		6021.38
MW-7	05/29/15	6072.63	51.33	ND		6021.30
MW-7	11/23/15	6072.63	51.06	ND		6021.57
MW-7	04/16/16	6072.63	50.90	ND		6021.73
MW-7	10/12/16	6072.63	51.01	ND		6021.62
MW-8	12/12/13	6072.62	51.94	50.80	1.14	6021.54
MW-8	04/02/14	6072.62	51.93	50.81	1.12	6021.53
MW-8	10/23/14	6072.62	52.12	50.93	1.19	6021.39
MW-8	05/29/15	6072.62	52.18	51.00	1.18	6021.33
MW-8	11/23/15	6072.62	51.63	50.83	0.80	6021.59
MW-8	04/16/16	6072.62	51.44	50.68	0.76	6021.75
MW-8	10/12/16	6072.62	51.52	50.81	0.71	6021.63
MW-9	12/12/13	6073.63	51.85	ND		6021.78
MW-9	04/02/14	6073.63	51.87	ND		6021.76
MW-9	10/23/14	6073.63	52.01	ND		6021.62
MW-9	05/29/15	6073.63	52.08	ND		6021.55
MW-9	11/23/15	6073.63	51.83	ND		6021.80
MW-9	04/16/16	6073.63	51.66	ND		6021.97
MW-9	10/12/16	6073.63	51.77	ND		6021.86
MW-10	12/12/13	6073.44	51.79	ND		6021.65
MW-10	04/02/14	6073.44	51.81	ND		6021.63
MW-10	10/23/14	6073.44	51.94	ND		6021.50
MW-10	05/29/15	6073.44	52.03	ND		6021.41
MW-10	11/23/15	6073.44	51.74	ND		6021.70
MW-10	04/16/16	6073.44	51.60	ND		6021.84
MW-10	10/12/16	6073.44	51.70	ND		6021.74

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-11	12/12/13	6073.38	52.43	51.60	0.83	6021.57
MW-11	04/02/14	6073.38	52.33	51.61	0.72	6021.59
MW-11	10/23/14	6073.38	52.59	51.73	0.86	6021.44
MW-11	05/29/15	6073.38	52.69	51.79	0.90	6021.37
MW-11	11/23/15	6073.38	52.14	51.61	0.53	6021.64
MW-11	04/16/16	6073.38	51.80	51.51	0.29	6021.80
MW-11	10/12/16	6073.38	51.80	51.68	0.12	6021.67
MW-12	12/12/13	6073.30	48.13	ND		6025.17
MW-12	04/02/14	6073.30	48.09	ND		6025.21
MW-12	10/23/14	6073.30	48.31	ND		6024.99
MW-12	05/29/15	6073.30	48.31	ND		6024.99
MW-12	11/23/15	6073.30	48.11	ND		6025.19
MW-12	04/16/16	6073.30	47.85	ND		6025.45
MW-12	10/12/16	6073.30	47.57	ND		6025.73
MW-13	10/23/14	6073.25	51.62	ND		6021.63
MW-13	05/29/15	6073.25	51.69	ND		6021.56
MW-13	11/23/15	6073.25	51.42	ND		6021.83
MW-13	04/16/16	6073.25	51.29	ND		6021.96
MW-13	10/12/16	6073.25	51.37	ND		6021.88
MW-14	10/23/14	6073.14	51.53	ND		6021.61
MW-14	05/29/15	6073.14	51.60	ND		6021.54
MW-14	11/23/15	6073.14	51.33	ND		6021.81
MW-14	04/16/16	6073.14	51.19	ND		6021.95
MW-14	10/12/16	6073.14	51.30	ND		6021.84
MW-15	10/23/14	6072.47	51.14	ND		6021.33
MW-15	05/29/15	6072.47	51.19	ND		6021.28
MW-15	11/23/15	6072.47	50.93	ND		6021.54
MW-15	04/16/16	6072.47	50.78	ND		6021.69
MW-15	10/12/16	6072.47	50.87	ND		6021.60
MW-16	10/23/14	6071.78	50.49	ND		6021.29
MW-16	05/29/15	6071.78	50.57	ND		6021.21
MW-16	11/23/15	6071.78	50.30	ND		6021.48
MW-16	04/16/16	6071.78	50.15	ND		6021.63
MW-16	10/12/16	6071.78	50.24	ND		6021.54

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Johnston Fed #4						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-17	10/23/14	6071.79	50.51	ND		6021.28
MW-17	05/29/15	6071.79	50.58	ND		6021.21
MW-17	11/23/15	6071.79	50.31	ND		6021.48
MW-17	04/16/16	6071.79	50.16	ND		6021.63
MW-17	10/12/16	6071.79	50.26	ND		6021.53
MW-18	10/23/14	6072.71	51.28	ND		6021.43
MW-18	05/29/15	6072.71	51.37	ND		6021.34
MW-18	11/23/15	6072.71	51.09	ND		6021.62
MW-18	04/16/16	6072.71	50.94	ND		6021.77
MW-18	10/12/16	6072.71	51.03	ND		6021.68
MW-19	10/23/14	6074.00	52.41	ND		6021.59
MW-19	05/29/15	6074.00	52.48	ND		6021.52
MW-19	11/23/15	6074.00	52.21	ND		6021.79
MW-19	04/16/16	6074.00	52.17	ND		6021.83
MW-19	10/12/16	6074.00	52.15	ND		6021.85
MW-20	10/23/14	6072.77	51.33	ND		6021.44
MW-20	05/29/15	6072.77	51.41	ND		6021.36
MW-20	11/23/15	6072.77	51.14	ND		6021.63
MW-20	04/16/16	6072.77	50.99	ND		6021.78
MW-20	10/12/16	6072.77	51.09	ND		6021.68

Notes:

"ft" = feet

"TOC" - Top of casing

"LNAPL" = light non-aqueous phase liquid

"ND" = LNAPL not detected

"NR" = LNAPL not recorded

TABLE 3
FREE PRODUCT RECOVERY
Johnston Federal #4 - San Juan County, NM

[illegible]

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

- = No data recorded

TABLE 3
FREE PRODUCT RECOVERY
Johnston Federal #4 - San Juan County, NM

[illegible]

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

* = Includes recovered vapors

TABLE 3
FREE PRODUCT RECOVERY
Johnston Federal #4 - San Juan County, NM

[illegible]

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

* = Includes recovered vapors

- = No Data Recorded

TABLE 3
FREE PRODUCT RECOVERY
Johnston Federal #4 - San Juan County, NM

[illegible]

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

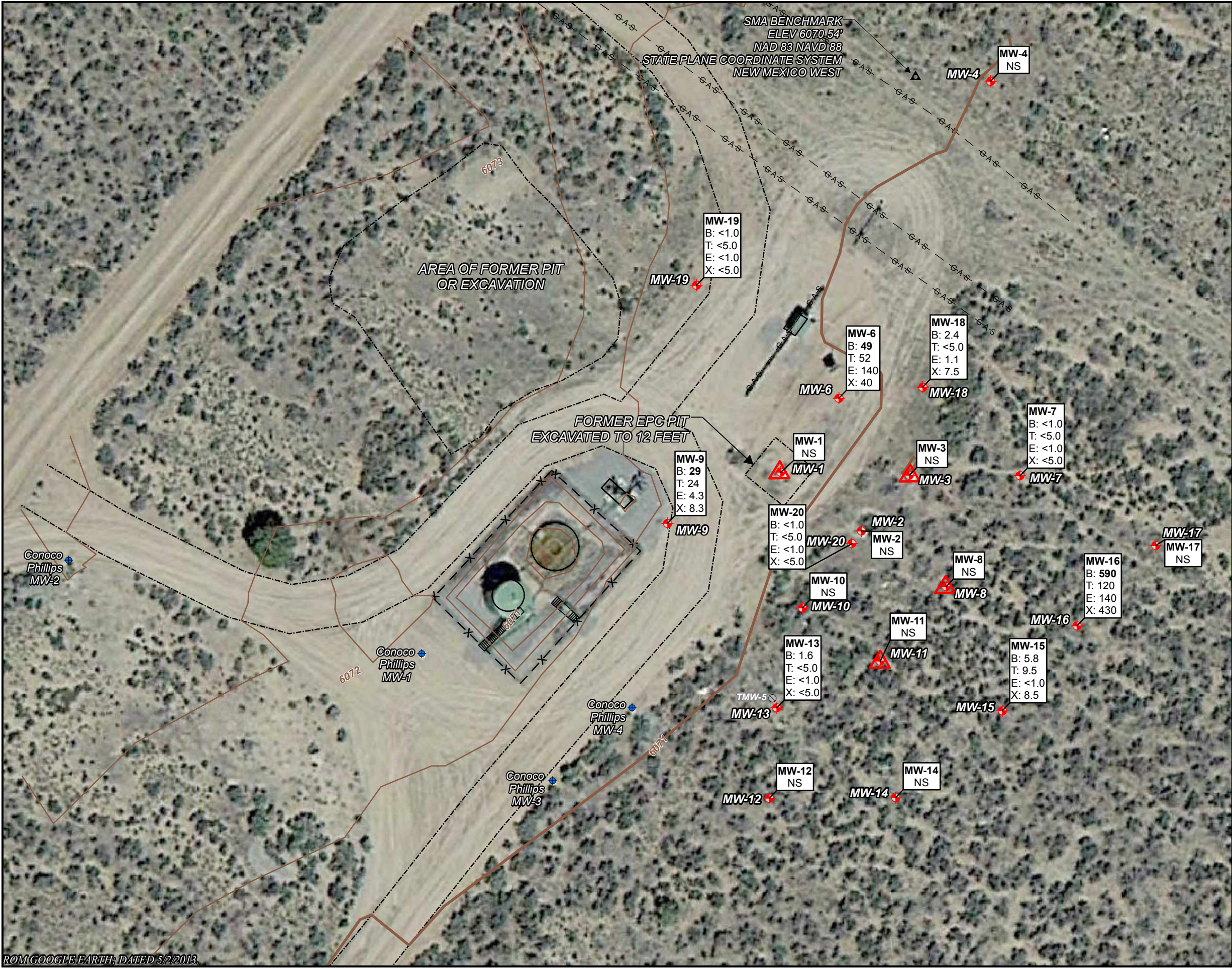
FIGURES

FIGURE 1: APRIL 16, 2016 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 16, 2016 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 12, 2016 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: OCTOBER 12, 2016 GROUNDWATER ELEVATION MAP



LEGEND:

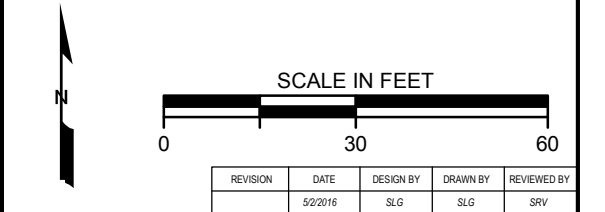
- 6070 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GA-S — GAS LINE
- X- FENCE
- ABANDONED MONITORING WELL
- ◆ CONOCO PHILLIPS MONITORING WELL
- ◆ MONITORING WELL
- ▲ MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- ▲ SMA BENCHMARK

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.

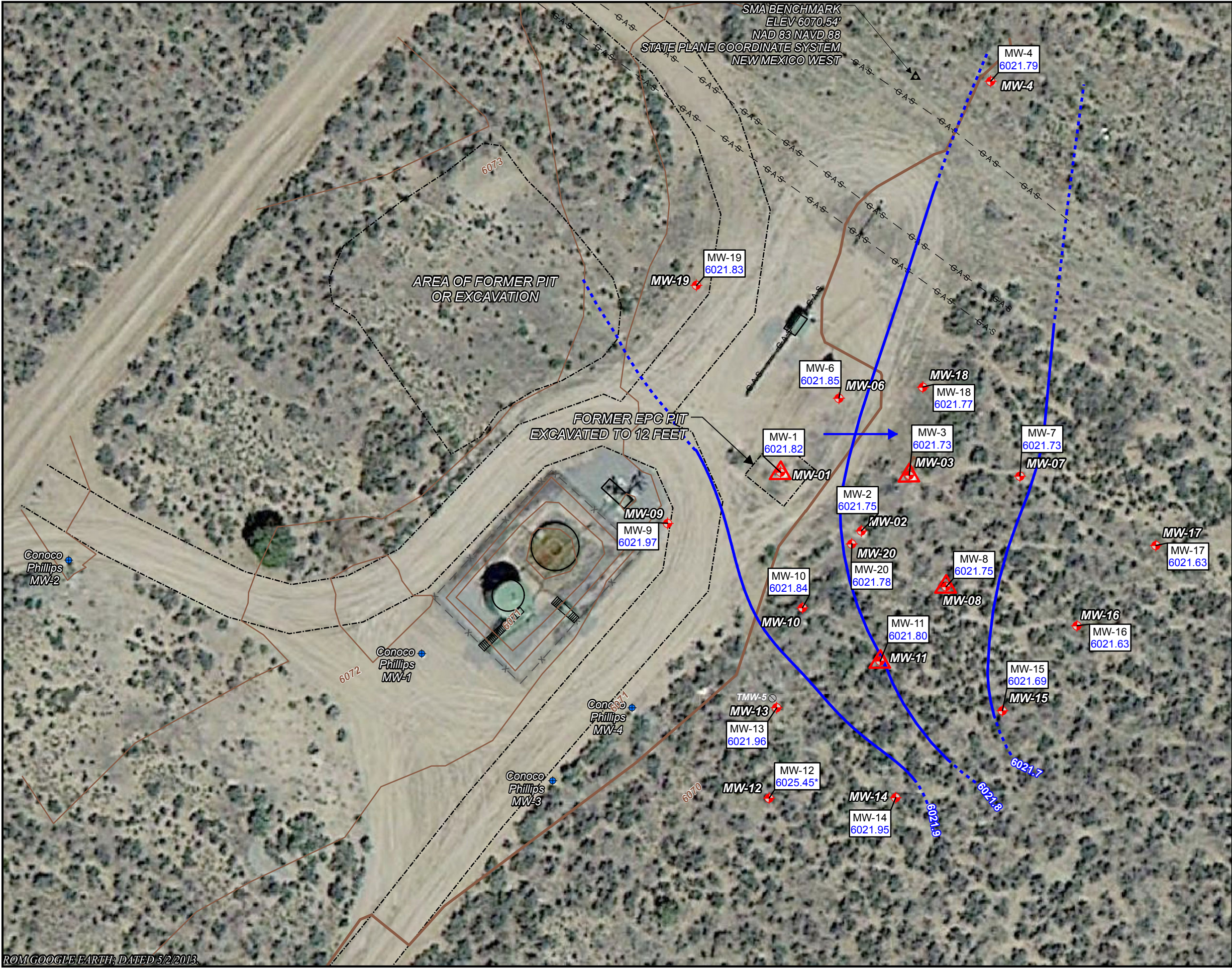
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<1 = BELOW METHOD DETECTION LIMIT

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



TITLE:
**GROUNDWATER ANALYTICAL RESULTS
APRIL 16, 2016**

PROJECT: **JOHNSTON FED #4
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



LEGEND:

- 6070 APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS GAS LINE
- X FENCE
- ABANDONED MONITORING WELL
- CONOCO PHILLIPS MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- SMA BENCHMARK

NOTES:

- GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS WHERE PRESENT (FEET ABOVE MEAN SEA LEVEL).
- CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.1 FOOT CONTOUR INTERVAL)
- DIRECTION OF APPARENT GROUNDWATER FLOW
- GROUNDWATER ELEVATION APPEARS ANOMALOUS FOR MW-12 AND WAS NOT INCLUDED IN THE GROUNDWATER ELEVATION CONTOURS.



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	3/17/2017	SLG	SLG	SRV

TITLE:

**GROUNDWATER ELEVATION MAP
APRIL 16, 2016**

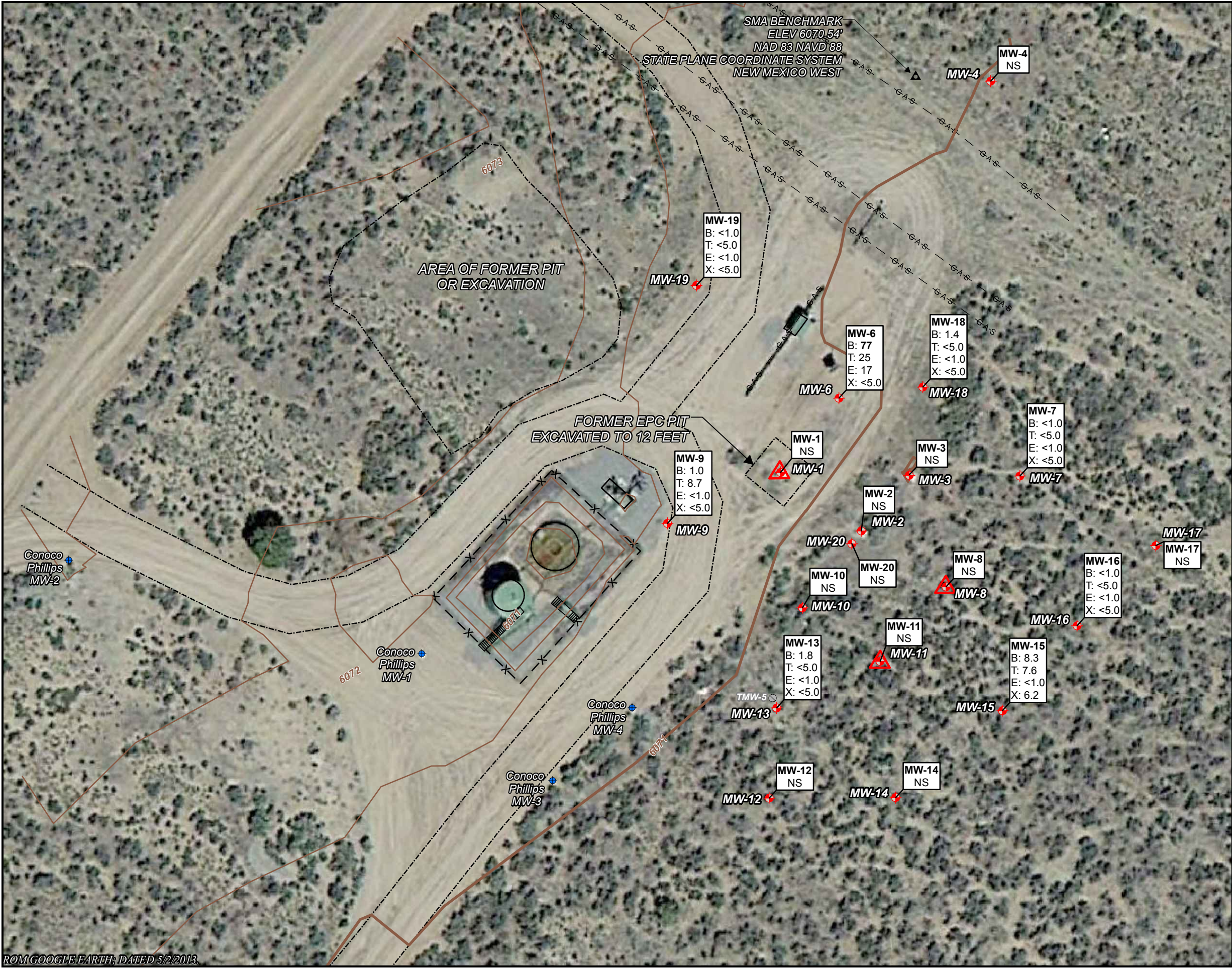
PROJECT:

**JOHNSTON FED #4
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



Figure No.:

2



LEGEND:

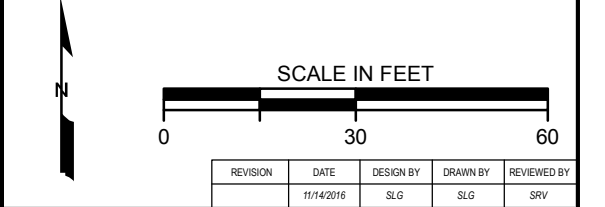
- 6070** — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GA-S — GAS LINE
- X- FENCE
- ABANDONED MONITORING WELL
- CONOCO PHILLIPS MONITORING WELL
- MONITORING WELL
- ▲ MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- ▲ SMA BENCHMARK

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.

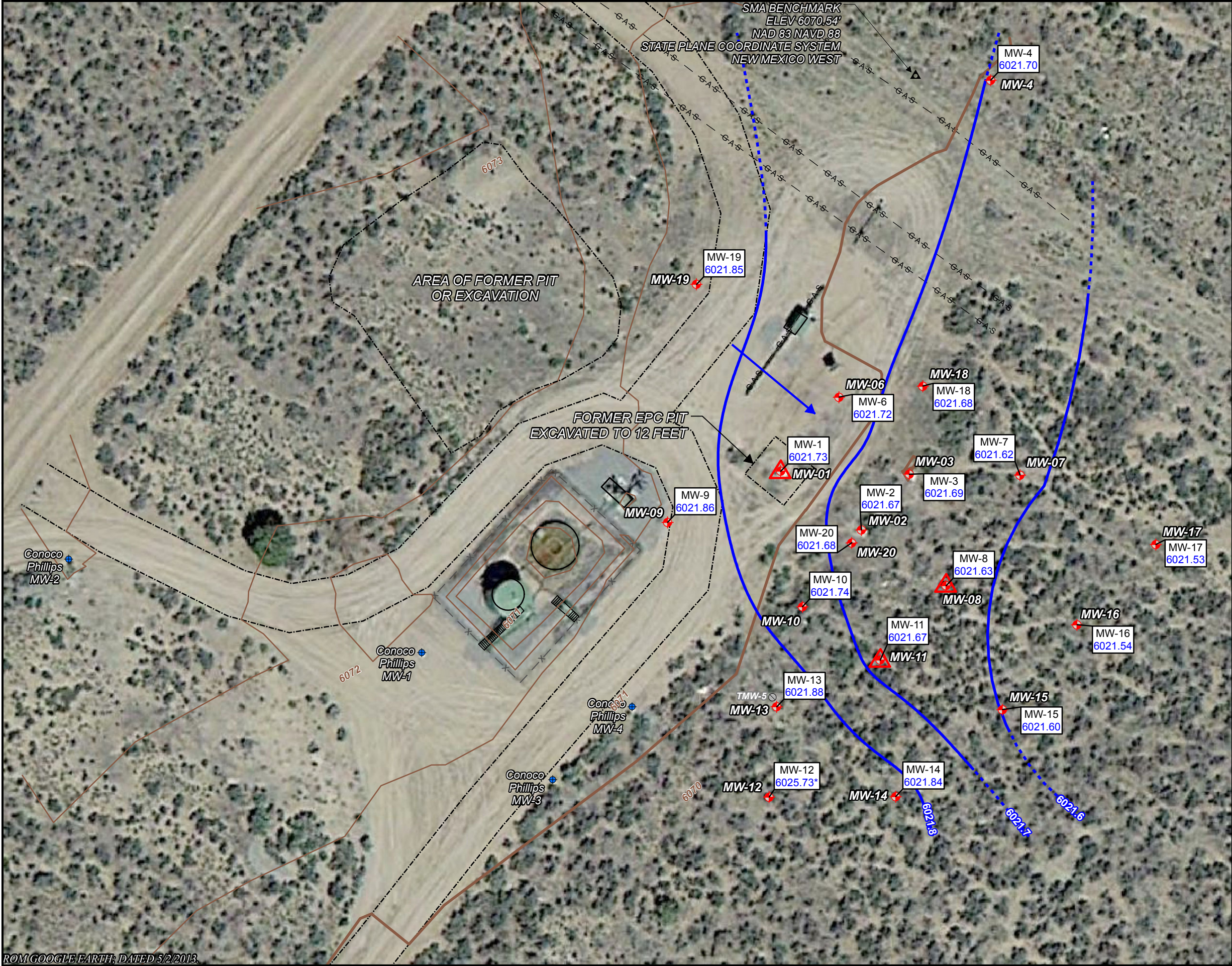
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<1 = BELOW METHOD DETECTION LIMIT

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



TITLE:
**GROUNDWATER ANALYTICAL RESULTS
OCTOBER 12, 2016**

PROJECT: **JOHNSTON FED #4
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**

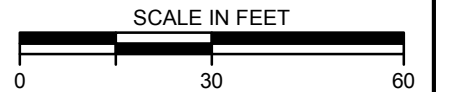
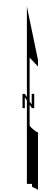


LEGEND:

- 6070** — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- GAS — GAS LINE
- X- FENCE
- ABANDONED MONITORING WELL
- ◆ CONOCO PHILLIPS MONITORING WELL
- ◆ MONITORING WELL
- ▲ MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- ▲ SMA BENCHMARK

NOTES:

- GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS WHERE PRESENT (FEET ABOVE MEAN SEA LEVEL).
- CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.1 FOOT CONTOUR INTERVAL)
- DIRECTION OF APPARENT GROUNDWATER FLOW
- GROUNDWATER ELEVATION APPEARS ANOMALOUS FOR MW-12 AND WAS NOT INCLUDED IN THE GROUNDWATER ELEVATION CONTOURS.



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	3/17/2017	SLG	SLG	SRV

TITLE: **GROUNDWATER ELEVATION MAP
OCTOBER 12, 2016**

PROJECT: **JOHNSTON FED #4
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



Figure No.: **4**

APPENDICES

APPENDIX A – MOBILE DUAL PHASE EXTRACTION REPORT

APPENDIX B – WASTE DISPOSAL DOCUMENTATION

APPENDIX C – MDPE MASS REMOVAL TABLES AND LAB REPORT

APPENDIX D – APRIL 30, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT

OCTOBER 27, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT

APPENDIX A



AcuVac Remediation, LLC

1656-H Townhurst, Houston, Texas 77043
713.468.6688 • www.acuvac.com

December 28, 2016

Mr. Stephen Varsa
Supervising Hydrogeologist
MWH Americas, Inc.
11153 Aurora Avenue
Des Moines, IA 50322

Dear Stephen:

Re: Johnston Federal No. 4, San Juan County, NM

At your request, we performed two Mobile Dual Phase Extraction (MDPE); Event #1A on well MW-8 on and Event #1B on well MW-3 at the above referenced site on November 30, 2016 and December 1, 2016, respectively. Following is the Report and a copy of the Operating Data collected during Event #1. Additionally, Table #1 contains the Summary Well Data and Table #2 contains the Summary Recovery Data.

The purpose of the MDPE events was to maximize recovery of Phase Separated Hydrocarbons (PSH). PSH is referred to as Non-Aqueous Phase Liquids (NAPL) which includes Light Non-Aqueous Phase Liquids (LNAPL). The source of the NAPL is an historical release of natural gas condensate.

OBJECTIVES

The Objectives of an MDPE event are to:

- Evaluate the potential for removing liquid and vapor phase NAPL from the groundwater (GW) and soils in the subsurface formations within the influence of the extraction well.
- Expose the capillary fringe area and below to the extraction well (EW) induced vacuums.
- Increase the groundwater and contaminant specific yields with high induced vacuums.
- Provide an induced hydraulic gradient (IHG) to gain hydraulic control of the area during the event period.
- Select the groundwater depression and pump rates to accomplish the above objectives.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform MDPE events. No third party equipment is utilized. The events at the above referenced site were conducted using the AcuVac I-6 System, with Roots RAI-33 blower used as a vacuum pump and Roots RAI-22 positive displacement blower. The following table lists equipment and instrumentation employed in these events and the data captured by each.

Data Element	Measurement Equipment
Extraction Well Vacuum	Dwyer Magnehelic Gauges
Extractions Well Vapor Flow	Dwyer Averaging Pitot Tubes / Magnehelic Gauges
Observation Wells Induced Vacuum	Dwyer Digital Manometer
Extraction Well Non-Diluted Vapor Samples	V-1 vacuum box
Extraction Well Vapor TPH Content	HORIBA® Analyzer Model Mexa 554GE
Extraction Well Vapor Oxygen Content	Lumidor MicroMax Pro O ₂ Monitor
Depth to NAPL and Depth to groundwater	Solinst Interface Probes Model 122
Liquid Flow and Total Volume	Blancett 1100 Turbine Flow Meter
Liquid Flow and Total Volume	Blancett B3000 Flow Monitor
Liquid Column in Extraction and Observation Wells	In-Situ Level Troll 700 Data Logger
Equalize Well Vacuum/Pressure	In-Situ Vented Cable with Chamber
Capture Readings from Data Logger Trolls	In-Situ Rugged Reader Data Logger Interface
In-Well Pump	Grundfos Redi-Flo 2 Total Fluids Pump
Pump Speed, Other Diagnostics	Grundfos/Baldor Electronic Pump Controller
Relative and Absolute Barometric Pressure	Testo Model 511

The vacuum extraction portion of the AcuVac System consists of a vacuum pump driven by an internal combustion (IC) engine. The vacuum pump is connected to the extraction well and the vacuum created on the extraction well causes light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC Engine where they are burned as part of the normal combustion process. Propane is used as auxiliary fuel to help power the engine if the well vapors do not provide the required energy.

The AcuVac IC Engine is fully loaded for the maximum power necessary to achieve and maintain high induced vacuums and/or high well vapor flows required to maximize the vacuum radius of influence (ROI) for pilot tests and short term event remediation.

Emissions from the engine are passed through three catalytic converters to ensure maximum destruction of removed hydrocarbon vapors. The engine's fuel to air ratio can be adjusted to maintain efficient combustion. Because the engine is the power source for all equipment, all systems stop when the engine stops. This eliminates any uncontrolled release of hydrocarbons. Since the AcuVac System is held entirely under vacuum, any leaks in the seals or connections are leaked into the System and not emitted into the atmosphere. The engine is automatically shut down by vacuum loss, low oil pressure, over speed or overheating.

Groundwater extraction is provided by an in-well, Redi-Flo 2 total fluids pump that has the discharge line connected to a total volume meter. The discharge line from the volume meter is then connected to the stand-by tank. The electrical power for the groundwater pump was supplied from a 120v Honda generator. The groundwater flow rate can be adjusted to maintain a target level. Interface meters are used to collect depth to groundwater and depth to NAPL measurements. Groundwater samples were taken periodically in a graduated cylinder to determine the average NAPL percentages and volume.

The design of the AcuVac System enables independent control of both the Induced well vacuum and the groundwater pumping functions such that the AcuVac team can control the IHG to increase exposure of the formation to SVE. The ability to separate the vacuum and liquid flows within the extraction well improves the NAPL recovery rates, and enables the AcuVac team to record data specific to each media.

SUMMARY OF MDPE EVENT #1A- WELL MW-8

- The total Event time was 7.5 hours. The Event was conducted on November 30, 2016. This was the first event completed from well MW-1, and therefore there was no comparative data from this well.
- The total liquid volume recovered was 798 gals, of which 0.26% or 2.10 gals were liquid NAPL.
- Based on the HORIBA[®] analytical data, total vapor NAPL burned as IC engine fuel was 13.17 gals, for a total liquid and vapor NAPL recovery of 15.27 gals, or 2.04 gals per hour.
- Average HORIBA[®] analytical data from the influent vapor samples was:
Total Petroleum Hydrocarbons (TPH) = 33,500 ppmv, Carbon dioxide (CO₂) = 4.70%, Carbon monoxide (CO) = 0.49%, Oxygen (O₂) = 9.0% and Hydrogen sulfide (H₂S) = 1 ppm.
- The maximum HORIBA[®] analytical data from the influent vapor samples for TPH was 35,760 ppmv.
- The average extraction well induced vacuum was 63.13 inches of water ("H₂O) with a maximum vacuum of 80.00"H₂O.
- The average extraction well vapor flow was 24.25 scfm with a maximum well vapor flow of 32.87 scfm.
- The groundwater pump inlet was initially set at 55.5 ft BTOC, or 1.0 ft above the well bottom of well MW-8. This position was based on the fact that the well was pumped dry when it was being produced after it was drilled. At 1300 hrs, the groundwater pump was relocated to 52.5 ft BTOC. This position placed the groundwater pump within 1.0 ft of the then hydro-equivalent. The average groundwater pump rate was 1.84 gpm, and the maximum groundwater pump rate was 2.80 gpm.
- The average groundwater depression, based on the positioning of the groundwater pump, was 1.5 ft below the hydro-equivalent static level.
- A NAPL thickness in well MW-8 of 0.60 ft was recorded prior to the start of Event #1A and no NAPL thickness was recorded at the conclusion of the Event #1A.

The total NAPL removed, including liquid and vapor, during the 7.5 hour Event #1A, Well MW-8, was 15.27 gals.

ADDITIONAL INFORMATION

- For the first 2.0 hours of the Event #1A, there was no groundwater pumping, and SVE only was conducted due to the frozen conditions at the site.
- The lower percentage of the NAPL volume, 2.10 gals or 13.75%, was recovered as liquid within minutes after the start of Event #1A. The NAPL was present in the well bore and most likely in the area immediately surrounding the well. No quantifiable liquid NAPL was recovered after the first 30 minutes of Event #1A.

- A higher percentage of the NAPL volume, 13.17 gals or 86.25%, was burned as IC engine fuel as a result of the TPH content in the influent vapors.
- Well MW-20 (31.11 ft from well MW-8), well MW-3 (36.11 ft from well MW-8) and well MW-10 (45.30 ft from well MW-8) were sealed with plugs designed to accept a digital manometer. During the course of Event #1A, the vacuum influence of the extraction well on the observation wells was measured with a digital manometer. Well MW-3 (average of 1.81"H₂O) was sufficiently influenced by the induced vacuum to the extent to be considered in the radius of influence. Well MW-10 (average of 0.15"H₂O) and MW-20 (average of 0.03"H₂O) were slightly influenced by the induced vacuum, but not to the extent to be considered in the radius of influence of extraction well MW-8.
- An approximation of the radius of influence may be obtained by determining the point at which the measured vacuum is 0.60 to 0.70"H₂O or approximately 1.0% of the average induced vacuum of 63.13"H₂O. It is assumed that beyond the lower point, the pressure gradient (driving force) is negligible to effectively transport vaporized contaminants to the extraction well. Under continuous operation, vacuum and radius of influence will most likely continue to increase horizontally and vertically.
- Data loggers were placed in the extraction well MW-8 and observation well MW-3 to determine the extent of the induced hydraulic gradient that was created by the groundwater pumping. The graphs of the data are included in Graph #1.

SUMMARY OF MDPE EVENT #1B- WELL MW-3

- The total Event time was 8.0 hours. The Event was conducted on December 1, 2016. This was the first event completed from well MW-1, and therefore there was no comparative data from this well.
- The total liquid volume recovered was 630 gals with no measureable liquid NAPL recovered.
- Based on the HORIBA[®] analytical data, total vapor NAPL burned as IC engine fuel was 6.70 gals, for a total liquid and vapor NAPL recovery of 6.70 gals, or 0.84 gals per hour.
- Average HORIBA[®] analytical data from the influent vapor samples was:
TPH = 26,676 ppmv, CO₂ = 6.86%, CO = 0.24%, O₂ = 7.4% and H₂S = 0 ppm.
- The maximum HORIBA[®] analytical data from the influent vapor samples for TPH was 27,210 ppmv.
- The Average extraction well induced vacuum was 62.35"H₂O with a maximum vacuum of 80.00"H₂O.
- The average extraction well vapor flow was 14.53 scfm with a maximum well vapor flow of 19.25 scfm.
- The groundwater pump inlet was initially set at approximately 66.0 ft BTOC, or 1.0 ft above the well bottom. This position was based on the assumption that the well may not produce a high volume of liquid. At 1000 hrs, the groundwater pump became clogged with bentonite from the well bottom. The pump was removed from the well, disassembled, cleaned and was relocated to approximately 53.0 ft BTOC. This position placed the groundwater pump within 1.0 ft of the then hydro-equivalent. The average groundwater pump rate for Event #1B was 1.41 gpm, and the maximum groundwater pump rate was 2.00 gpm.
- The average groundwater depression, based on the positioning of the groundwater pump, was 1.5 ft below the hydro-equivalent static level.

- A NAPL thickness of 0.21 ft in extraction well MW-3 was recorded prior to the start of Event #1B and no NAPL thickness was recorded in extraction well MW-3 at the conclusion of the Event #1B.

The total NAPL removed, including liquid and vapor, during the 8.0 hour Event #1B, Well MW-3, was 6.70 gals.

ADDITIONAL INFORMATION

- For the first 1.5 hours of the event, there was no groundwater pumping, and SVE only was conducted due to the frozen conditions at the site.
- No measurable liquid NAPL was recovered. All of the NAPL volume, 6.70 gals or 100.00%, was burned as IC engine fuel.
- Well MW-20 (31.11 ft from well MW-3), well MW-2 (31.5 ft from well MW-3), well MW-8 (36.11 ft from well MW-3) and well MW-10 (45.3 ft from well MW-3) were sealed with plugs designed to accept a digital manometers. During the course of Event #1B, the vacuum influence of the extraction well on the observation wells was measured with a digital manometer. All of the wells were slightly influenced by the induced vacuum in extraction well MW-3, but not to the extent to be considered in the radius of influence. MW-2- average of 0.07"H₂O, MW-20- average of 0.09"H₂O, MW-8- average of 0.53"H₂O, and MW-10-average of 0.02"H₂O.
- An approximation of the radius of influence may be obtained by determining the point at which the measured vacuum is 0.60 to 0.70"H₂O or approximately 1.0% of the average induced vacuum of 62.35"H₂O. It is assumed that beyond the lower point, the pressure gradient (driving force) is negligible to effectively transport vaporized contaminants to the extraction well. Under continuous operation, vacuum and radius of influence will most likely continue to increase horizontally and vertically.
- Data loggers were placed in the extraction well MW-3 and observation well MW-8 to determine the extent of the induced hydraulic gradient that was created by the groundwater pumping. The graphs of the data are included in Graph #2.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO₂.

The formula used to calculate the emission rate is:

$$ER = HC \text{ (ppmv)} \times MW \text{ (Hexane)} \times \text{Flow Rate (scfm)} \times 1.58E^{-7} \frac{(\text{min})(\text{lb mole})}{(\text{hr})(\text{ppmv})(\text{ft}^3)} = \text{lbs/hr}$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Schedule A-1: Graphic Summary of Induced Hydraulic Gradient- Event #1A
- Schedule A-2: Graphic Summary of Induced Hydraulic Gradient- Event #1B
- Recorded Data
- Photographs of the MDPE System, well MW-3 and MW-8.

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide this service.

Sincerely,

ACUVAC REMEDIATION, LLC



Paul D. Faucher

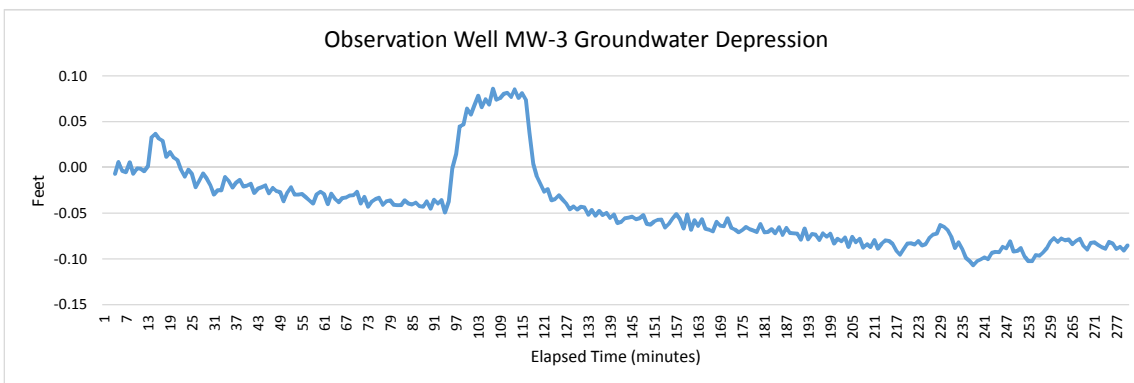
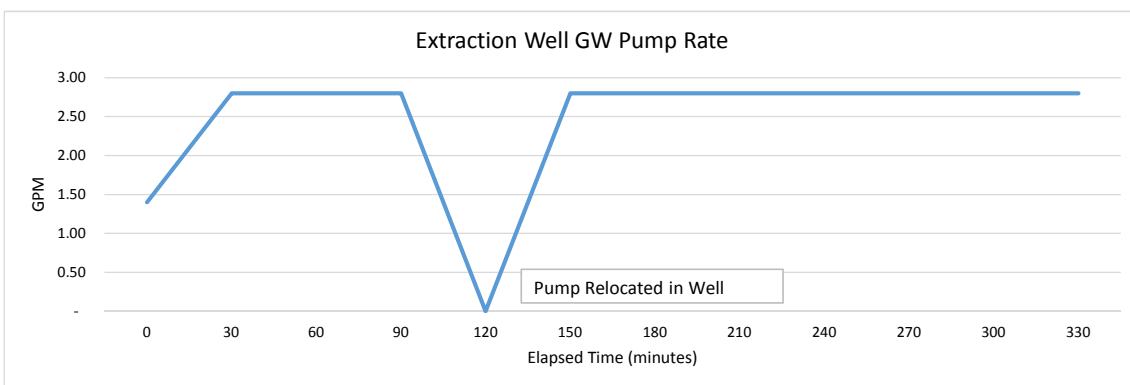
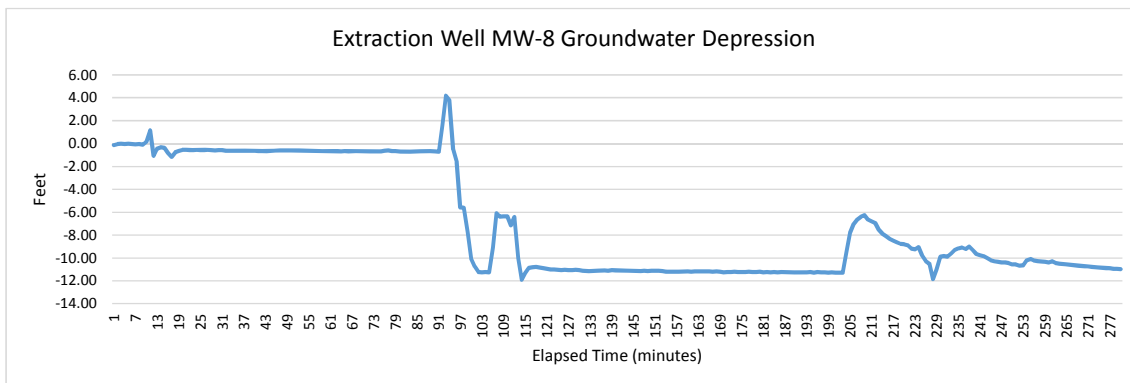
Vice President, Operations

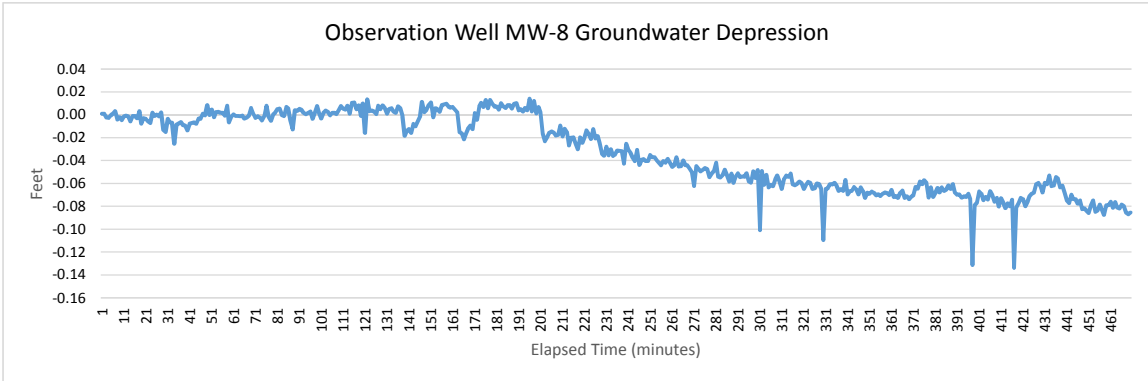
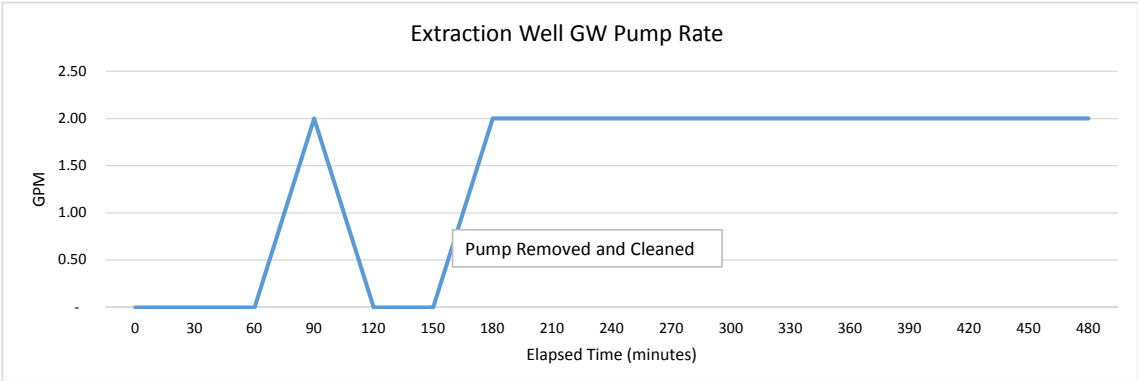
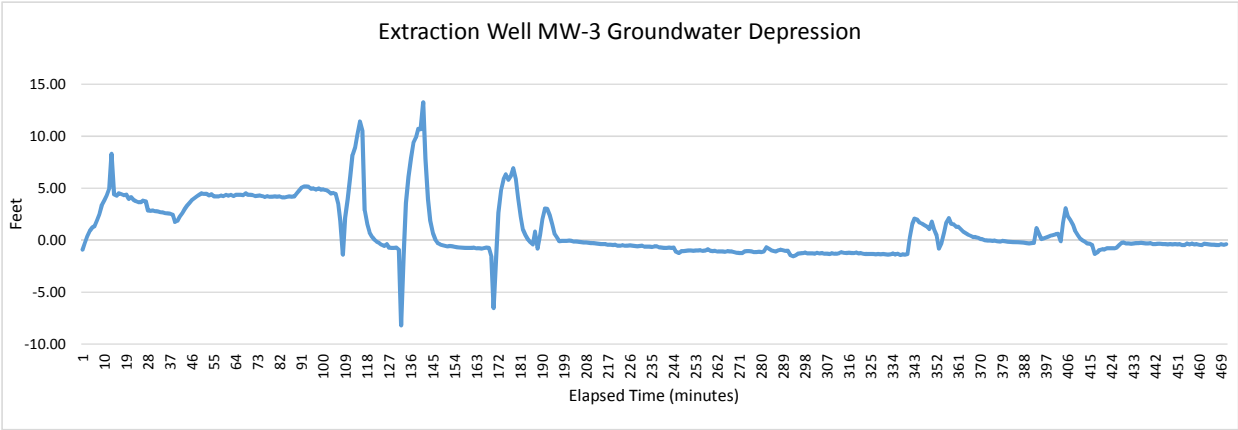
Summary Well Data
Table #1

Event		1A	1B
WELL NO.		MW-8	MW3
Total Event Hours		7.5	8.0
TD	ft BGS	57.0	65.0
Well Screen	ft BGS	42.0 – 57.0	35.0 - 65.0
Well Size	in	2.0	2.0
Well Data			
DTGW - Static - Start Event	ft BTOC	51.49	51.79
DTNAPL - Static - Start Event	ft BTOC	50.89	51.58
NAPL	ft BTOC	0.60	0.21
Hydro-Equivalent- Beginning	ft BTOC	51.05	51.63
DTGW - End Event	ft BTOC	52.20	51.19
DTNAPL - End Event	ft BTOC	-	-
NAPL	ft BTOC	-	-
Hydro-Equivalent- Ending	ft BTOC	52.20	51.19
Extraction Data			
Average Extraction Well Vacuum	"H ₂ O	63.13	62.35
Maximum Extraction Well Vacuum	"H ₂ O	80.00	80.00
Average Extraction Well Vapor Flow	scfm	24.25	14.53
Maximum Extraction Well Vapor Flow	scfm	32.87	19.25
Average GW / NAPL Pump Rate	gpm	1.84	1.41
Maximum GW / NAPL Pump Rate	gpm	2.80	2.00
Influent Data			
Maximum TPH	ppmv	35,760	27,210
Average TPH	ppmv	33,500	26,676
Average CO ₂	%	4.70	6.86
Average CO	%	0.49	0.24
Average O ₂	%	9.0	7.4
Average H ₂ S	ppm	1	0

**Summary Recovery Data
Table #2**

Event		1A	1B
WELL NO.		MW-8	MW3
Recovery Data- Current Event			
Total Liquid Volume Recovered	gals	798	630
Total Liquid NAPL Recovered	gals	2.10	0
Total Liquid NAPL Recovered / Total Liquid	%	0.26	0
Total Liquid NAPL Recovered / Total NAPL	%	13.75	0
Total Vapor NAPL Recovered	gals	13.17	6.70
Total Vapor NAPL Recovered / Total NAPL	%	86.25	100.00
Total Vapor and Liquid NAPL Recovered	gals	15.27	6.70
Average NAPL Recovery	gals/hr	2.04	0.84
Total NAPL Recovered	lbs	107	47
Total Volume of Well Vapors	cu. ft	10,913	6,974
Recovery Data- Cumulative			
Total Liquid Volume Recovered	gals	798	630
Total Liquid NAPL Recovered	gals	2.10	0
Total Vapor NAPL Recovered	gals	13.17	6.70
Total Vapor and Liquid NAPL Recovered	gals	15.27	6.70
Average NAPL Recovery	gals/hr	2.04	0.84
Total NAPL Recovered	lbs	107	47
Total Volume of Well Vapors	cu. ft	10,913	6,974





Location: Johnston Federal #4, San Juan County, NM
Project Managers: Faucher / George

MW-8		Date	11/30/16				
		Time	0900	0930	1000	1030	1100
		Hr Meter	7676.0	7676.5	7677.0	7677.5	7678.0
ENGINE / BLOWER	Engine Speed	RPM	2100	2100	2000	2000	2000
	Oil Pressure	psi	50	50	50	50	50
	Water Temp	°F	120	120	120	120	120
	Alternator	Volts	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	70	70	65	65	65
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H ₂ O	80	80	80	80	80
	Extraction Well Flow	scfm	13.44	13.44	16.45	19.77	19.77
	Influent Vapor Temp.	°F	45	45	50	50	50
	Air Temp	°F	18	20	24	25	27
	Barometric Pressure	"Hg	30.29	30.29	30.28	30.27	30.27
VAPOR / INFLUENT	TPH	ppmv	-	29,160	-	34,570	-
	CO ₂	%	-	4.30	-	4.87	-
	CO	%	-	0.36	-	.54	-
	O ₂	%	-	11.1	-	8.5	-
	H ₂ S	ppm	-	2	-	0	-
MONITOR WELL VACUUM	MW-20 31.11 FT ^{0.00} "H ₂ O		.03	.08	.06	.06	.07
	MW-3 36.11 FT ^{0.00} "H ₂ O		.55	.78	.85	.83	.88
	MW-10 45.30 FT ^{0.00} "H ₂ O		.00	.00	0	0	0
	"H ₂ O						
	"H ₂ O						
	"H ₂ O						
RECOVERY	GW Pump	ON/OFF	OFF	OFF	OFF	OFF	ON
	Pump Rate	gals/min	-	-	-	-	1.40
	Total Volume	gals	-	-	-	-	42
	NAPL	% Vol	-	-	-	-	10
	NAPL	Gals	-	-	-	-	2.10
EW	Data Logger	Static 15.38 ft	15.38	15.38	15.38	15.38	10.98
	GW Depression	ft	-	-	-	-	-4.4
	Extraction Well	DTNAPL	50.89				
	Extraction Well	DTGW	51.49				

() Indicates Well Pressure

NAPL .69

Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Date:

NOTES

11/29/16 1640 HRS MOBILIZED THE ACUVAC SYSTEM NEAR WELL MW-8.
GAUGED WELL, 50.89 FT BTCL DTNAPL, 51.49 FT DTGW
0.60 FT NAPL, HE 51.05. GW PUMP INLET POSITIONED
1.5 FT ABOVE THE WELL BOTTOM.

MW-8 IS A 20" WELL AND ACCORDINGLY, THE DATA
LOGGER WAS PLACED 1.0 FT ABOVE THE PUMP INLET

11/30/16 0750 ARRIVED ON SITE. PERFORMED TRAILGATE SAFETY MTG.
TEMPERATURES VERY LOW. VAC HOSE DEVELOPED CRACKS
WHICH WERE REPAIRED. ACUVAC SYSTEM WOULD NOT START
DUE TO FROZEN PROPANE VALVE.

0900 EVENT STARTED. INITIAL WELL VAC SET AT 80" H₂O
RESULTING IN A WELL VAPOR FLOW OF 13.44 SCFM.
GW PUMP STARTED BUT DID NOT PRODUCE LIQUID DUE TO
POSSIBLY FROZEN WATERLINE.

0930 WELL VAPOR SAMPLE TAKEN, TPH VAPORS 29,160 PPMV.

1000 WELL VAC STEADY, WVF ↑ 16.45 SCFM

1030 WELL VAC STEADY, WVF ↑ 19.77 SCFM. WELL VAPOR
SAMPLE OBTAINED. TPH VAPORS ↑ 34,510.

1115 GW PUMP STARTED. INITIAL SURGE OF NAPL AND THEN
MOSTLY CLEAR LIQUID WITH A SHEEN

NOTE: THE INDUCED WELL VAC HAD TO BE REDUCED EACH
TIME A WELL VAPOR SAMPLE WAS TAKEN.

Location: Johnston Federal #4, San Juan County, NM
Project Managers: Faucher / George

MW-8		Date	11/30/16					
		Time	7679.0	7679.5	7680.0	7680.5	7681.0	7681.5
		Hr Meter	1200	1230	1300	1330	1400	1430
ENGINE / BLOWER	Engine Speed	RPM	2000	2000	2000	2000	2000	2000
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	120	120	120	120	120	120
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	14	14	14	14
	Gas Flow Fuel/Propane	cfh	65	65	65	65	65	65
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H ₂ O	70	70	—	60	60	60
	Extraction Well Flow	scfm	20.96	20.96	—	32.87	32.87	32.87
	Influent Vapor Temp.	°F	50	50	50	50	50	50
	Air Temp	°F	30	32	33	34	34	34
	Barometric Pressure	"Hg	30.23	30.21	30.20	30.19	30.18	30.17
VAPOR / INFLUENT	TPH	ppmv	—	—	—	—	—	—
	CO ₂	%	—	—	—	—	—	—
	CO	%	—	—	—	—	—	—
	O ₂	%	—	—	—	—	—	—
	H ₂ S	ppm	—	—	—	—	—	—
MONITOR WELL VACUUM	MW-20 31.11 Ft	"H ₂ O	.10	.13	.12	.10	.11	.14
	MW-3 36.11 Ft	"H ₂ O	1.41	1.46	1.42	1.36	1.43	1.47
	MW-10 45.30 Ft	"H ₂ O	.02	.03	.03	.03	.02	.04
		"H ₂ O						
		"H ₂ O						
		"H ₂ O						
RECOVERY	GW Pump	ON/OFF	ON	ON	OFF	ON	ON	ON
	Pump Rate	gals/min	2.8	2.8	—	2.8	2.8	2.8
	Total Volume	gals	126	210	294	294	378	462
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	—	—	—	—	—	—
EW	Data Logger	ft	10.59	10.30	10.18	3.47 .01	.01	.01
	GW Depression	ft	-4.79	-5.08	-6.20	-3.46	-3.46	-3.46
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

() Indicates Well Pressure

Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Date: 11/30/16

NOTES

THE INITIAL PUMP PLACEMENT WAS BASED UPON THE FACT THE WELL WAS PUMPED DRY DURING INITIAL PRODUCTION AFTER IT WAS DRILLED. THE GW PUMP WAS STARTED AT 1145 HRS. THE INITIAL DRAWDOWN WAS APPROXIMATELY 5.0 FT. AFTER THE INITIAL DRAWDOWN, THE RATE SLOWED. IT WAS DETERMINED THAT THE PUMP SHOULD BE RELOCATED IN ORDER TO GET THE PUMP INLET CLOSER TO THE GW/NAPL INTERFACE.

1300 HRS THE GW PUMP INLET WAS RELOCATED TO APPROXIMATELY 52.5 FT BTOC. THE INITIAL DATA LOGGER READING WAS 3.47 FT WC ABOVE THE DATA LOGGER. THE PUMP INLET IS 1.0 FT BELOW THE DATA LOGGER.

1330 HRS THE PUMP WAS RESTARTED AT THE SAME PUMP OF 2.8 GPM. THE WATER COLUMN ABOVE THE DATA LOGGER DECREASED TO .01 FT. BUT THE PUMP RATE REMAINED STEADY AT 2.8 GPM.

* THIS INDICATES THAT THE GW PUMP WAS WITHIN 1.0 FT OF THE GW/NAPL INTERFACE.

Location: Johnston Federal #4, San Juan County, NM
Project Managers: Faucher / George

MW-8		Date	11/30/16				
		Time	1500	1530	1600	1630	
		Hr Meter	7682.0	7682.5	7683.0	7683.5	
ENGINE / BLOWER	Engine Speed	RPM	2000	2000	2000	2000	
	Oil Pressure	psi	50	50	50	50	
	Water Temp	°F	120	120	120	120	
	Alternator	Volts	14	14	14	14	
	Intake Vacuum	"Hg	14	14	14	14	
	Gas Flow Fuel/Propane	cfh	50	50	50	50	
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H ₂ O	60	50	50	50	
	Extraction Well Flow	scfm	32.87	29.29	29.29	29.29	
	Influent Vapor Temp.	°F	50	50	50	50	
	Air Temp	°F	34	34	35	35	
	Barometric Pressure	"Hg	30.16	30.15	30.14	30.13	
VAPOR / INFLUENT	TPH	ppmv	—	34,570	—	—	
	CO ₂	%	—	4.72	—	—	
	CO	%	—	.52	—	—	
	O ₂	%	—	8.0	—	—	
	H ₂ S	ppm	—	0	—	—	
MONITOR WELL VACUUM	MW-20 31.11 FT	"H ₂ O	.16	.16	.11	—	
	MW-3 36.11 FT	"H ₂ O	1.53	1.48	1.04	—	
	MW-10 45-30 FT	"H ₂ O	.04	.05	.04	—	
		"H ₂ O					
		"H ₂ O					
		"H ₂ O					
RECOVERY	GW Pump	ON/OFF	ON	ON	ON	OFF	
	Pump Rate	gals/min	2.8	2.8	2.8	2.8	
	Total Volume	gals	546	630	717	798	
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	
	NAPL	Gals	—	—	—	—	
EW	Data Logger	ft	.01	.01	.01	.01	
	GW Depression	ft	-3.46	-3.46	-3.46	-3.46	
	Extraction Well	DTNAPL				—	
	Extraction Well	DTGW				52.20	

() Indicates Well Pressure

 NAPL Ø

Operating Data - Test # 1A Date 11/30/16 ACUVAC MDP SYSTEM

Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Observation Well Vacuum / Pressure

Time	Static	0905	0930	1000	1030	1100
MW- 20 31.11 ft	0.00	.03	0.08	0.06	0.06	0.06
MW- 3 36.11 ft	0.00	.55	0.78	0.95	0.83	0.98
MW- 10 45.30 ft	0.00	0.00	0.00	0.00	0.00	0.00
MW- ft						

Time	1130	1200	1230	1300	1330	1400
MW- 20 31.11 ft	0.07	0.10	.13	.12	.10	.11
MW- 3 36.11 ft	1.33	1.41	1.46	1.42	1.36	1.43
MW- 10 45.30 ft	0	.02	.03	.03	.03	.02
MW- ft						

Time	1430	1500	1530	1600	1630	
MW- 20 31.11 ft	.14	.16	.16	.11	=	
MW- 3 36.11 ft	1.47	1.53	1.48	1.04	-	
MW- 10 45.30 ft	.04	.04	.05	.04	-	
MW- ft						

Time						
MW- ft						
MW- ft						
MW- ft						
MW- ft						

Location: Johnston Federal #4, San Juan County, NM			Project Managers: Faucher / George				
MW-3	Date	12/1/16					
	Time	0800	0830	0900	0930	1000	1030
	Hr Meter	7683.5	7684.0	7684.5	7685.0	7685.5	7686.0
ENGINE / BLOWER	Engine Speed	RPM	2000	2000	2000	2000	2000
	Oil Pressure	psi	50	50	50	50	50
	Water Temp	°F	120	120	120	120	120
	Alternator	Volts	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	140	130	130	130	110
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H ₂ O	.70	.60	.80	.80	OFF
	Extraction Well Flow	scfm	2.41	4.09	5.90	5.90	-
	Influent Vapor Temp.	°F	50	50	50	50	50
	Air Temp	°F	11	15	18	20	22
	Barometric Pressure	"Hg	30.10	30.10	30.10	30.10	30.10
VAPOR / INFLUENT	TPH	ppmv	-	-	27,140	-	-
	CO ₂	%	-	-	6.86	-	-
	CO	%	-	-	0.28	-	-
	O ₂	%	-	-	6.5	-	-
	H ₂ S	ppm	-	-	0	-	-
MONITOR WELL VACUUM	MW-2	22.9 FT ^{0.00} "H ₂ O	.03	0	.03	.02	-
	MW-20	29.10 FT ^{0.00} "H ₂ O	.04	0	.03	.02	-
	MW-8	31.11 FT ^{0.06} "H ₂ O	.25	.07	.20	.19	-
	MW-10	53.11 FT ^{0.00} "H ₂ O	.0	0	0	0	-
		"H ₂ O					
		"H ₂ O					
RECOVERY	GW Pump	ON/OFF	OFF	OFF	OFF	9:45 ON/OFF	OFF
	Pump Rate	gals/min	-	-	-	2.0	-
	Total Volume	gals	-	-	-	-	30
	NAPL	% Vol	-	-	-	-	SHEEN
	NAPL	Gals	-	-	-	-	SHEEN
EW	Data Logger	1.29 ft	1.29	5.37	5.72	6.21	-
	GW Depression	ft	-	-	-	-	-
	Extraction Well	DTNAPL	51.58				
	Extraction Well	DTGW	51.79				

() Indicates Well Pressure

 NAPL .21
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Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Date: 12/1/16

NOTES

PLACED THE GW PUMP IN WELL MW-3 AT APPROXIMATELY 1600HRS ON 11/30/16. GW PUMP POSITIONED 1.0 FT ABOVE WELL BOTTOM.

0720 ARRIVED ON SITE. CONNECTED VACUUM HOSES TO ACUVAC SYSTEM. CONNECTED GW PUMP DISCHARGE LINE TO TOTAL FLOW METER AND THEN TO STANDBY COLLECTION TANK.

0800 EVENT STARTED. INITIAL WELL VAC OF 70" H₂O WITH A WELL VAPOR FLOW OF 2.41 SCFM. WATER LINES WERE FROZEN DUE TO VERY LOW TEMPERATURE - 11°F. THAWED FROZEN LINES WITH A HEAT GUN.

0900 WELL VAC ↑ TO 80" H₂O. LIQUID MOUNDING IN WELL.

0945 GW PUMP STARTED. INITIAL FLOW RATE OF 2.06 GPM.

1000 GW PUMP CLOGGED WITH BENTONITE THAT HAD BEEN DRAWN INTO PUMP. PUMP REMOVED FROM WELL CLEANED EXTERIOR OF PUMP. REPLACED PUMP IN WELL. RECEIVED PUMP CONTROLLER FAULT. REMOVED PUMP FROM WELL. DISASSEMBLED PUMP AND CLEANED ALL PARTS. REASSEMBLED AND REPLACED IN WELL.

1100 GW PUMP RESTARTED AT THE RATE OF 2.0 GPM. PUMP WORKING FINE. REDUCED WELL VAC TO 70" H₂O TO MAINTAIN CONSTANT DRAWNDOWN. PUMP RATE NOT ADJUSTED.

Location: Johnston Federal #4, San Juan County, NM			Project Managers: Faucher / George				
mw-3	Date		12/1/16				
	Time		1100	1130	1200	1230	1300
	Hr Meter		7686.5	7687.0	7687.5	7688.0	7688.5
ENGINE / BLOWER	Engine Speed	RPM	2000	2000	2000	2000	2000
	Oil Pressure	psi	50	50	50	50	50
	Water Temp	°F	120	120	120	120	120
	Alternator	Volts	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	100	100	100	100	100
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H ₂ O	70	70	70	70	70
	Extraction Well Flow	scfm	15.24	15.24	19.25	19.25	19.25
	Influent Vapor Temp.	°F	50	50	50	50	50
	Air Temp	°F	28	32	34	36	38
	Barometric Pressure	"Hg	30.10	30.10	30.08	30.06	30.05
VAPOR / INFLUENT	TPH	ppmv	-	27,120	-	27,210	-
	CO ₂	%	-	7.06	-	7.12	-
	CO	%	-	.23	-	.28	-
	O ₂	%	-	5.9	-	7.1	-
	H ₂ S	ppm	-	0	-	0	-
MONITOR WELL VACUUM	MW-2 22.9 Ft	"H ₂ O	-	.10	.10	.11	.13
	MW-20 29.10 Ft	"H ₂ O	-	.09	.09	.09	.10
	MW-8 31.11 Ft	"H ₂ O	-	.58	.63	.72	.77
	MW-10 53.11 Ft	"H ₂ O	-	.02	.02	.02	.02
		"H ₂ O					
		"H ₂ O					
RECOVERY	GW Pump	ON/OFF	ON	ON	ON	ON	ON
	Pump Rate	gals/min	2.0	2.0	2.0	2.0	2.0
	Total Volume	gals	30	90	150	210	330
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	-	-	-	-	-
EW	Data Logger	ft	7.38	1.37	.74	.41	.19
	GW Depression	ft	-	-6.01	-6.64	6.97	7.19
	Extraction Well	DTNAPL					
	Extraction Well	DTGW					

() Indicates Well Pressure

Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Date: 12/1/16

NOTES

1130 Hrs WELL VAPOR SAMPLE OBTAINED. TPH VAPORS CONSISTENT WITH 0900 SAMPLE IN THE 27,000 PPMV RANGE

GW PUMP CREATING AN APPROXIMATE 6.0 FT GWD AT 2.0 GPM AND 70" H₂O INDUCED VACUUM

1230 Hrs WELL VAPOR SAMPLE OBTAINED. CONSISTENT W/PREVIOUS SAMPLES

1330 Hrs WELL VAPOR SAMPLE OBTAINED. CONSISTENT W/PREVIOUS SAMPLES.

GWD ↑ TO APPROXIMATELY 7.0 FT. W/GW PUMP SET AT 2.0 GPM AND 70" INDUCED WELL VACUUM.

Location: Johnston Federal #4, San Juan County, NM			Project Managers: Faucher / George				
mw-3	Date	12/1/16					
	Time	1400	1430	1500	1530	1600	
	Hr Meter	7689.5	7690.0	7690.5	7691.0	7691.5	
ENGINE / BLOWER	Engine Speed	RPM	2000	2000	2000	2000	2000
	Oil Pressure	psi	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	100	100	100	100	100
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H ₂ O	70	70	70	70	70
	Extraction Well Flow	scfm	19.25	19.25	19.25	19.25	19.25
	Influent Vapor Temp.	°F	50	50	50	50	50
	Air Temp	°F	38	38	38	39	38
	Barometric Pressure	"Hg	30.04	30.03	30.03	30.03	30.02
VAPOR / INFLUENT	TPH	ppmv	—	25,650	—	—	—
	CO ₂	%	—	6.46	—	—	—
	CO	%	—	.23	—	—	—
	O ₂	%	—	9.4	—	—	—
	H ₂ S	ppm	—	0	—	—	—
MONITOR WELL VACUUM	MW-2 22.9 FT	"H ₂ O	.12	.15	.13	.14	—
	MW-20 29.10 FT	"H ₂ O	.09	.12	.11	.13	—
	MW-8 31.11 FT	"H ₂ O	.75	.82	.69	.83	—
	MW-10 53.11 FT	"H ₂ O	.02	.03	.03	.03	—
		"H ₂ O					
		"H ₂ O					
RECOVERY	GW Pump	ON/OFF	ON	ON	ON	ON	OFF
	Pump Rate	gals/min	2.0	2.0	2.0	2.0	2.0
	Total Volume	gals	390	450	510	570	630
	NAPL	% Vol	SHZEN	SHZEN	SHZEN	SHZEN	SHZEN
	NAPL	Gals	—	—	—	—	—
EW	Data Logger	ft	3.25	1.46	.63	1.07	—
	GW Depression	ft					
	Extraction Well	DTNAPL					—
	Extraction Well	DTGW					5119

() Indicates Well Pressure

φ

Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Date: 12/1/16

NOTES

1730 WELL VAPOR SAMPLE OBTAINED. SLIGHTLY LOWER THAN PREVIOUS SAMPLES.

1400-1600 GW PUMP RATE STEADY AT 2.0 GPM. NO LIQUID NAPL RECOVERY.

1600 HRS EVENT CONCLUDED. GAUGED WELL MW 3 NO NAPL PRESENT DEMOBILIZED ACUVAC SYSTEM AND EQUIPMENT. DEPARTED SITE.

Operating Data - Test # 1B Date 12/1/16 ACUVAC MDP SYSTEM

Location: Johnston Federal #4, San Juan County, NM

Project Managers: Faucher / George

Observation Well Vacuum / Pressure

Time	Static	0800	0830	0900	0930	1000
MW- <u>20</u> 31.11 ft	0	.04	0	.03	.02	-
MW- <u>2</u> 31.5 ft	0	.03	0	.03	.02	-
MW- <u>8</u> 36.11 ft	.06	.25	.07	.20	.19	-
MW- <u>10</u> 45.3 ft	0	0	0	0	0	-

Time	1030	1100	1130	1200	1230	1300
MW- <u>20</u> 31.11 ft	-	-	.09	.09	.09	.12
MW- <u>2</u> 31.5 ft	-	-	.10	.10	.11	.16
MW- <u>8</u> 36.11 ft	-	-	.58	.63	.72	.79
MW- <u>10</u> 45.3 ft	-	-	.02	.02	.02	.02

Time	1330	1400	1430	1500	1530	1600
MW- <u>20</u> 31.11 ft	.13	.12	.15	.13	.16	-
MW- <u>2</u> 31.5 ft	.10	.09	.12	.11	.13	-
MW- <u>8</u> 36.11 ft	.77	.75	.82	.69	.83	-
MW- <u>10</u> 45.3 ft	.02	.02	.03	.03	.03	-

Time						
MW- ft						
MW- ft						
MW- ft						
MW- ft						

**JOHNSTON FEDERAL #4
SAN JUAN COUNTY, NM**



JOHNSTON FEDERAL #4 SAN JUAN COUNTY, NM

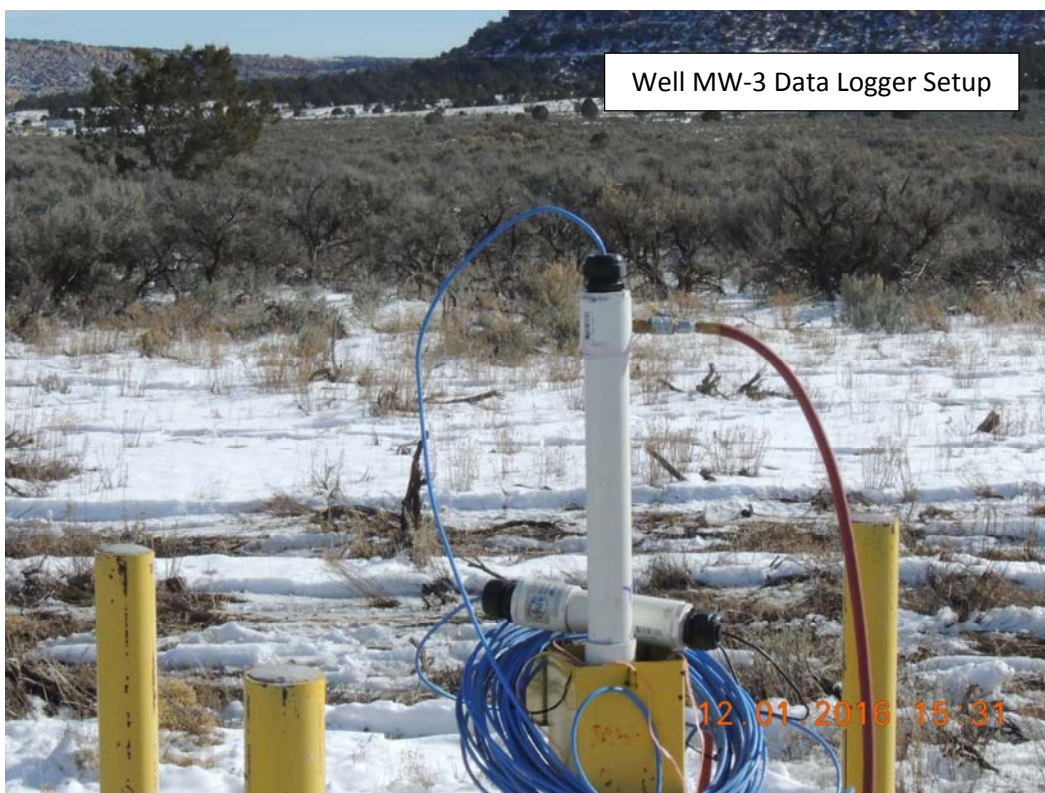
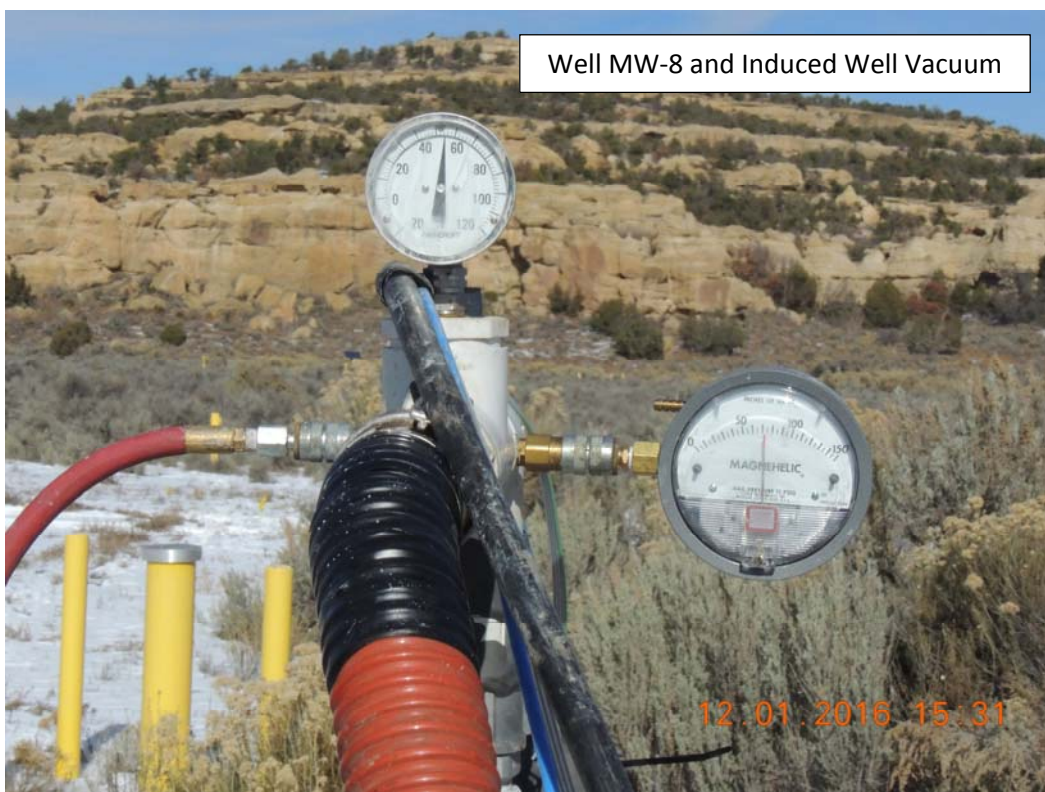
Well MW-3 and Standby Collection Tank



Well MW-8 and Standby Collection Tank



JOHNSTON FEDERAL #4 SAN JUAN COUNTY, NM



APPENDIX B

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-832-8936 or 505-334-3013
OPEN 24 Hours per Day

NO.

675321

NMOC D PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 12-1-16

GENERATOR: El Paso

HAULING CO. Serra

ORDERED BY: Joseph L. Lly

DEL. TKT#

BILL TO: El Paso

DRIVER: Tucal

CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste

☐ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☒ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	SY	Various co's site	18	25			16 DEC 25 12:07 PM	
2		Johnston Federal #4						
3								
4								
5								

I, Joseph L. Lly representative or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt, Oil field wastes generated from oil and gas exploration and production operations and not mixed with non-exempt waste.

☒ Approved

☐ Denied

ATTENDANT SIGNATURE [Signature]

san juan reproduction 158-6

103.09945.0502

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Meridiana, Bloomfield, NM 87413
505-832-8936 or 505-324-3013
OPEN 24 Hours per Day

DATE 12-2-16

GENERATOR: EL PASO

HAULING CO: Cicero

ORDERED BY: Joseph Wilby

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste

☒ Produced Water

☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☒ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO. **675384**

NMOCED PERMIT: NM-001-0005
Oil Field Waste Document, Form C138
INVOICE:

DEL. TKT#

BILL TO: EL PASO

DRIVER: Flavia Medina
(Print Full Name)

CODES:

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	<u>SB</u>	<u>VARIOUS EXPLORATION</u>	<u>18</u>	<u>750</u>			<u>15 DEC 52 10:03 AM</u>	
2		<u>Johnston Federal #4</u>						
3								
4								
5								

I, Flavia Medina representative or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt, Oil field wastes generated from oil and gas exploration and production operations and not mixed with non-exempt waste.

☒ Approved

☐ Denied

ATTENDANT SIGNATURE

[Signature]

San Juan reproduction 168-6

APPENDIX C

MDPE VAPOR MASS REMOVAL SUMMARY
JOHNSTON FEDERAL #4 - MW-3
SAN JAUN COUNTY, NEW MEXICO

DATE	TPH (lbs)	MASS REMOVAL				
		Benzene (lbs)	Toluene (lbs)	Ethylbenzene (lbs)	Xylenes (lbs)	Total BTEX (lbs)
December 1, 2016	53	0.83	2.55	0.21	2.16	5.75
CUMULATIVE TOTAL	53	0.83	2.55	0.21	2.16	5.75

TPH MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-3
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
12/1/16 7:59 AM	0.0	0			0					
12/1/16 8:00 AM	0.0	2.41	140,351		30,000	1.3	30	5.6		
12/1/16 9:00 AM	0.0	5.90	126,971		27,140	2.8	67	12.3	2	0.3
12/1/16 11:30 AM	0.0	15.24	126,877		27,120	7.2	174	31.7	13	2.1
12/1/16 12:30 PM	0.0	19.25	127,298		27,210	9.2	220	40.2	8	1.4
12/1/16 1:30 PM	0.0	19.25	122,854		26,260	8.9	213	38.8	9	1.5
12/1/16 2:30 PM	0.0	19.25	120,000		25,650	8.7	208	37.9	9	1.5
12/1/16 4:00 PM	0.0	19.25	112,281		24,000	8.1	194	35.5	13	2.1

CUMULATIVE TOTAL 53 8.9

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 6.0 lbs/gal

BENZENE MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	1,128		30,000	0.1	1	0.2		
11/30/16 9:30 AM	0.0	13.44	1,097		29,160	0.1	1	0.2	0.03	0.00
11/30/16 10:30 AM	0.0	19.77	1,298		34,510	0.1	2	0.4	0.08	0.01
11/30/16 11:30 AM	0.0	19.77	1,345		35,760	0.1	2	0.4	0.10	0.01
11/30/16 3:30 PM	0.0	29.29	1,300		34,570	0.1	3	0.6	0.48	0.07
11/30/16 4:30 PM	0.0	29.29	1,279		34,000	0.1	3	0.6	0.14	0.02

CUMULATIVE TOTAL 0.83 0.11

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.33 lbs/gal

TOLUENE MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	3,471		30,000	0.2	4	0.8		
11/30/16 9:30 AM	0.0	13.44	3,374		29,160	0.2	4	0.7	0.09	0.01
11/30/16 10:30 AM	0.0	19.77	3,993		34,510	0.3	7	1.3	0.23	0.03
11/30/16 11:30 AM	0.0	19.77	4,138		35,760	0.3	7	1.3	0.30	0.04
11/30/16 3:30 PM	0.0	29.29	4,000		34,570	0.4	11	1.9	1.49	0.21
11/30/16 4:30 PM	0.0	29.29	3,934		34,000	0.4	10	1.9	0.44	0.06

CUMULATIVE TOTAL 2.55 0.35

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.20 lbs/gal

ETHYLBENZENE MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down				MASS REMOVAL				
		Flow Rate (scfm)	TPH (mg/m ³)	or TPH (ppmv)	(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0		0					
11/30/16 9:00 AM	0.0	13.44	286	30,000	0.014	0.346	0.063		
11/30/16 9:30 AM	0.0	13.44	278	29,160	0.014	0.336	0.061	0.01	0.001
11/30/16 10:30 AM	0.0	19.77	329	34,510	0.024	0.586	0.107	0.02	0.003
11/30/16 11:30 AM	0.0	19.77	341	35,760	0.025	0.607	0.111	0.02	0.003
11/30/16 3:30 PM	0.0	29.29	330	34,570	0.036	0.869	0.159	0.12	0.017
11/30/16 4:30 PM	0.0	29.29	325	34,000	0.036	0.855	0.156	0.04	0.005

CUMULATIVE TOTAL 0.21 0.029

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.19 lbs/gal

XYLENES MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	2,951		30,000	0.1	4	0.7		
11/30/16 9:30 AM	0.0	13.44	2,868		29,160	0.1	3	0.6	0.07	0.01
11/30/16 10:30 AM	0.0	19.77	3,394		34,510	0.3	6	1.1	0.20	0.03
11/30/16 11:30 AM	0.0	19.77	3,517		35,760	0.3	6	1.1	0.26	0.04
11/30/16 3:30 PM	0.0	29.29	3,400		34,570	0.4	9	1.6	1.27	0.18
11/30/16 4:30 PM	0.0	29.29	3,344		34,000	0.4	9	1.6	0.37	0.05

CUMULATIVE TOTAL 2.16 0.30

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.24 lbs/gal

MDPE VAPOR MASS REMOVAL SUMMARY
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	TPH (lbs)	MASS REMOVAL (TOTAL BTEX)				
		Benzene (lbs)	Toluene (lbs)	Ethylbenzene (lbs)	Xylenes (lbs)	Total BTEX (lbs)
November 30, 2016	32	0.33	0.48	0.02	0.20	1.04
CUMULATIVE TOTAL	32	0.33	0.48	0.02	0.20	1.04

TPH MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	44,258		30,000	2.2	53	9.8		
11/30/16 9:30 AM	0.0	13.44	43,019		29,160	2.2	52	9.5	1	0.2
11/30/16 10:30 AM	0.0	19.77	50,911		34,510	3.8	91	16.5	3	0.5
11/30/16 11:30 AM	0.0	19.77	52,756		35,760	3.9	94	17.1	4	0.6
11/30/16 3:30 PM	0.0	29.29	51,000		34,570	5.6	134	24.5	19	3.2
11/30/16 4:30 PM	0.0	29.29	50,159		34,000	5.5	132	24.1	6	0.9

CUMULATIVE TOTAL 32 5.4

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 6.0 lbs/gal

BENZENE MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	451		30,000	0.0	1	0.1		
11/30/16 9:30 AM	0.0	13.44	439		29,160	0.0	1	0.1	0.01	0.00
11/30/16 10:30 AM	0.0	19.77	519		34,510	0.0	1	0.2	0.03	0.00
11/30/16 11:30 AM	0.0	19.77	538		35,760	0.0	1	0.2	0.04	0.01
11/30/16 3:30 PM	0.0	29.29	520		34,570	0.1	1	0.2	0.19	0.03
11/30/16 4:30 PM	0.0	29.29	511		34,000	0.1	1	0.2	0.06	0.01

CUMULATIVE TOTAL 0.33 0.05

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.33 lbs/gal

TOLUENE MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	660		30,000	0.0	1	0.1		
11/30/16 9:30 AM	0.0	13.44	641		29,160	0.0	1	0.1	0.02	0.00
11/30/16 10:30 AM	0.0	19.77	759		34,510	0.1	1	0.2	0.04	0.01
11/30/16 11:30 AM	0.0	19.77	786		35,760	0.1	1	0.3	0.06	0.01
11/30/16 3:30 PM	0.0	29.29	760		34,570	0.1	2	0.4	0.28	0.04
11/30/16 4:30 PM	0.0	29.29	747		34,000	0.1	2	0.4	0.08	0.01

CUMULATIVE TOTAL 0.48 0.07

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.20 lbs/gal

ETHYLBENZENE MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	34		30,000	0.002	0.041	0.007		
11/30/16 9:30 AM	0.0	13.44	33		29,160	0.002	0.040	0.007	0.00	0.000
11/30/16 10:30 AM	0.0	19.77	39		34,510	0.003	0.069	0.013	0.00	0.000
11/30/16 11:30 AM	0.0	19.77	40		35,760	0.003	0.072	0.013	0.00	0.000
11/30/16 3:30 PM	0.0	29.29	39		34,570	0.004	0.103	0.019	0.01	0.002
11/30/16 4:30 PM	0.0	29.29	38		34,000	0.004	0.101	0.018	0.00	0.001

CUMULATIVE TOTAL 0.02 0.003

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.19 lbs/gal

XYLENES MASS REMOVAL CALCULATIONS
JOHNSTON FEDERAL #4 - MW-8
SAN JAUN COUNTY, NEW MEXICO

DATE	Days Down	Flow Rate (scfm)	TPH (mg/m ³)	or	TPH (ppmv)	MASS REMOVAL				
						(lbs/hr)	(lbs/day)	(tons/yr)	(lbs/period)	(gal/period)
11/30/16 8:59 AM	0.0	0			0					
11/30/16 9:00 AM	0.0	13.44	266		30,000	0.0	0	0.1		
11/30/16 9:30 AM	0.0	13.44	259		29,160	0.0	0	0.1	0.01	0.00
11/30/16 10:30 AM	0.0	19.77	306		34,510	0.0	1	0.1	0.02	0.00
11/30/16 11:30 AM	0.0	19.77	318		35,760	0.0	1	0.1	0.02	0.00
11/30/16 3:30 PM	0.0	29.29	307		34,570	0.0	1	0.1	0.11	0.02
11/30/16 4:30 PM	0.0	29.29	302		34,000	0.0	1	0.1	0.03	0.00

CUMULATIVE TOTAL 0.20 0.03

Notes:

- 1) If using part per million (vol:vol basis), enter the average molecular weight of the VOC(s) below:
Average (or specific) contaminant molecular weight = 114 (see comment for typical values).
- 2) Gallon/period conversion assumes a liquid density of: 7.24 lbs/gal

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Burlington

30 Community Drive

Suite 11

South Burlington, VT 05403

Tel: (802)660-1990

TestAmerica Job ID: 200-36530-1

Client Project/Site: Johnston Fed #4

Revision: 1

For:

MWH Americas Inc

11153 Aurora Avenue

Des Moines, Iowa 50322-7904

Attn: Clint Oberbroeckling



Authorized for release by:

12/30/2016 12:44:34 PM

Carol Webb, Project Manager II

(850)471-6250

carol.webb@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1

Table of Contents 2

Definitions/Glossary 3

Case Narrative 4

Detection Summary 5

Client Sample Results 6

QC Sample Results 7

QC Association Summary 8

Lab Chronicle 9

Certification Summary 10

Method Summary 11

Sample Summary 12

Chain of Custody 13

Receipt Checklists 15

Clean Canister Certification 16

 Pre-Ship Certification 16

 Clean Canister Data 18



Definitions/Glossary

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

TestAmerica Job ID: 200-36530-1

Glossary

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

Case Narrative

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

TestAmerica Job ID: 200-36530-1

Job ID: 200-36530-1

Laboratory: TestAmerica Burlington

Narrative

Job Narrative
200-36530-1

Comments

No additional comments.

Receipt

The samples were received on 12/6/2016 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

Receipt Exceptions

During the canister pressure check performed upon receipt, it was observed that the following sample(s) was received at an elevated residual vacuum level: MW-8, MW-3. The samples are grabs, and therefore there are no flow controllers to be checked. The client was contacted, and the laboratory was instructed to proceed with analysis.

Air Toxics

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

Detection Summary

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

TestAmerica Job ID: 200-36530-1

Client Sample ID: MW-8

Lab Sample ID: 200-36530-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	520		6.1		mg/m3	9580		TO-15	Total/NA
Toluene	760		7.2		mg/m3	9580		TO-15	Total/NA
Ethylbenzene	39		8.3		mg/m3	9580		TO-15	Total/NA
m,p-Xylene	270		21		mg/m3	9580		TO-15	Total/NA
Xylene, o-	37		8.3		mg/m3	9580		TO-15	Total/NA
Xylene (total)	310		29		mg/m3	9580		TO-15	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
TPH GRO as Octane (C5-C10)	51000		550		mg/m3	9580		TO3	Total/NA

Client Sample ID: MW-3

Lab Sample ID: 200-36530-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1300		25		mg/m3	39200		TO-15	Total/NA
Toluene	4000		30		mg/m3	39200		TO-15	Total/NA
Ethylbenzene	330		34		mg/m3	39200		TO-15	Total/NA
m,p-Xylene	2900		85		mg/m3	39200		TO-15	Total/NA
Xylene, o-	490		34		mg/m3	39200		TO-15	Total/NA
Xylene (total)	3400		120		mg/m3	39200		TO-15	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
TPH GRO as Octane (C5-C10)	120000		2200		mg/m3	39200		TO3	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Client Sample Results

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

TestAmerica Job ID: 200-36530-1

Client Sample ID: MW-8

Date Collected: 11/30/16 15:30

Date Received: 12/06/16 10:30

Sample Container: Summa Canister 6L

Lab Sample ID: 200-36530-1

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	520		6.1		mg/m3			12/14/16 18:02	9580
Toluene	760		7.2		mg/m3			12/14/16 18:02	9580
Ethylbenzene	39		8.3		mg/m3			12/14/16 18:02	9580
m,p-Xylene	270		21		mg/m3			12/14/16 18:02	9580
Xylene, o-	37		8.3		mg/m3			12/14/16 18:02	9580
Xylene (total)	310		29		mg/m3			12/14/16 18:02	9580

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH GRO as Octane (C5-C10)	51000		550		mg/m3			12/14/16 18:02	9580

Client Sample ID: MW-3

Date Collected: 12/01/16 14:30

Date Received: 12/06/16 10:30

Sample Container: Summa Canister 6L

Lab Sample ID: 200-36530-2

Matrix: Air

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1300		25		mg/m3			12/15/16 09:51	39200
Toluene	4000		30		mg/m3			12/15/16 09:51	39200
Ethylbenzene	330		34		mg/m3			12/15/16 09:51	39200
m,p-Xylene	2900		85		mg/m3			12/15/16 09:51	39200
Xylene, o-	490		34		mg/m3			12/15/16 09:51	39200
Xylene (total)	3400		120		mg/m3			12/15/16 09:51	39200

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TPH GRO as Octane (C5-C10)	120000		2200		mg/m3			12/15/16 09:51	39200

TestAmerica Burlington

QC Sample Results

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

TestAmerica Job ID: 200-36530-1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 200-112389/5

Matrix: Air

Analysis Batch: 112389

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00064		0.00064		mg/m3			12/14/16 13:43	1
Toluene	<0.00075		0.00075		mg/m3			12/14/16 13:43	1
Ethylbenzene	<0.00087		0.00087		mg/m3			12/14/16 13:43	1
m,p-Xylene	<0.0022		0.0022		mg/m3			12/14/16 13:43	1
Xylene, o-	<0.00087		0.00087		mg/m3			12/14/16 13:43	1
Xylene (total)	<0.0030		0.0030		mg/m3			12/14/16 13:43	1

Lab Sample ID: LCS 200-112389/4

Matrix: Air

Analysis Batch: 112389

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0319	0.0335		mg/m3		105	67 - 127
Toluene	0.0377	0.0391		mg/m3		104	67 - 127
Ethylbenzene	0.0434	0.0449		mg/m3		103	68 - 128
m,p-Xylene	0.0868	0.0886		mg/m3		102	68 - 128
Xylene, o-	0.0434	0.0436		mg/m3		100	67 - 127

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Lab Sample ID: MB 200-112441/5

Matrix: Air

Analysis Batch: 112441

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
TPH GRO as Octane (C5-C10)	<0.057		0.057		mg/m3			12/14/16 13:43	1

Lab Sample ID: LCS 200-112441/4

Matrix: Air

Analysis Batch: 112441

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
n-Octane	0.0467	0.0506		mg/m3		108	70 - 130

TestAmerica Burlington

QC Association Summary

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

TestAmerica Job ID: 200-36530-1

Air - GC/MS VOA

Analysis Batch: 112389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-36530-1	MW-8	Total/NA	Air	TO-15	
200-36530-2	MW-3	Total/NA	Air	TO-15	
MB 200-112389/5	Method Blank	Total/NA	Air	TO-15	
LCS 200-112389/4	Lab Control Sample	Total/NA	Air	TO-15	

Analysis Batch: 112441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-36530-1	MW-8	Total/NA	Air	TO3	
200-36530-2	MW-3	Total/NA	Air	TO3	
MB 200-112441/5	Method Blank	Total/NA	Air	TO3	
LCS 200-112441/4	Lab Control Sample	Total/NA	Air	TO3	

Lab Chronicle

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

TestAmerica Job ID: 200-36530-1

Client Sample ID: MW-8

Date Collected: 11/30/16 15:30

Date Received: 12/06/16 10:30

Lab Sample ID: 200-36530-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		9580	112389	12/14/16 18:02	PAD	TAL BUR
Total/NA	Analysis	TO3		9580	112441	12/14/16 18:02	PAD	TAL BUR

Client Sample ID: MW-3

Date Collected: 12/01/16 14:30

Date Received: 12/06/16 10:30

Lab Sample ID: 200-36530-2

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		39200	112389	12/15/16 09:51	PAD	TAL BUR
Total/NA	Analysis	TO3		39200	112441	12/15/16 09:51	PAD	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Certification Summary

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

TestAmerica Job ID: 200-36530-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-17
Florida	NELAP	4	E87467	06-30-17
L-A-B	DoD ELAP		L2336	02-26-17
Maine	State Program	1	VT00008	04-17-17
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-16 *
New Jersey	NELAP	2	VT972	06-30-17
New York	NELAP	2	10391	04-01-17
Pennsylvania	NELAP	3	68-00489	04-30-17
Rhode Island	State Program	1	LAO00298	12-30-16 *
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-17
Louisiana (DW)	NELAP Secondary AB	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-17
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17

* Certification renewal pending - certification considered valid.

TestAmerica Burlington

Method Summary

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

TestAmerica Job ID: 200-36530-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL BUR
TO3	Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

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

TestAmerica Job ID: 200-36530-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-36530-1	MW-8	Air	11/30/16 15:30	12/06/16 10:30
200-36530-2	MW-3	Air	12/01/16 14:30	12/06/16 10:30

1

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Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 200-36530-1

Login Number: 36530

List Source: TestAmerica Burlington

List Number: 1

Creator: Lavigne III, Scott M

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

Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test													
System ID		# Cycles		Cleaning Date		Technician		Canister Size		Certification Type:			
Top Rack		20		11/9/2016		EJE		1L 6L		Batch Individual			
Port	Can ID	Initial ¹ ("Hg)	Final ("Hg)	Adj. Initial ² ("Hg)	Diff. ³	Initial Reading			Final Reading				
						Gauge:	Date:	Time:	Tech:	BP:	Temp:		
1	4077	-29.5	Leak	-29.5	Leak	69	11/01/16	12:00	EE	29.5	21		
2	3316		-29.5		0								
3	4650		Leak		Leak								
4	3081		Leak		Leak								
5	2509	-29.1	Leak	-29.7	Leak	69	11/15/16	13:00	EE	29.5	21		
6	5621	-29.5	-29.3	-29.5	+0.2	69	11/01/16	12:00	EE	29.5	21		
7	4364		-29.5		+0.2								
8	2637		Leak		Leak								
9	2754		-29.4		+0.1								
10	3072		-29.9		+0.4								
11	2880		-29.7		+0.2								
12	4916		-29.7		+0.2								

¹ Batch Certification: The reading is taken on the "batch" canister and this value is used as the initial pressure for all canisters in the batch.
² Adjusted Initial Pressure = Initial Pressure + (Initial BP - Final BP).
³ Difference = Final Pressure - Adjusted Initial Pressure. Acceptance Criteria: (1) The difference must be less than or equal to +0.5. (2) Pressure readings must be at least 24 hours apart.
 If time frame was not met, the PM must authorize shipment of canister.

Signature: _____ Date: _____
 PM Authorization Signature: _____

Clean Canister Certification Analysis & Authorization of Release to Inventory

200-36124-A-5
2509

Bottle: Summa Canister 6L
Sampled: 11/9/2016 12:00 AM 200-991181

Loc: 200
36124
#5
A

Comments:

Inventory Level 1: Individual Canister Certification (TO15LL-0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

FAI023:04.13.16:9

TestAmerica Burlington

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>200-35955-1</u>
SDG No.: _____	
Client Sample ID: <u>4160</u>	Lab Sample ID: <u>200-35955-5</u>
Matrix: <u>Air</u>	Lab File ID: <u>22443_25.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>10/28/2016 00:00</u>
Sample wt/vol: <u>1000 (mL)</u>	Date Analyzed: <u>11/01/2016 08:15</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>0.2</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-624</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>110758</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
115-07-1	Propylene	1.0	U	1.0	1.0
75-71-8	Dichlorodifluoromethane	0.10	U	0.10	0.10
75-45-6	Freon 22	0.10	U	0.10	0.10
76-14-2	1,2-Dichlorotetrafluoroethane	0.040	U	0.040	0.040
74-87-3	Chloromethane	0.10	U *	0.10	0.10
106-97-8	n-Butane	0.10	U	0.10	0.10
75-01-4	Vinyl chloride	0.040	U	0.040	0.040
106-99-0	1,3-Butadiene	0.040	U	0.040	0.040
74-83-9	Bromomethane	0.040	U	0.040	0.040
75-00-3	Chloroethane	0.10	U	0.10	0.10
593-60-2	Bromoethene (Vinyl Bromide)	0.040	U	0.040	0.040
75-69-4	Trichlorofluoromethane	0.040	U	0.040	0.040
64-17-5	Ethanol	1.0	U	1.0	1.0
76-13-1	Freon TF	0.040	U	0.040	0.040
75-35-4	1,1-Dichloroethene	0.040	U	0.040	0.040
67-64-1	Acetone	1.0	U	1.0	1.0
67-63-0	Isopropyl alcohol	1.0	U	1.0	1.0
75-15-0	Carbon disulfide	0.10	U	0.10	0.10
107-05-1	3-Chloropropene	0.10	U	0.10	0.10
75-09-2	Methylene Chloride	0.10	U	0.10	0.10
75-65-0	tert-Butyl alcohol	1.0	U	1.0	1.0
1634-04-4	Methyl tert-butyl ether	0.040	U	0.040	0.040
156-60-5	trans-1,2-Dichloroethene	0.040	U	0.040	0.040
110-54-3	n-Hexane	0.040	U	0.040	0.040
75-34-3	1,1-Dichloroethane	0.040	U	0.040	0.040
108-05-4	Vinyl acetate	1.0	U	1.0	1.0
141-78-6	Ethyl acetate	1.0	U	1.0	1.0
78-93-3	Methyl Ethyl Ketone	0.10	U	0.10	0.10
156-59-2	cis-1,2-Dichloroethene	0.040	U	0.040	0.040
540-59-0	1,2-Dichloroethene, Total	0.080	U	0.080	0.080
67-66-3	Chloroform	0.040	U	0.040	0.040
109-99-9	Tetrahydrofuran	1.0	U	1.0	1.0
71-55-6	1,1,1-Trichloroethane	0.040	U	0.040	0.040
110-82-7	Cyclohexane	0.040	U	0.040	0.040
56-23-5	Carbon tetrachloride	0.040	U	0.040	0.040
540-84-1	2,2,4-Trimethylpentane	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>200-35955-1</u>
SDG No.: _____	
Client Sample ID: <u>4160</u>	Lab Sample ID: <u>200-35955-5</u>
Matrix: <u>Air</u>	Lab File ID: <u>22443_25.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>10/28/2016 00:00</u>
Sample wt/vol: <u>1000 (mL)</u>	Date Analyzed: <u>11/01/2016 08:15</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>0.2</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-624</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>110758</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
71-43-2	Benzene	0.040	U	0.040	0.040
107-06-2	1,2-Dichloroethane	0.040	U	0.040	0.040
142-82-5	n-Heptane	0.040	U	0.040	0.040
79-01-6	Trichloroethene	0.040	U	0.040	0.040
80-62-6	Methyl methacrylate	0.10	U	0.10	0.10
78-87-5	1,2-Dichloropropane	0.040	U	0.040	0.040
123-91-1	1,4-Dioxane	1.0	U	1.0	1.0
75-27-4	Bromodichloromethane	0.040	U	0.040	0.040
10061-01-5	cis-1,3-Dichloropropene	0.040	U	0.040	0.040
108-10-1	methyl isobutyl ketone	0.10	U	0.10	0.10
108-88-3	Toluene	0.040	U	0.040	0.040
10061-02-6	trans-1,3-Dichloropropene	0.040	U	0.040	0.040
79-00-5	1,1,2-Trichloroethane	0.040	U	0.040	0.040
127-18-4	Tetrachloroethene	0.040	U	0.040	0.040
591-78-6	Methyl Butyl Ketone (2-Hexanone)	0.10	U	0.10	0.10
124-48-1	Dibromochloromethane	0.040	U	0.040	0.040
106-93-4	1,2-Dibromoethane	0.040	U	0.040	0.040
108-90-7	Chlorobenzene	0.040	U	0.040	0.040
100-41-4	Ethylbenzene	0.040	U	0.040	0.040
179601-23-1	m,p-Xylene	0.10	U	0.10	0.10
95-47-6	Xylene, o-	0.040	U	0.040	0.040
1330-20-7	Xylene (total)	0.14	U	0.14	0.14
100-42-5	Styrene	0.040	U	0.040	0.040
75-25-2	Bromoform	0.040	U	0.040	0.040
98-82-8	Cumene	0.040	U	0.040	0.040
79-34-5	1,1,2,2-Tetrachloroethane	0.040	U	0.040	0.040
103-65-1	n-Propylbenzene	0.040	U	0.040	0.040
622-96-8	4-Ethyltoluene	0.040	U	0.040	0.040
108-67-8	1,3,5-Trimethylbenzene	0.040	U	0.040	0.040
95-49-8	2-Chlorotoluene	0.040	U	0.040	0.040
98-06-6	tert-Butylbenzene	0.040	U	0.040	0.040
95-63-6	1,2,4-Trimethylbenzene	0.040	U	0.040	0.040
135-98-8	sec-Butylbenzene	0.040	U	0.040	0.040
99-87-6	4-Isopropyltoluene	0.040	U	0.040	0.040
541-73-1	1,3-Dichlorobenzene	0.040	U	0.040	0.040
106-46-7	1,4-Dichlorobenzene	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-35955-1
SDG No.: _____
Client Sample ID: 4160 Lab Sample ID: 200-35955-5
Matrix: Air Lab File ID: 22443_25.d
Analysis Method: TO-15 Date Collected: 10/28/2016 00:00
Sample wt/vol: 1000 (mL) Date Analyzed: 11/01/2016 08:15
Soil Aliquot Vol: _____ Dilution Factor: 0.2
Soil Extract Vol.: _____ GC Column: RTX-624 ID: 0.32 (mm)
% Moisture: _____ Level: (low/med) Low
Analysis Batch No.: 110758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
100-44-7	Benzyl chloride	0.040	U	0.040	0.040
104-51-8	n-Butylbenzene	0.040	U	0.040	0.040
95-50-1	1,2-Dichlorobenzene	0.040	U	0.040	0.040
120-82-1	1,2,4-Trichlorobenzene	0.10	U	0.10	0.10
87-68-3	Hexachlorobutadiene	0.040	U	0.040	0.040
91-20-3	Naphthalene	0.10	U	0.10	0.10

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\CHW.i\20161031-22443.b\22443_25.d
 Lims ID: 200-35955-A-5
 Client ID: 4160
 Sample Type: Client
 Inject. Date: 01-Nov-2016 08:15:30 ALS Bottle#: 24 Worklist Smp#: 25
 Purge Vol: 200.000 mL Dil. Factor: 0.2000
 Sample Info: 200-0022443-025
 Misc. Info.: 35955-05
 Operator ID: ggg Instrument ID: CHW.i
 Method: \\ChromNA\Burlington\ChromData\CHW.i\20161031-22443.b\TO15_MasterMethod_(v1).m
 Limit Group: AI_TO15_ICAL
 Last Update: 02-Nov-2016 16:31:27 Calib Date: 23-Sep-2016 04:18:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\CHW.i\20160922-21892.b\21892_13.d
 Column 1 : RTX-624 (0.32 mm) Det: MS SCAN
 Process Host: XAWRK022

First Level Reviewer: guazzonig

Date: 02-Nov-2016 16:30:47

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		5.270				ND	
2 Dichlorodifluoromethane	85		5.383				ND	
3 Chlorodifluoromethane	51		5.463				ND	
4 1,2-Dichloro-1,1,2,2-tetra	85		5.789				ND	
5 Chloromethane	50		5.987				ND	
6 Butane	43		6.255				ND	
7 Vinyl chloride	62		6.314				ND	
8 Butadiene	54		6.410				ND	
10 Bromomethane	94		7.212				ND	
11 Chloroethane	64		7.464				ND	
13 Vinyl bromide	106		7.870				ND	
14 Trichlorofluoromethane	101		7.967				ND	
17 Ethanol	45		8.464				ND	
20 1,1,2-Trichloro-1,2,2-trif	101		8.972				ND	
21 1,1-Dichloroethene	96		9.037				ND	
22 Acetone	43		9.235				ND	
23 Carbon disulfide	76		9.432				ND	
24 Isopropyl alcohol	45	9.449	9.432	0.017	96	3127	0.0831	
25 3-Chloro-1-propene	41		9.737				ND	
27 Methylene Chloride	49		10.000				ND	
28 2-Methyl-2-propanol	59		10.128				ND	
S 30 1,2-Dichloroethene, Total	61		10.200				ND	
29 Methyl tert-butyl ether	73		10.342				ND	
31 trans-1,2-Dichloroethene	61		10.401				ND	
33 Hexane	57		10.732				ND	
34 1,1-Dichloroethane	63		11.203				ND	
35 Vinyl acetate	43		11.230				ND	
37 cis-1,2-Dichloroethene	96		12.214				ND	
38 2-Butanone (MEK)	72		12.236				ND	
39 Ethyl acetate	88		12.241				ND	
41 Tetrahydrofuran	42		12.642				ND	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 40 Chlorobromomethane	128	12.642	12.648	-0.006	78	303394	10.0	
42 Chloroform	83		12.733				ND	
43 Cyclohexane	84		13.006				ND	
44 1,1,1-Trichloroethane	97		13.022				ND	
45 Carbon tetrachloride	117		13.247				ND	
46 Isooctane	57		13.600				ND	
47 Benzene	78		13.664				ND	
48 1,2-Dichloroethane	62		13.814				ND	
49 n-Heptane	43		13.916				ND	
* 50 1,4-Difluorobenzene	114	14.354	14.360	-0.006	92	1457186	10.0	
53 Trichloroethene	95	14.788	14.788	0.000	87	2498	0.0492	
54 1,2-Dichloropropane	63		15.285				ND	
55 Methyl methacrylate	69		15.365				ND	
56 1,4-Dioxane	88		15.451				ND	
57 Dibromomethane	174		15.515				ND	
58 Dichlorobromomethane	83		15.745				ND	
60 cis-1,3-Dichloropropene	75		16.574				ND	
61 4-Methyl-2-pentanone (MIBK)	43		16.810				ND	
65 Toluene	92		17.120				ND	
66 trans-1,3-Dichloropropene	75		17.644				ND	
67 1,1,2-Trichloroethane	83		18.003				ND	
68 Tetrachloroethene	166		18.120				ND	
69 2-Hexanone	43		18.388				ND	
71 Chlorodibromomethane	129		18.730				ND	
72 Ethylene Dibromide	107		19.008				ND	
* 74 Chlorobenzene-d5	117	19.848	19.848	0.000	82	1266216	10.0	
75 Chlorobenzene	112		19.907				ND	
76 Ethylbenzene	91		20.036				ND	
S 73 Xylenes, Total	106				0		0.0418	
78 m-Xylene & p-Xylene	106	20.271	20.266	0.005	0	3223	0.0418	
79 o-Xylene	106		21.009				ND	
80 Styrene	104		21.052				ND	
81 Bromoform	173		21.437				ND	
82 Isopropylbenzene	105		21.598				ND	
84 1,1,2,2-Tetrachloroethane	83		22.186				ND	
85 N-Propylbenzene	91		22.261				ND	
88 4-Ethyltoluene	105		22.432				ND	
89 2-Chlorotoluene	91		22.459				ND	
90 1,3,5-Trimethylbenzene	105		22.529				ND	
92 tert-Butylbenzene	119		22.999				ND	
93 1,2,4-Trimethylbenzene	105		23.090				ND	
94 sec-Butylbenzene	105		23.320				ND	
95 4-Isopropyltoluene	119		23.518				ND	
96 1,3-Dichlorobenzene	146		23.566				ND	
97 1,4-Dichlorobenzene	146		23.705				ND	
98 Benzyl chloride	91		23.914				ND	
100 n-Butylbenzene	91		24.128				ND	
101 1,2-Dichlorobenzene	146		24.283				ND	
103 1,2,4-Trichlorobenzene	180		27.033				ND	
104 Hexachlorobutadiene	225		27.231				ND	
105 Naphthalene	128		27.589				ND	

Reagents:

ATTO15WISs_00004

Amount Added: 20.00

Units: mL

Run Reagent

1

2

3

4

5

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7

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11

12

13

14

15

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\CHW.i\20161031-22443.b\22443_25.d

Injection Date: 01-Nov-2016 08:15:30

Instrument ID: CHW.i

Operator ID: ggg

Lims ID: 200-35955-A-5

Lab Sample ID: 200-35955-5

Worklist Smp#: 25

Client ID: 4160

Purge Vol: 200.000 mL

Dil. Factor: 0.2000

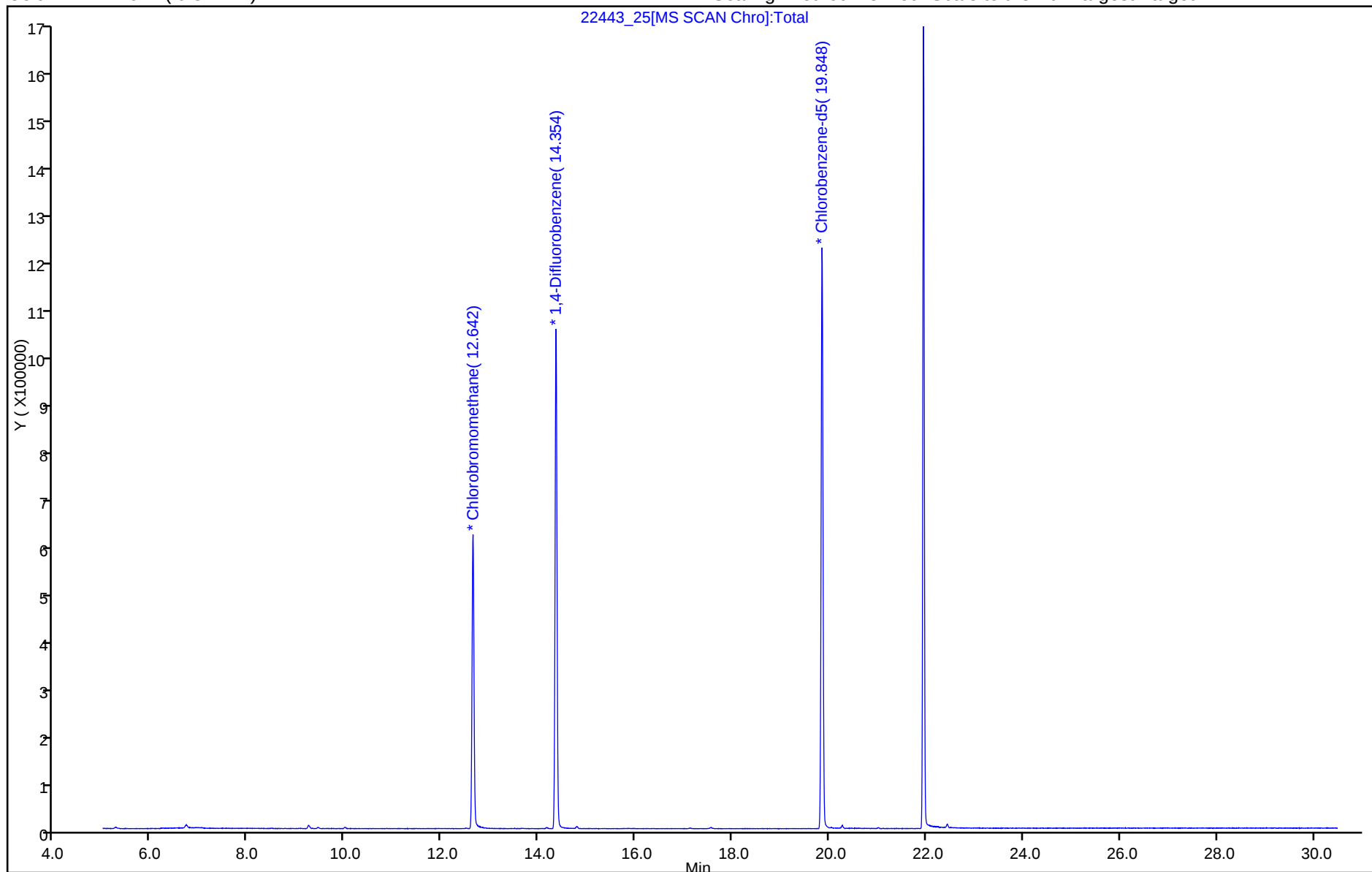
ALS Bottle#: 24

Method: TO15_MasterMethod_(v1)

Limit Group: AI_TO15_ICAL

Column: RTX-624 (0.32 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Burlington</u>	Job No.: <u>200-36124-1</u>
SDG No.: _____	
Client Sample ID: <u>2509</u>	Lab Sample ID: <u>200-36124-5</u>
Matrix: <u>Air</u>	Lab File ID: <u>22622_07.d</u>
Analysis Method: <u>TO-15</u>	Date Collected: <u>11/09/2016 00:00</u>
Sample wt/vol: <u>1000 (mL)</u>	Date Analyzed: <u>11/10/2016 15:27</u>
Soil Aliquot Vol: _____	Dilution Factor: <u>0.2</u>
Soil Extract Vol.: _____	GC Column: <u>RTX-624</u> ID: <u>0.32 (mm)</u>
% Moisture: _____	Level: (low/med) <u>Low</u>
Analysis Batch No.: <u>111207</u>	Units: <u>ppb v/v</u>

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
115-07-1	Propylene	1.0	U *	1.0	1.0
75-71-8	Dichlorodifluoromethane	0.10	U	0.10	0.10
75-45-6	Freon 22	0.10	U	0.10	0.10
76-14-2	1,2-Dichlorotetrafluoroethane	0.040	U	0.040	0.040
74-87-3	Chloromethane	0.10	U *	0.10	0.10
106-97-8	n-Butane	0.10	U	0.10	0.10
75-01-4	Vinyl chloride	0.040	U	0.040	0.040
106-99-0	1,3-Butadiene	0.040	U	0.040	0.040
74-83-9	Bromomethane	0.040	U	0.040	0.040
75-00-3	Chloroethane	0.10	U	0.10	0.10
593-60-2	Bromoethene (Vinyl Bromide)	0.040	U	0.040	0.040
75-69-4	Trichlorofluoromethane	0.040	U	0.040	0.040
64-17-5	Ethanol	1.0	U	1.0	1.0
76-13-1	Freon TF	0.040	U	0.040	0.040
75-35-4	1,1-Dichloroethene	0.040	U	0.040	0.040
67-64-1	Acetone	1.0	U	1.0	1.0
67-63-0	Isopropyl alcohol	1.0	U	1.0	1.0
75-15-0	Carbon disulfide	0.10	U	0.10	0.10
107-05-1	3-Chloropropene	0.10	U	0.10	0.10
75-09-2	Methylene Chloride	0.10	U	0.10	0.10
75-65-0	tert-Butyl alcohol	1.0	U	1.0	1.0
1634-04-4	Methyl tert-butyl ether	0.040	U	0.040	0.040
156-60-5	trans-1,2-Dichloroethene	0.040	U	0.040	0.040
110-54-3	n-Hexane	0.040	U	0.040	0.040
75-34-3	1,1-Dichloroethane	0.040	U	0.040	0.040
108-05-4	Vinyl acetate	1.0	U	1.0	1.0
141-78-6	Ethyl acetate	1.0	U	1.0	1.0
78-93-3	Methyl Ethyl Ketone	0.10	U	0.10	0.10
156-59-2	cis-1,2-Dichloroethene	0.040	U	0.040	0.040
540-59-0	1,2-Dichloroethene, Total	0.080	U	0.080	0.080
67-66-3	Chloroform	0.040	U	0.040	0.040
109-99-9	Tetrahydrofuran	1.0	U	1.0	1.0
71-55-6	1,1,1-Trichloroethane	0.040	U	0.040	0.040
110-82-7	Cyclohexane	0.040	U	0.040	0.040
56-23-5	Carbon tetrachloride	0.040	U	0.040	0.040
540-84-1	2,2,4-Trimethylpentane	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-36124-1
 SDG No.: _____
 Client Sample ID: 2509 Lab Sample ID: 200-36124-5
 Matrix: Air Lab File ID: 22622_07.d
 Analysis Method: TO-15 Date Collected: 11/09/2016 00:00
 Sample wt/vol: 1000 (mL) Date Analyzed: 11/10/2016 15:27
 Soil Aliquot Vol: _____ Dilution Factor: 0.2
 Soil Extract Vol.: _____ GC Column: RTX-624 ID: 0.32 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 111207 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
71-43-2	Benzene	0.040	U	0.040	0.040
107-06-2	1,2-Dichloroethane	0.040	U	0.040	0.040
142-82-5	n-Heptane	0.040	U	0.040	0.040
79-01-6	Trichloroethene	0.040	U	0.040	0.040
80-62-6	Methyl methacrylate	0.10	U	0.10	0.10
78-87-5	1,2-Dichloropropane	0.040	U	0.040	0.040
123-91-1	1,4-Dioxane	1.0	U	1.0	1.0
75-27-4	Bromodichloromethane	0.040	U	0.040	0.040
10061-01-5	cis-1,3-Dichloropropene	0.040	U	0.040	0.040
108-10-1	methyl isobutyl ketone	0.10	U	0.10	0.10
108-88-3	Toluene	0.040	U	0.040	0.040
10061-02-6	trans-1,3-Dichloropropene	0.040	U	0.040	0.040
79-00-5	1,1,2-Trichloroethane	0.040	U	0.040	0.040
127-18-4	Tetrachloroethene	0.040	U	0.040	0.040
591-78-6	Methyl Butyl Ketone (2-Hexanone)	0.10	U	0.10	0.10
124-48-1	Dibromochloromethane	0.040	U	0.040	0.040
106-93-4	1,2-Dibromoethane	0.040	U	0.040	0.040
108-90-7	Chlorobenzene	0.040	U	0.040	0.040
100-41-4	Ethylbenzene	0.040	U	0.040	0.040
179601-23-1	m,p-Xylene	0.10	U	0.10	0.10
95-47-6	Xylene, o-	0.040	U	0.040	0.040
1330-20-7	Xylene (total)	0.14	U	0.14	0.14
100-42-5	Styrene	0.040	U	0.040	0.040
75-25-2	Bromoform	0.040	U	0.040	0.040
98-82-8	Cumene	0.040	U	0.040	0.040
79-34-5	1,1,2,2-Tetrachloroethane	0.040	U	0.040	0.040
103-65-1	n-Propylbenzene	0.040	U	0.040	0.040
622-96-8	4-Ethyltoluene	0.040	U	0.040	0.040
108-67-8	1,3,5-Trimethylbenzene	0.040	U	0.040	0.040
95-49-8	2-Chlorotoluene	0.040	U	0.040	0.040
98-06-6	tert-Butylbenzene	0.040	U	0.040	0.040
95-63-6	1,2,4-Trimethylbenzene	0.040	U	0.040	0.040
135-98-8	sec-Butylbenzene	0.040	U	0.040	0.040
99-87-6	4-Isopropyltoluene	0.040	U	0.040	0.040
541-73-1	1,3-Dichlorobenzene	0.040	U	0.040	0.040
106-46-7	1,4-Dichlorobenzene	0.040	U	0.040	0.040

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-36124-1
SDG No.: _____
Client Sample ID: 2509 Lab Sample ID: 200-36124-5
Matrix: Air Lab File ID: 22622_07.d
Analysis Method: TO-15 Date Collected: 11/09/2016 00:00
Sample wt/vol: 1000 (mL) Date Analyzed: 11/10/2016 15:27
Soil Aliquot Vol: _____ Dilution Factor: 0.2
Soil Extract Vol.: _____ GC Column: RTX-624 ID: 0.32 (mm)
% Moisture: _____ Level: (low/med) Low
Analysis Batch No.: 111207 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
100-44-7	Benzyl chloride	0.040	U	0.040	0.040
104-51-8	n-Butylbenzene	0.040	U	0.040	0.040
95-50-1	1,2-Dichlorobenzene	0.040	U	0.040	0.040
120-82-1	1,2,4-Trichlorobenzene	0.10	U	0.10	0.10
87-68-3	Hexachlorobutadiene	0.040	U	0.040	0.040
91-20-3	Naphthalene	0.10	U	0.10	0.10

TestAmerica Burlington
Target Compound Quantitation Report

Data File: \\ChromNA\Burlington\ChromData\CHW.i\20161110-22622.b\22622_07.d
 Lims ID: 200-36124-A-5
 Client ID: 2509
 Sample Type: Client
 Inject. Date: 10-Nov-2016 15:27:30 ALS Bottle#: 6 Worklist Smp#: 7
 Purge Vol: 200.000 mL Dil. Factor: 0.2000
 Sample Info: 200-0022622-007
 Misc. Info.: 36124-05
 Operator ID: ggg Instrument ID: CHW.i
 Method: \\ChromNA\Burlington\ChromData\CHW.i\20161110-22622.b\TO15_MasterMethod_(v1).m
 Limit Group: AI_TO15_ICAL
 Last Update: 11-Nov-2016 13:36:51 Calib Date: 23-Sep-2016 04:18:30
 Integrator: RTE ID Type: Deconvolution ID
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Burlington\ChromData\CHW.i\20160922-21892.b\21892_13.d
 Column 1 : RTX-624 (0.32 mm) Det: MS SCAN
 Process Host: XAWRK021

First Level Reviewer: guazzonig

Date: 11-Nov-2016 13:33:48

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		5.260				ND	
2 Dichlorodifluoromethane	85		5.377				ND	
3 Chlorodifluoromethane	51		5.458				ND	
4 1,2-Dichloro-1,1,2,2-tetra	85		5.784				ND	
5 Chloromethane	50		5.977				ND	
6 Butane	43		6.255				ND	
7 Vinyl chloride	62		6.308				ND	
8 Butadiene	54		6.405				ND	
10 Bromomethane	94		7.212				ND	
11 Chloroethane	64		7.458				ND	
13 Vinyl bromide	106		7.870				ND	
14 Trichlorofluoromethane	101		7.967				ND	
17 Ethanol	45		8.464				ND	
20 1,1,2-Trichloro-1,2,2-trif	101		8.972				ND	
21 1,1-Dichloroethene	96		9.042				ND	
22 Acetone	43		9.235				ND	
24 Isopropyl alcohol	45		9.433				ND	
23 Carbon disulfide	76	9.438	9.433	0.006	99	2575	0.0301	
25 3-Chloro-1-propene	41		9.737				ND	
27 Methylene Chloride	49		10.000				ND	
28 2-Methyl-2-propanol	59		10.123				ND	
S 30 1,2-Dichloroethene, Total	61		10.200				ND	
29 Methyl tert-butyl ether	73		10.342				ND	
31 trans-1,2-Dichloroethene	61		10.401				ND	
33 Hexane	57		10.732				ND	
34 1,1-Dichloroethane	63		11.203				ND	
35 Vinyl acetate	43		11.230				ND	
37 cis-1,2-Dichloroethene	96		12.220				ND	
38 2-Butanone (MEK)	72		12.236				ND	
39 Ethyl acetate	88		12.241				ND	
* 40 Chlorobromomethane	128	12.642	12.642	0.000	79	274474	10.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
41 Tetrahydrofuran	42		12.642				ND	
42 Chloroform	83		12.733				ND	
43 Cyclohexane	84		13.006				ND	
44 1,1,1-Trichloroethane	97		13.022				ND	
45 Carbon tetrachloride	117		13.247				ND	
46 Isooctane	57		13.600				ND	
47 Benzene	78		13.664				ND	
48 1,2-Dichloroethane	62		13.814				ND	
49 n-Heptane	43		13.916				ND	
* 50 1,4-Difluorobenzene	114	14.354	14.360	-0.006	92	1305060	10.0	
53 Trichloroethene	95		14.788				ND	
54 1,2-Dichloropropane	63		15.285				ND	
55 Methyl methacrylate	69		15.365				ND	
56 1,4-Dioxane	88		15.451				ND	
57 Dibromomethane	174		15.515				ND	
58 Dichlorobromomethane	83		15.745				ND	
60 cis-1,3-Dichloropropene	75		16.574				ND	
61 4-Methyl-2-pentanone (MIBK)	43		16.810				ND	
65 Toluene	92		17.125				ND	
66 trans-1,3-Dichloropropene	75		17.644				ND	
67 1,1,2-Trichloroethane	83		18.003				ND	
68 Tetrachloroethene	166		18.120				ND	
69 2-Hexanone	43		18.393				ND	
71 Chlorodibromomethane	129		18.730				ND	
72 Ethylene Dibromide	107		19.008				ND	
* 74 Chlorobenzene-d5	117	19.848	19.848	0.000	82	1139626	10.0	
75 Chlorobenzene	112		19.907				ND	
76 Ethylbenzene	91		20.036				ND	
S 73 Xylenes, Total	106		20.100				ND	
78 m-Xylene & p-Xylene	106		20.266				ND	
79 o-Xylene	106		21.015				ND	
80 Styrene	104		21.057				ND	
81 Bromoform	173		21.437				ND	
82 Isopropylbenzene	105		21.603				ND	
84 1,1,2,2-Tetrachloroethane	83		22.186				ND	
85 N-Propylbenzene	91		22.261				ND	
88 4-Ethyltoluene	105		22.438				ND	
89 2-Chlorotoluene	91		22.459				ND	
90 1,3,5-Trimethylbenzene	105		22.534				ND	
92 tert-Butylbenzene	119		23.005				ND	
93 1,2,4-Trimethylbenzene	105		23.090				ND	
94 sec-Butylbenzene	105		23.320				ND	
95 4-Isopropyltoluene	119		23.518				ND	
96 1,3-Dichlorobenzene	146		23.572				ND	
97 1,4-Dichlorobenzene	146		23.711				ND	
98 Benzyl chloride	91		23.920				ND	
100 n-Butylbenzene	91		24.128				ND	
101 1,2-Dichlorobenzene	146		24.289				ND	
103 1,2,4-Trichlorobenzene	180		27.038				ND	
104 Hexachlorobutadiene	225		27.236				ND	
105 Naphthalene	128		27.595				ND	

Reagents:

ATTO15WISs_00004

Amount Added: 20.00

Units: mL

Run Reagent

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Report Date: 11-Nov-2016 13:38:22

Chrom Revision: 2.2 01-Nov-2016 11:37:52

TestAmerica Burlington

Data File: \\ChromNA\Burlington\ChromData\CHW.i\20161110-22622.b\22622_07.d

Injection Date: 10-Nov-2016 15:27:30

Instrument ID: CHW.i

Operator ID: ggg

Lims ID: 200-36124-A-5

Lab Sample ID: 200-36124-5

Worklist Smp#: 7

Client ID: 2509

Purge Vol: 200.000 mL

Dil. Factor: 0.2000

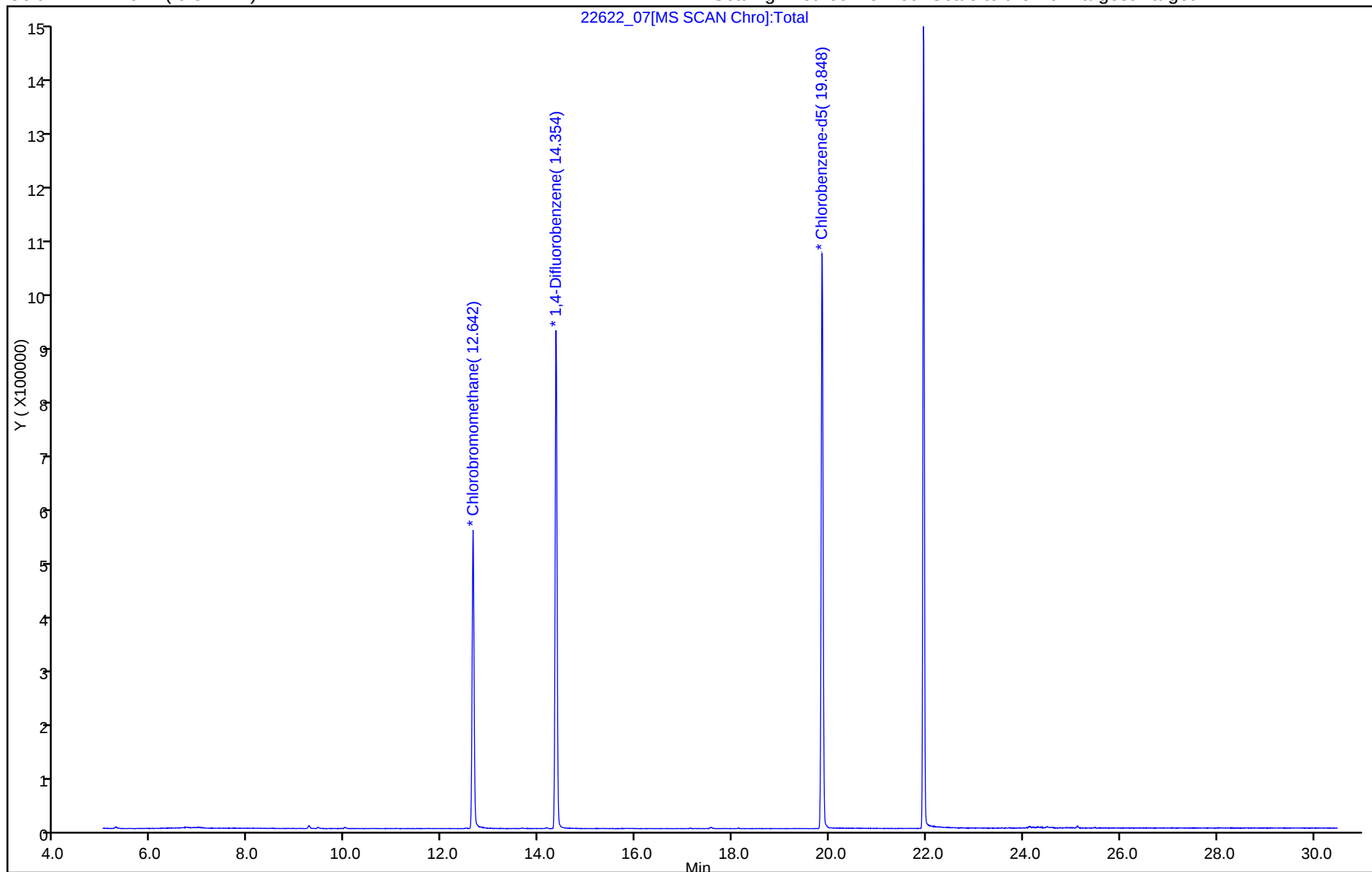
ALS Bottle#: 6

Method: TO15_MasterMethod_(v1)

Limit Group: AI_TO15_ICAL

Column: RTX-624 (0.32 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



APPENDIX D

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-120432-1

Client Project/Site: Johnston Federal #4

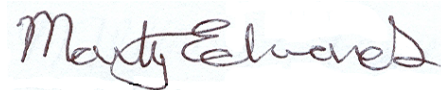
For:

MWH Americas Inc

11153 Aurora Avenue

Des Moines, Iowa 50322-7904

Attn: Steve Varsa



Authorized for release by:

4/30/2016 10:45:22 AM

Marty Edwards, Manager of Project Management

(850)474-1001

marty.edwards@testamericainc.com

LINKS

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results through

TotalAccess

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Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Table of Contents

Cover Page	1
Table of Contents	2
Definitions	3
Case Narrative	4
Detection Summary	5
Sample Summary	7
Client Sample Results	8
QC Association	18
QC Sample Results	19
Chronicle	23
Certification Summary	25
Method Summary	26
Chain of Custody	27
Receipt Checklists	28



Definitions/Glossary

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

TestAmerica Job ID: 400-120432-1

Glossary

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

Case Narrative

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

TestAmerica Job ID: 400-120432-1

Job ID: 400-120432-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-120432-1

Comments

No additional comments.

Receipt

The samples were received on 4/19/2016 9:43 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

GC VOA

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

Detection Summary

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-120432-1

No Detections.

Client Sample ID: MW-6

Lab Sample ID: 400-120432-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	49		5.0	ug/L	5		8021B	Total/NA
Ethylbenzene	140		5.0	ug/L	5		8021B	Total/NA
Toluene	52		25	ug/L	5		8021B	Total/NA
Xylenes, Total	40		25	ug/L	5		8021B	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 400-120432-3

No Detections.

Client Sample ID: MW-9

Lab Sample ID: 400-120432-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	29		1.0	ug/L	1		8021B	Total/NA
Ethylbenzene	4.3		1.0	ug/L	1		8021B	Total/NA
Toluene	24		5.0	ug/L	1		8021B	Total/NA
Xylenes, Total	8.3		5.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-13

Lab Sample ID: 400-120432-5

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.6		1.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-15

Lab Sample ID: 400-120432-6

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.8		1.0	ug/L	1		8021B	Total/NA
Toluene	9.5		5.0	ug/L	1		8021B	Total/NA
Xylenes, Total	8.5		5.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-16

Lab Sample ID: 400-120432-7

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	590		5.0	ug/L	5		8021B	Total/NA
Ethylbenzene	140		5.0	ug/L	5		8021B	Total/NA
Toluene	120		25	ug/L	5		8021B	Total/NA
Xylenes, Total	430		25	ug/L	5		8021B	Total/NA

Client Sample ID: MW-18

Lab Sample ID: 400-120432-8

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.4		1.0	ug/L	1		8021B	Total/NA
Ethylbenzene	1.1		1.0	ug/L	1		8021B	Total/NA
Xylenes, Total	7.5		5.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-19

Lab Sample ID: 400-120432-9

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Detection Summary

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-20

Lab Sample ID: 400-120432-10

☐ No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Sample Summary

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

TestAmerica Job ID: 400-120432-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-120432-1	TRIP BLANK	Water	04/16/16 06:00	04/19/16 09:43
400-120432-2	MW-6	Water	04/16/16 09:00	04/19/16 09:43
400-120432-3	MW-7	Water	04/16/16 09:05	04/19/16 09:43
400-120432-4	MW-9	Water	04/16/16 09:10	04/19/16 09:43
400-120432-5	MW-13	Water	04/16/16 09:15	04/19/16 09:43
400-120432-6	MW-15	Water	04/16/16 09:20	04/19/16 09:43
400-120432-7	MW-16	Water	04/16/16 09:25	04/19/16 09:43
400-120432-8	MW-18	Water	04/16/16 09:30	04/19/16 09:43
400-120432-9	MW-19	Water	04/16/16 09:35	04/19/16 09:43
400-120432-10	MW-20	Water	04/16/16 09:40	04/19/16 09:43

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-120432-1

Date Collected: 04/16/16 06:00

Matrix: Water

Date Received: 04/19/16 09:43

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/27/16 23:24	1
Ethylbenzene	<1.0		1.0	ug/L			04/27/16 23:24	1
Toluene	<5.0		5.0	ug/L			04/27/16 23:24	1
Xylenes, Total	<5.0		5.0	ug/L			04/27/16 23:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124		04/27/16 23:24	1

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-6
Date Collected: 04/16/16 09:00
Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	49		5.0	ug/L			04/22/16 04:36	5
Ethylbenzene	140		5.0	ug/L			04/22/16 04:36	5
Toluene	52		25	ug/L			04/22/16 04:36	5
Xylenes, Total	40		25	ug/L			04/22/16 04:36	5
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	112		78 - 124				04/22/16 04:36	5

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-7
Date Collected: 04/16/16 09:05
Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-3
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/28/16 00:24	1
Ethylbenzene	<1.0		1.0	ug/L			04/28/16 00:24	1
Toluene	<5.0		5.0	ug/L			04/28/16 00:24	1
Xylenes, Total	<5.0		5.0	ug/L			04/28/16 00:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	103		78 - 124				04/28/16 00:24	1

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-9

Date Collected: 04/16/16 09:10

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-4

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	29		1.0	ug/L			04/28/16 01:23	1
Ethylbenzene	4.3		1.0	ug/L			04/28/16 01:23	1
Toluene	24		5.0	ug/L			04/28/16 01:23	1
Xylenes, Total	8.3		5.0	ug/L			04/28/16 01:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	112		78 - 124				04/28/16 01:23	1

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-13

Date Collected: 04/16/16 09:15

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-5

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.6		1.0	ug/L			04/28/16 02:22	1
Ethylbenzene	<1.0		1.0	ug/L			04/28/16 02:22	1
Toluene	<5.0		5.0	ug/L			04/28/16 02:22	1
Xylenes, Total	<5.0		5.0	ug/L			04/28/16 02:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	100		78 - 124				04/28/16 02:22	1

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-15

Date Collected: 04/16/16 09:20

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-6

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.8		1.0	ug/L			04/28/16 13:17	1
Ethylbenzene	<1.0		1.0	ug/L			04/28/16 13:17	1
Toluene	9.5		5.0	ug/L			04/28/16 13:17	1
Xylenes, Total	8.5		5.0	ug/L			04/28/16 13:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	101		78 - 124				04/28/16 13:17	1

TestAmerica Pensacola

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-16

Date Collected: 04/16/16 09:25

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-7

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	590		5.0	ug/L			04/28/16 20:18	5
Ethylbenzene	140		5.0	ug/L			04/28/16 20:18	5
Toluene	120		25	ug/L			04/28/16 20:18	5
Xylenes, Total	430		25	ug/L			04/28/16 20:18	5
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	102		78 - 124				04/28/16 20:18	5

TestAmerica Pensacola

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-18

Date Collected: 04/16/16 09:30

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-8

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2.4		1.0	ug/L			04/28/16 18:20	1
Ethylbenzene	1.1		1.0	ug/L			04/28/16 18:20	1
Toluene	<5.0		5.0	ug/L			04/28/16 18:20	1
Xylenes, Total	7.5		5.0	ug/L			04/28/16 18:20	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124				04/28/16 18:20	1

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-19

Date Collected: 04/16/16 09:35

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-9

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/28/16 19:19	1
Ethylbenzene	<1.0		1.0	ug/L			04/28/16 19:19	1
Toluene	<5.0		5.0	ug/L			04/28/16 19:19	1
Xylenes, Total	<5.0		5.0	ug/L			04/28/16 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124		04/28/16 19:19	1

Client Sample Results

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-20

Date Collected: 04/16/16 09:40

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-10

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/29/16 12:07	1
Ethylbenzene	<1.0		1.0	ug/L			04/29/16 12:07	1
Toluene	<5.0		5.0	ug/L			04/29/16 12:07	1
Xylenes, Total	<5.0		5.0	ug/L			04/29/16 12:07	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	97		78 - 124				04/29/16 12:07	1

QC Association Summary

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

TestAmerica Job ID: 400-120432-1

GC VOA

Analysis Batch: 302837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-120371-B-2 MS	Matrix Spike	Total/NA	Water	8021B	
400-120371-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	
400-120432-2	MW-6	Total/NA	Water	8021B	
LCS 400-302837/1001	Lab Control Sample	Total/NA	Water	8021B	
MB 400-302837/2	Method Blank	Total/NA	Water	8021B	

Analysis Batch: 303641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-120373-B-3 MS	Matrix Spike	Total/NA	Water	8021B	
400-120373-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	
400-120432-1	TRIP BLANK	Total/NA	Water	8021B	
400-120432-3	MW-7	Total/NA	Water	8021B	
400-120432-4	MW-9	Total/NA	Water	8021B	
400-120432-5	MW-13	Total/NA	Water	8021B	
LCS 400-303641/1002	Lab Control Sample	Total/NA	Water	8021B	
MB 400-303641/3	Method Blank	Total/NA	Water	8021B	

Analysis Batch: 303827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-120432-6	MW-15	Total/NA	Water	8021B	
400-120432-6 MS	MW-15	Total/NA	Water	8021B	
400-120432-6 MSD	MW-15	Total/NA	Water	8021B	
400-120432-7	MW-16	Total/NA	Water	8021B	
400-120432-8	MW-18	Total/NA	Water	8021B	
400-120432-9	MW-19	Total/NA	Water	8021B	
LCS 400-303827/1002	Lab Control Sample	Total/NA	Water	8021B	
MB 400-303827/3	Method Blank	Total/NA	Water	8021B	

Analysis Batch: 304029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-120432-10	MW-20	Total/NA	Water	8021B	
400-120432-10 MS	MW-20	Total/NA	Water	8021B	
400-120432-10 MSD	MW-20	Total/NA	Water	8021B	
LCS 400-304029/1003	Lab Control Sample	Total/NA	Water	8021B	
MB 400-304029/5	Method Blank	Total/NA	Water	8021B	

QC Sample Results

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

TestAmerica Job ID: 400-120432-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 400-302837/2

Matrix: Water

Analysis Batch: 302837

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/21/16 11:39	1
Ethylbenzene	<1.0		1.0	ug/L			04/21/16 11:39	1
Toluene	<5.0		5.0	ug/L			04/21/16 11:39	1
Xylenes, Total	<5.0		5.0	ug/L			04/21/16 11:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	110		78 - 124		04/21/16 11:39	1

Lab Sample ID: LCS 400-302837/1001

Matrix: Water

Analysis Batch: 302837

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	54.4		ug/L		109	85 - 115
Ethylbenzene	50.0	54.1		ug/L		108	85 - 115
Toluene	50.0	53.9		ug/L		108	85 - 115
Xylenes, Total	150	164		ug/L		109	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	108		78 - 124

Lab Sample ID: 400-120371-B-2 MS

Matrix: Water

Analysis Batch: 302837

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<1.0		50.0	42.7		ug/L		85	44 - 150
Ethylbenzene	<1.0		50.0	42.8		ug/L		86	70 - 142
Toluene	<5.0		50.0	43.4		ug/L		84	69 - 136
Xylenes, Total	<5.0		150	132		ug/L		85	68 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	100		78 - 124

Lab Sample ID: 400-120371-B-2 MSD

Matrix: Water

Analysis Batch: 302837

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	41.8		ug/L		84	44 - 150	2	16
Ethylbenzene	<1.0		50.0	42.5		ug/L		85	70 - 142	1	16
Toluene	<5.0		50.0	42.5		ug/L		82	69 - 136	2	16
Xylenes, Total	<5.0		150	130		ug/L		84	68 - 142	2	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	100		78 - 124

TestAmerica Pensacola

QC Sample Results

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

TestAmerica Job ID: 400-120432-1

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

Lab Sample ID: MB 400-303641/3

Matrix: Water

Analysis Batch: 303641

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/27/16 13:33	1
Ethylbenzene	<1.0		1.0	ug/L			04/27/16 13:33	1
Toluene	<5.0		5.0	ug/L			04/27/16 13:33	1
Xylenes, Total	<5.0		5.0	ug/L			04/27/16 13:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	105		78 - 124		04/27/16 13:33	1

Lab Sample ID: LCS 400-303641/1002

Matrix: Water

Analysis Batch: 303641

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	46.3		ug/L		93	85 - 115
Ethylbenzene	50.0	46.6		ug/L		93	85 - 115
Toluene	50.0	46.1		ug/L		92	85 - 115
Xylenes, Total	150	140		ug/L		93	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	101		78 - 124

Lab Sample ID: 400-120373-B-3 MS

Matrix: Water

Analysis Batch: 303641

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<1.0		50.0	42.7		ug/L		85	44 - 150
Ethylbenzene	<1.0		50.0	41.9		ug/L		84	70 - 142
Toluene	<5.0		50.0	42.2		ug/L		84	69 - 136
Xylenes, Total	<5.0		150	127		ug/L		85	68 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	101		78 - 124

Lab Sample ID: 400-120373-B-3 MSD

Matrix: Water

Analysis Batch: 303641

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	36.7		ug/L		73	44 - 150	15	16
Ethylbenzene	<1.0		50.0	36.5		ug/L		73	70 - 142	14	16
Toluene	<5.0		50.0	36.6		ug/L		73	69 - 136	14	16
Xylenes, Total	<5.0		150	112		ug/L		75	68 - 142	12	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	101		78 - 124

TestAmerica Pensacola

QC Sample Results

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

TestAmerica Job ID: 400-120432-1

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

Lab Sample ID: MB 400-303827/3

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/28/16 12:18	1
Ethylbenzene	<1.0		1.0	ug/L			04/28/16 12:18	1
Toluene	<5.0		5.0	ug/L			04/28/16 12:18	1
Xylenes, Total	<5.0		5.0	ug/L			04/28/16 12:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124		04/28/16 12:18	1

Lab Sample ID: LCS 400-303827/1002

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.3		ug/L		99	85 - 115
Ethylbenzene	50.0	49.3		ug/L		99	85 - 115
Toluene	50.0	49.2		ug/L		98	85 - 115
Xylenes, Total	150	148		ug/L		99	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	102		78 - 124

Lab Sample ID: 400-120432-6 MS

Matrix: Water

Analysis Batch: 303827

Client Sample ID: MW-15

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	5.8		50.0	52.7		ug/L		94	44 - 150
Ethylbenzene	<1.0		50.0	47.4		ug/L		94	70 - 142
Toluene	9.5		50.0	56.6		ug/L		94	69 - 136
Xylenes, Total	8.5		150	150		ug/L		95	68 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	101		78 - 124

Lab Sample ID: 400-120432-6 MSD

Matrix: Water

Analysis Batch: 303827

Client Sample ID: MW-15

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	5.8		50.0	49.2		ug/L		87	44 - 150	7	16
Ethylbenzene	<1.0		50.0	44.7		ug/L		88	70 - 142	6	16
Toluene	9.5		50.0	53.3		ug/L		87	69 - 136	6	16
Xylenes, Total	8.5		150	144		ug/L		90	68 - 142	5	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	100		78 - 124

TestAmerica Pensacola

QC Sample Results

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

TestAmerica Job ID: 400-120432-1

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

Lab Sample ID: MB 400-304029/5

Matrix: Water

Analysis Batch: 304029

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			04/29/16 11:33	1
Ethylbenzene	<1.0		1.0	ug/L			04/29/16 11:33	1
Toluene	<5.0		5.0	ug/L			04/29/16 11:33	1
Xylenes, Total	<5.0		5.0	ug/L			04/29/16 11:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	91		78 - 124		04/29/16 11:33	1

Lab Sample ID: LCS 400-304029/1003

Matrix: Water

Analysis Batch: 304029

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	48.2		ug/L		96	85 - 115
Ethylbenzene	50.0	43.6		ug/L		87	85 - 115
Toluene	50.0	44.4		ug/L		89	85 - 115
Xylenes, Total	150	130		ug/L		87	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	99		78 - 124

Lab Sample ID: 400-120432-10 MS

Matrix: Water

Analysis Batch: 304029

Client Sample ID: MW-20

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<1.0		50.0	51.7		ug/L		102	44 - 150
Ethylbenzene	<1.0		50.0	51.5		ug/L		103	70 - 142
Toluene	<5.0		50.0	52.7		ug/L		105	69 - 136
Xylenes, Total	<5.0		150	154		ug/L		103	68 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	100		78 - 124

Lab Sample ID: 400-120432-10 MSD

Matrix: Water

Analysis Batch: 304029

Client Sample ID: MW-20

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	55.7		ug/L		110	44 - 150	7	16
Ethylbenzene	<1.0		50.0	52.1		ug/L		104	70 - 142	1	16
Toluene	<5.0		50.0	53.3		ug/L		107	69 - 136	1	16
Xylenes, Total	<5.0		150	155		ug/L		104	68 - 142	1	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	100		78 - 124

TestAmerica Pensacola

Lab Chronicle

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: TRIP BLANK

Date Collected: 04/16/16 06:00

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303641	04/27/16 23:24	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-6

Date Collected: 04/16/16 09:00

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		5	5 mL	5 mL	302837	04/22/16 04:36	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-7

Date Collected: 04/16/16 09:05

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303641	04/28/16 00:24	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-9

Date Collected: 04/16/16 09:10

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303641	04/28/16 01:23	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-13

Date Collected: 04/16/16 09:15

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303641	04/28/16 02:22	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-15

Date Collected: 04/16/16 09:20

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303827	04/28/16 13:17	MKA	TAL PEN
Instrument ID: ETHYL										

TestAmerica Pensacola

Lab Chronicle

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

TestAmerica Job ID: 400-120432-1

Client Sample ID: MW-16

Date Collected: 04/16/16 09:25

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		5	5 mL	5 mL	303827	04/28/16 20:18	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-18

Date Collected: 04/16/16 09:30

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303827	04/28/16 18:20	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-19

Date Collected: 04/16/16 09:35

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	303827	04/28/16 19:19	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-20

Date Collected: 04/16/16 09:40

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120432-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	304029	04/29/16 12:07	MKA	TAL PEN
Instrument ID: CH_JOAN										

Laboratory References:

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

Certification Summary

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

TestAmerica Job ID: 400-120432-1

Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-16
Arizona	State Program	9	AZ0710	01-11-17
Arkansas DEQ	State Program	6	88-0689	09-01-16
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-16
Georgia	State Program	4	N/A	06-30-16
Illinois	NELAP	5	200041	10-09-16
Iowa	State Program	7	367	07-31-16
Kansas	NELAP	7	E-10253	05-31-16 *
Kentucky (UST)	State Program	4	53	06-30-16
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-16
Maryland	State Program	3	233	09-30-16
Massachusetts	State Program	1	M-FL094	06-30-16
Michigan	State Program	5	9912	06-30-16
New Jersey	NELAP	2	FL006	06-30-16
North Carolina (WW/SW)	State Program	4	314	12-31-16
Oklahoma	State Program	6	9810	08-31-16
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-16
Tennessee	State Program	4	TN02907	06-30-16
Texas	NELAP	6	T104704286-15-9	09-30-16
USDA	Federal		P330-13-00193	07-01-16
Virginia	NELAP	3	460166	06-14-16
West Virginia DEP	State Program	3	136	06-30-16

* Certification renewal pending - certification considered valid.

TestAmerica Pensacola

Method Summary

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

TestAmerica Job ID: 400-120432-1

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	TAL PEN

Protocol References:

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

Laboratory References:

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

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-120432-1

Login Number: 120432

List Source: TestAmerica Pensacola

List Number: 1

Creator: Crawford, Lauren E

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

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

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

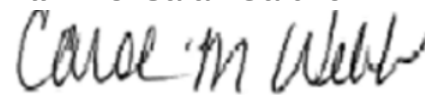
TestAmerica Job ID: 400-128739-1

Client Project/Site: Johnson Fed #4

For:

MWH Americas Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner



Authorized for release by:
10/27/2016 11:04:16 AM

Carol Webb, Project Manager II
(850)471-6250
carol.webb@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page	1
Table of Contents	2
Definitions	3
Case Narrative	4
Detection Summary	5
Sample Summary	6
Client Sample Results	7
QC Association	16
QC Sample Results	17
Chronicle	19
Certification Summary	21
Method Summary	22
Chain of Custody	23
Receipt Checklists	24



Definitions/Glossary

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

TestAmerica Job ID: 400-128739-1

Glossary

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

Case Narrative

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

TestAmerica Job ID: 400-128739-1

Job ID: 400-128739-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-128739-1

Comments

No additional comments.

Receipt

The samples were received on 10/15/2016 9:13 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

Receipt Exceptions

The following sample containers were received broken upon receipt: MW-20. There was insufficient sample to analyze due to both vials being received broken.

GC VOA

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

VOA Prep

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

Detection Summary

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-6

Lab Sample ID: 400-128739-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	77		1.0	ug/L	1		8021B	Total/NA
Ethylbenzene	17		1.0	ug/L	1		8021B	Total/NA
Toluene	25		5.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-7

Lab Sample ID: 400-128739-2

No Detections.

Client Sample ID: MW-9

Lab Sample ID: 400-128739-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.0		1.0	ug/L	1		8021B	Total/NA
Toluene	8.7		5.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-13

Lab Sample ID: 400-128739-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.8		1.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-15

Lab Sample ID: 400-128739-5

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	8.3		1.0	ug/L	1		8021B	Total/NA
Toluene	7.6		5.0	ug/L	1		8021B	Total/NA
Xylenes, Total	6.2		5.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-16

Lab Sample ID: 400-128739-6

No Detections.

Client Sample ID: MW-18

Lab Sample ID: 400-128739-7

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.4		1.0	ug/L	1		8021B	Total/NA

Client Sample ID: MW-19

Lab Sample ID: 400-128739-8

No Detections.

Client Sample ID: TB

Lab Sample ID: 400-128739-9

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Sample Summary

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

TestAmerica Job ID: 400-128739-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-128739-1	MW-6	Water	10/12/16 16:17	10/15/16 09:13
400-128739-2	MW-7	Water	10/12/16 16:23	10/15/16 09:13
400-128739-3	MW-9	Water	10/12/16 16:29	10/15/16 09:13
400-128739-4	MW-13	Water	10/12/16 16:34	10/15/16 09:13
400-128739-5	MW-15	Water	10/12/16 16:40	10/15/16 09:13
400-128739-6	MW-16	Water	10/12/16 16:47	10/15/16 09:13
400-128739-7	MW-18	Water	10/12/16 16:52	10/15/16 09:13
400-128739-8	MW-19	Water	10/12/16 16:58	10/15/16 09:13
400-128739-9	TB	Water	10/12/16 00:00	10/15/16 09:13

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-6
Date Collected: 10/12/16 16:17
Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	77		1.0	ug/L			10/25/16 20:01	1
Ethylbenzene	17		1.0	ug/L			10/25/16 20:01	1
Toluene	25		5.0	ug/L			10/25/16 20:01	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 20:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	113		78 - 124				10/25/16 20:01	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-7
Date Collected: 10/12/16 16:23
Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/24/16 16:56	1
Ethylbenzene	<1.0		1.0	ug/L			10/24/16 16:56	1
Toluene	<5.0		5.0	ug/L			10/24/16 16:56	1
Xylenes, Total	<5.0		5.0	ug/L			10/24/16 16:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	103		78 - 124				10/24/16 16:56	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-9
Date Collected: 10/12/16 16:29
Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-3
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0		1.0	ug/L			10/25/16 10:42	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 10:42	1
Toluene	8.7		5.0	ug/L			10/25/16 10:42	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 10:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	108		78 - 124				10/25/16 10:42	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-13

Date Collected: 10/12/16 16:34

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-4

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.8		1.0	ug/L			10/25/16 11:42	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 11:42	1
Toluene	<5.0		5.0	ug/L			10/25/16 11:42	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 11:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	101		78 - 124				10/25/16 11:42	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-15

Date Collected: 10/12/16 16:40

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-5

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	8.3		1.0	ug/L			10/25/16 14:39	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 14:39	1
Toluene	7.6		5.0	ug/L			10/25/16 14:39	1
Xylenes, Total	6.2		5.0	ug/L			10/25/16 14:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	100		78 - 124				10/25/16 14:39	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-16

Date Collected: 10/12/16 16:47

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-6

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 21:00	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 21:00	1
Toluene	<5.0		5.0	ug/L			10/25/16 21:00	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 21:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124				10/25/16 21:00	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-18

Date Collected: 10/12/16 16:52

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-7

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.4		1.0	ug/L			10/25/16 15:38	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 15:38	1
Toluene	<5.0		5.0	ug/L			10/25/16 15:38	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 15:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
<i>a,a,a-Trifluorotoluene (pid)</i>	101		78 - 124				10/25/16 15:38	1

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-19

Date Collected: 10/12/16 16:58

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-8

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 16:38	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 16:38	1
Toluene	<5.0		5.0	ug/L			10/25/16 16:38	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 16:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	103		78 - 124				10/25/16 16:38	1

TestAmerica Pensacola

Client Sample Results

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: TB

Date Collected: 10/12/16 00:00

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-9

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 17:37	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 17:37	1
Toluene	<5.0		5.0	ug/L			10/25/16 17:37	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 17:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	103		78 - 124				10/25/16 17:37	1

TestAmerica Pensacola

QC Association Summary

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

TestAmerica Job ID: 400-128739-1

GC VOA

Analysis Batch: 327992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-128739-2	MW-7	Total/NA	Water	8021B	
400-128739-3	MW-9	Total/NA	Water	8021B	
400-128739-4	MW-13	Total/NA	Water	8021B	
MB 400-327992/4	Method Blank	Total/NA	Water	8021B	
LCS 400-327992/1025	Lab Control Sample	Total/NA	Water	8021B	
400-128739-2 MS	MW-7	Total/NA	Water	8021B	
400-128739-2 MSD	MW-7	Total/NA	Water	8021B	

Analysis Batch: 328189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-128739-1	MW-6	Total/NA	Water	8021B	
400-128739-5	MW-15	Total/NA	Water	8021B	
400-128739-6	MW-16	Total/NA	Water	8021B	
400-128739-7	MW-18	Total/NA	Water	8021B	
400-128739-8	MW-19	Total/NA	Water	8021B	
400-128739-9	TB	Total/NA	Water	8021B	
MB 400-328189/26	Method Blank	Total/NA	Water	8021B	
LCS 400-328189/1025	Lab Control Sample	Total/NA	Water	8021B	
400-128739-7 MS	MW-18	Total/NA	Water	8021B	
400-128739-7 MSD	MW-18	Total/NA	Water	8021B	

QC Sample Results

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

TestAmerica Job ID: 400-128739-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 400-327992/4

Matrix: Water

Analysis Batch: 327992

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/24/16 15:57	1
Ethylbenzene	<1.0		1.0	ug/L			10/24/16 15:57	1
Toluene	<5.0		5.0	ug/L			10/24/16 15:57	1
Xylenes, Total	<5.0		5.0	ug/L			10/24/16 15:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124		10/24/16 15:57	1

Lab Sample ID: LCS 400-327992/1025

Matrix: Water

Analysis Batch: 327992

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.6		ug/L		99	85 - 115
Ethylbenzene	50.0	48.3		ug/L		97	85 - 115
Toluene	50.0	49.3		ug/L		99	85 - 115
Xylenes, Total	150	148		ug/L		99	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	102		78 - 124

Lab Sample ID: 400-128739-2 MS

Matrix: Water

Analysis Batch: 327992

Client Sample ID: MW-7

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<1.0		50.0	48.8		ug/L		98	44 - 150
Ethylbenzene	<1.0		50.0	48.6		ug/L		97	70 - 142
Toluene	<5.0		50.0	48.6		ug/L		97	69 - 136
Xylenes, Total	<5.0		150	145		ug/L		97	68 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	103		78 - 124

Lab Sample ID: 400-128739-2 MSD

Matrix: Water

Analysis Batch: 327992

Client Sample ID: MW-7

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	41.9		ug/L		84	44 - 150	15	16
Ethylbenzene	<1.0		50.0	41.2		ug/L		82	70 - 142	16	16
Toluene	<5.0		50.0	41.8		ug/L		84	69 - 136	15	16
Xylenes, Total	<5.0		150	125		ug/L		83	68 - 142	15	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	102		78 - 124

TestAmerica Pensacola

QC Sample Results

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

TestAmerica Job ID: 400-128739-1

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

Lab Sample ID: MB 400-328189/26

Matrix: Water

Analysis Batch: 328189

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 13:40	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 13:40	1
Toluene	<5.0		5.0	ug/L			10/25/16 13:40	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 13:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	104		78 - 124		10/25/16 13:40	1

Lab Sample ID: LCS 400-328189/1025

Matrix: Water

Analysis Batch: 328189

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.6		ug/L		99	85 - 115
Ethylbenzene	50.0	48.3		ug/L		97	85 - 115
Toluene	50.0	49.3		ug/L		99	85 - 115
Xylenes, Total	150	148		ug/L		99	85 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	102		78 - 124

Lab Sample ID: 400-128739-7 MS

Matrix: Water

Analysis Batch: 328189

Client Sample ID: MW-18

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.4		50.0	64.6		ug/L		126	44 - 150
Ethylbenzene	<1.0		50.0	52.1		ug/L		104	70 - 142
Toluene	<5.0		50.0	60.0		ug/L		120	69 - 136
Xylenes, Total	<5.0		150	179		ug/L		118	68 - 142

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	101		78 - 124

Lab Sample ID: 400-128739-7 MSD

Matrix: Water

Analysis Batch: 328189

Client Sample ID: MW-18

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	1.4		50.0	66.7		ug/L		130	44 - 150	3	16
Ethylbenzene	<1.0		50.0	53.3		ug/L		107	70 - 142	2	16
Toluene	<5.0		50.0	61.8		ug/L		124	69 - 136	3	16
Xylenes, Total	<5.0		150	182		ug/L		120	68 - 142	2	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (pid)	100		78 - 124

TestAmerica Pensacola

Lab Chronicle

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-6

Date Collected: 10/12/16 16:17

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328189	10/25/16 20:01	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-7

Date Collected: 10/12/16 16:23

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	327992	10/24/16 16:56	CMW	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-9

Date Collected: 10/12/16 16:29

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	327992	10/25/16 10:42	CMW	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-13

Date Collected: 10/12/16 16:34

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	327992	10/25/16 11:42	CMW	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-15

Date Collected: 10/12/16 16:40

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328189	10/25/16 14:39	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-16

Date Collected: 10/12/16 16:47

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328189	10/25/16 21:00	MKA	TAL PEN
Instrument ID: ETHYL										

TestAmerica Pensacola

Lab Chronicle

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

TestAmerica Job ID: 400-128739-1

Client Sample ID: MW-18

Date Collected: 10/12/16 16:52

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328189	10/25/16 15:38	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: MW-19

Date Collected: 10/12/16 16:58

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328189	10/25/16 16:38	MKA	TAL PEN
Instrument ID: ETHYL										

Client Sample ID: TB

Date Collected: 10/12/16 00:00

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128739-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328189	10/25/16 17:37	MKA	TAL PEN
Instrument ID: ETHYL										

Laboratory References:

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

Certification Summary

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

TestAmerica Job ID: 400-128739-1

Laboratory: TestAmerica Pensacola

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

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

* Certification renewal pending - certification considered valid.

TestAmerica Pensacola

Method Summary

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

TestAmerica Job ID: 400-128739-1

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	TAL PEN

Protocol References:

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

Laboratory References:

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

SERIAL NUMBER: 80982

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone: 850-474-1001
Fax: 850-478-2671
Website: www.testamericainc.com

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ADDRESS: *1050 8834*

CLIENT: <i>SAC GAC</i>		PROJECT NO.: <i>1050 8834</i>		CLIENT PROJECT MANAGER: <i>Chit Oberbrockling</i>		PROJECT LOC. (STATE):		REQUESTED ANALYSIS		PAGE <i>1</i> OF <i>1</i>	
SAMPLED BY: <i>Chit Oberbrockling</i>		CONTRACT / P.O. NO.: <i>APR 09-09-23-16-100-01</i>		CLIENT PHONE: <i>850-474-1001</i>		CLIENT E-MAIL OR FAX:		 400-128739 COC		BOTTLE ORDER NO. <i>C</i>	
TAT REQUESTED: ☒ RUSH NEEDS LAB PRE-APPROVAL ☐ NORMAL 10 BUSINESS DAYS		☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☐ 5 DAYS ☐ 20 DAYS (Package)		☒ OTHER: <i>14 CAL DAYS</i>						LAB USE ONLY - SAMPLE NUMBER	
SAMPLE DISPOSAL: ☐ RETURN TO CLIENT ☒ DISPOSAL BY LAB		☐ SEE CONTRACT ☐ OTHER:									

SAMPLE IDENTIFICATION		PRESERVATIVE		MATRIX		NUMBER OF CONTAINERS SUBMITTED		SPECIAL INSTRUCTIONS/ CONDITIONS OF RECEIPT	
DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
10/12/16	1617	MW-6		Drinking Water					
	1623	MW-7		Aqueous GW, SW, WW					
	1629	MW-9		Solid, Semisolid, Sediment					
	1634	MW-13		NonAqueous (Oil, Solvent, etc.)					
	1640	MW-15		Other:					
	1647	MW-16		NA2S2O3 - Sodium Thiosulfate					
	1652	MW-18		NAHSO4 - Sodium Bisulfate					
	1658	MW-19		CH3OH - Methanol					
	1704	MW-20		NaOH - Sodium Hydroxide					
		TB		H2SO4 - Sulfuric Acid or H3PO4					
				HNO3 - Nitric Acid					
				HCL - Hydrochloric Acid					
				No Preservative					

RELINQUISHED BY: (SIGNATURE)		DATE		TIME		RELINQUISHED BY: (SIGNATURE)		DATE		TIME	
<i>[Signature]</i>		10/12/16		16:00		<i>[Signature]</i>		10/13/16		0913	
RECEIVED BY: (SIGNATURE)		DATE		TIME		RECEIVED BY: (SIGNATURE)		DATE		TIME	
<i>[Signature]</i>						<i>[Signature]</i>		10/13/16		0913	

RECEIVED FOR LABORATORY BY:		DATE		TIME		CUSTODY INTACT? ☐ YES ☐ NO		CUSTODY SEAL NO.		REMARKS: <i>1.9c 1RS</i>	

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-128739-1

Login Number: 128739

List Source: TestAmerica Pensacola

List Number: 1

Creator: Chambers, Cheryle A

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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	745575
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9°C IR5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	