

2016 ANNUAL GROUNDWATER REPORT

Fogelson 4-1
NMOCD Case#: 3RP-068-0
Meter Code: 73220
T29N, R11W, Sec 4, Unit P

SITE DETAILS

Site Location: Latitude: 36.750660 N, Longitude: -107.991560 W
Land Type: Federal
Former Operator: Burlington Resources (well P&A'd)

SITE BACKGROUND

- **Site Assessment:** 3/94
- **Excavation:** 4/94 (65 cy)
- **Nutrient Injection:** 8/01 (Oxygen Release Compound)

Environmental Remediation activities at the Fogelson 4-1 (Site) are being managed pursuant to the procedures set forth in the document entitled, "Remediation Plan for Groundwater Encountered during Pit Closure Activities" (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. The Site was operated by Burlington Resources Oil & Gas Company LP (BR) until January 2014, and the final reclamation was completed by BR in 2016.

The Site is located on Federal land. Various site investigations have occurred since 1994. Monitoring wells were installed in 1995 (MW-1, MW-2, and MW-3). Free product has periodically observed and removed. A trace amount of product was recovered in 2016. Currently groundwater sampling is conducted on a semi-annual basis.

SUMMARY OF 2016 ACTIVITIES

On April 16 and October 14, 2016, water levels were gauged at MW-1, MW-2, and MW-3. Groundwater samples were collected from each well that did not contain free product 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 Laboratories, Inc. in Pensacola, Florida where they were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional field parameters are collected from the excess sample water recovered by the HydraSleeve. Excess sample water is poured into a YSI multi-parameter instrument sample cup and analyzed. Field parameters include dissolved oxygen, temperature, conductivity, pH, and oxidation-reduction potential. Field parameters are not collected if free product is present. The unused sample water is combined in a waste container and taken to Basin Disposal, Inc. for disposal.

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SUMMARY TABLES

Historic analytical and water level data are summarized in Table 1 and Table 2, respectively. When free product was present, static water level elevations were corrected for measurable thicknesses of free product (specific gravity of 0.75).

SITE MAPS

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

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix A.

GROUNDWATER RESULTS

- The groundwater flow direction at the Site is generally to the west-southwest (see Figures 2 and 4).
- Free product was observed in MW-1 in the 2016 sampling events. Therefore, no groundwater samples from MW-1 were collected.
- No detectable benzene concentrations were reported for groundwater samples collected in 2016 from MW-2 and MW-3.
- No detectable toluene concentrations were reported for groundwater samples collected in 2016 from MW-2 and MW-3.
- No detectable ethylbenzene concentrations were reported for groundwater samples collected in 2016 from MW-2 and MW-3.
- No detectable total xylene concentrations were reported for groundwater samples collected in 2016 from MW-2 and MW-3.

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PLANNED FUTURE ACTIVITIES

Future installation of additional monitoring wells is planned at the Site. The wells will be installed to further assess the extent of dissolved-phase hydrocarbons and to confirm and/or further define the groundwater gradient at the Site. Groundwater monitoring events will be conducted on a semi-annual basis. The 2017 Annual Report will be submitted in early 2018.

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TABLE

TABLE 1 – GROUNDWATER ANALYTICAL RESULTS

TABLE 2 – GROUNDWATER ELEVATION RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fogelson 4-1					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-1	11/06/95	1520	1050	907	9180
MW-1	12/06/96	1110	388	713	7730
MW-1	03/10/97	1240	318	850	9050
MW-1	06/06/97	1080	268	747	7700
MW-1	03/30/98	1070	522	789	8430
MW-1	06/04/98	1090	627	837	8880
MW-1	06/15/99	1000	550	770	7800
MW-1	06/19/00	790	280	1100	9300
MW-1	10/02/00	580	600	950	8000
MW-1	12/05/00	420	610	770	6000
MW-1	05/30/01	340	470	710	4800
MW-1	11/26/01	420	330	760	3400
MW-1	05/15/02	430	230	900	6000
MW-1	06/10/02	NS	NS	NS	NS
MW-1	11/04/02	625	370	862	5210
MW-1	05/21/03	339	296	723	4730
MW-1	11/15/03	401	308	755	4700
MW-1	11/16/04	185	59.9	550	2800
MW-1	11/08/05	174	34.3	675	2440
MW-1	11/08/06	206	41.6	694	2460
MW-1	11/29/07	NS	NS	NS	NS
MW-1	01/25/08	NS	NS	NS	NS
MW-1	08/12/08	NS	NS	NS	NS
MW-1	11/07/08	NS	NS	NS	NS
MW-1	02/06/09	NS	NS	NS	NS
MW-1	05/04/09	NS	NS	NS	NS
MW-1	08/26/09	NS	NS	NS	NS
MW-1	11/03/09	230	24.2 J	901	3290
MW-1	02/11/10	NS	NS	NS	NS
MW-1	05/25/10	NS	NS	NS	NS
MW-1	09/24/10	NS	NS	NS	NS
MW-1	11/09/10	198	23.5	840	3170
MW-1	02/01/11	NS	NS	NS	NS
MW-1	05/03/11	NS	NS	NS	NS
MW-1	09/27/11	NS	NS	NS	NS
MW-1	11/16/11	171	3.8 J	818	2770
MW-1	02/16/12	NS	NS	NS	NS
MW-1	05/07/12	NS	NS	NS	NS
MW-1	06/04/13	20	9.3 J	650	2400
MW-1	09/09/13	160	20	760	3200
MW-1	12/13/13	150	41	630	2700
MW-1	04/05/14	4.3	<0.38	20	76
MW-1	10/21/14	200	11	770	3600
MW-1	05/30/15	160	38	810	3700
MW-1	11/18/15	NS	NS	NS	NS
MW-1	04/16/16	NS	NS	NS	NS
MW-1	10/14/16	NS	NS	NS	NS

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Fogelson 4-1					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-2	07/27/00	<0.5	<0.5	8.8	<0.5
MW-2	05/30/01	<0.5	<0.5	7.5	1
MW-2	05/15/02	<0.5	<0.5	2	<1
MW-2	11/04/02	NS	NS	NS	NS
MW-2	05/21/03	NS	NS	NS	NS
MW-2	11/15/03	NS	NS	NS	NS
MW-2	11/16/04	NS	NS	NS	NS
MW-2	11/08/05	NS	NS	NS	NS
MW-2	11/08/06	NS	NS	NS	NS
MW-2	11/29/07	NS	NS	NS	NS
MW-2	08/12/08	NS	NS	NS	NS
MW-2	11/07/08	NS	NS	NS	NS
MW-2	02/06/09	NS	NS	NS	NS
MW-2	05/04/09	NS	NS	NS	NS
MW-2	08/26/09	NS	NS	NS	NS
MW-2	11/03/09	NS	NS	NS	NS
MW-2	02/11/10	NS	NS	NS	NS
MW-2	05/25/10	NS	NS	NS	NS
MW-2	09/24/10	NS	NS	NS	NS
MW-2	11/09/10	<2	<2	<2	<6
MW-2	02/01/11	NS	NS	NS	NS
MW-2	05/03/11	NS	NS	NS	NS
MW-2	09/27/11	NS	NS	NS	NS
MW-2	11/16/11	<1	<1	<1	<3
MW-2	02/16/12	NS	NS	NS	NS
MW-2	05/07/12	NS	NS	NS	NS
MW-2	06/04/13	<0.14	<0.30	<0.20	<0.23
MW-2	09/09/13	<0.14	<0.30	<0.20	<0.23
MW-2	12/13/13	<0.20	0.52 J	0.38 J	0.85 J
MW-2	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-2	10/21/14	<0.38	<0.70	<0.50	<1.6
MW-2	05/30/15	<1.0	<5.0	<1.0	<5.0
MW-2	11/18/15	<1.0	<1.0	<1.0	<3.0
MW-2	04/16/16	<1.0	<5.0	<1.0	<5.0
MW-2	10/14/16	<1.0	<5.0	<1.0	<5.0

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fogelson 4-1					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-3	07/27/00	27	35	170	520
MW-3	05/30/01	1.3	<0.5	40	2.8
MW-3	05/15/02	0.64	<0.5	17	1.2
MW-3	11/04/02	NS	NS	NS	NS
MW-3	05/21/03	<1	<1	18.2	<3
MW-3	11/15/03	NS	NS	NS	NS
MW-3	11/16/04	NS	NS	NS	NS
MW-3	11/08/05	NS	NS	NS	NS
MW-3	11/08/06	NS	NS	NS	NS
MW-3	11/29/07	NS	NS	NS	NS
MW-3	08/12/08	NS	NS	NS	NS
MW-3	11/07/08	NS	NS	NS	NS
MW-3	02/06/09	NS	NS	NS	NS
MW-3	05/04/09	NS	NS	NS	NS
MW-3	08/26/09	NS	NS	NS	NS
MW-3	11/03/09	NS	NS	NS	NS
MW-3	02/11/10	NS	NS	NS	NS
MW-3	05/25/10	NS	NS	NS	NS
MW-3	09/24/10	NS	NS	NS	NS
MW-3	11/09/10	<2	<2	1.9 J	<6
MW-3	02/01/11	NS	NS	NS	NS
MW-3	05/03/11	NS	NS	NS	NS
MW-3	09/27/11	NS	NS	NS	NS
MW-3	11/16/11	<1	<1	0.77 J	<3
MW-3	02/16/12	NS	NS	NS	NS
MW-3	05/07/12	NS	NS	NS	NS
MW-3	06/04/13	<0.14	<0.30	<0.20	<0.23
MW-3	09/09/13	<0.14	<0.30	<0.20	<0.23
MW-3	12/13/13	<0.20	0.56 J	<0.20	<0.65
MW-3	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-3	10/21/14	<0.38	<0.70	0.96 J	<1.6
MW-3	05/30/15	<1.0	<5.0	<1.0	<5.0
MW-3	11/18/15	<1.0	<1.0	<1.0	<3.0
MW-3	04/16/16	<1.0	<5.0	<1.0	<5.0
MW-3	10/14/16	<1.0	<5.0	<1.0	<5.0

Notes:

µg/L = micrograms per liter

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

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

Fogelson 4-1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	11/06/95	5784.77	39.99	NR		5744.78
MW-1	12/06/96	5784.77	40.74	NR		5744.03
MW-1	03/10/97	5784.77	41.23	NR		5743.54
MW-1	06/06/97	5784.77	41.44	NR		5743.33
MW-1	03/30/98	5784.77	41.08	NR		5743.69
MW-1	06/04/98	5784.77	41.02	NR		5743.75
MW-1	06/15/99	5784.77	41.88	NR		5742.89
MW-1	06/19/00	5784.77	40.17	NR		5744.60
MW-1	10/02/00	5784.77	40.22	NR		5744.55
MW-1	12/05/00	5784.77	40.09	NR		5744.68
MW-1	05/30/01	5784.77	40.54	NR		5744.23
MW-1	11/26/01	5784.77	41.00	NR		5743.77
MW-1	05/15/02	5784.77	41.37	NR		5743.40
MW-1	06/10/02	5784.77	41.54	NR		5743.23
MW-1	11/04/02	5784.77	41.90	NR		5742.88
MW-1	05/21/03	5784.77	41.57	ND		5743.20
MW-1	11/15/03	5784.77	41.00	ND		5743.77
MW-1	11/16/04	5784.77	40.10	ND		5744.67
MW-1	11/08/05	5784.77	40.68	ND		5744.09
MW-1	11/08/06	5784.77	42.16	ND		5742.61
MW-1	11/29/07	5784.77	42.16	ND		5742.61
MW-1	01/25/08	5784.77	43.10	43.00	0.10	5741.75
MW-1	08/12/08	5784.77	43.14	ND		5741.63
MW-1	11/07/08	5784.77	43.32	43.24	0.08	5741.51
MW-1	02/06/09	5784.77	43.12	ND		5741.65
MW-1	05/04/09	5784.77	43.22	ND		5741.55
MW-1	08/26/09	5784.77	43.53	43.46	0.07	5741.29
MW-1	11/03/09	5784.77	43.52	ND		5741.25
MW-1	02/11/10	5784.77	43.64	ND		5741.13
MW-1	05/25/10	5784.77	43.75	ND		5741.02
MW-1	09/24/10	5784.77	43.95	ND		5740.82
MW-1	11/09/10	5784.77	43.89	43.88	0.01	5740.89
MW-1	02/01/11	5784.77	44.03	ND		5740.74
MW-1	05/03/11	5784.77	44.14	ND		5740.63
MW-1	09/27/11	5784.77	44.30	ND		5740.47
MW-1	11/16/11	5784.77	44.33	ND		5740.44
MW-1	02/16/12	5784.77	44.43	ND		5740.34
MW-1	05/07/12	5784.77	44.50	ND		5740.27
MW-1	06/04/13	5784.77	44.75	ND		5740.02
MW-1	09/09/13	5784.77	44.87	ND		5739.90
MW-1	12/13/13	5784.77	44.85	ND		5739.92
MW-1	04/05/14	5784.77	44.75	ND		5740.02
MW-1	10/21/14	5784.77	44.86	ND		5739.91
MW-1	05/30/15	5784.77	44.81	ND		5739.96
MW-1	11/18/15	5784.77	44.91	44.91	0.00	5739.86
MW-1	04/16/16	5784.77	45.05	45.00	0.05	5739.76
MW-1	10/14/16	5784.77	45.12	45.12	0.00	5739.65

TABLE-2 GROUNDWATER ELEVATION RESULTS

Fogelson 4-1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-2	07/27/00	5780.03	38.25	NR		5741.78
MW-2	05/30/01	5780.03	38.17	NR		5741.86
MW-2	05/15/02	5780.03	38.56	NR		5741.47
MW-2	11/04/02	5780.03	38.99	NR		5741.05
MW-2	05/21/03	5780.03	39.24	ND		5740.79
MW-2	11/15/03	5780.03	38.70	ND		5741.34
MW-2	11/16/04	5780.03	37.40	ND		5742.63
MW-2	11/08/05	5780.03	37.76	ND		5742.27
MW-2	11/08/06	5780.03	38.65	ND		5741.38
MW-2	11/29/07	5780.03	39.67	ND		5740.36
MW-2	08/12/08	5780.03	39.75	ND		5740.28
MW-2	11/07/08	5780.03	39.97	ND		5740.06
MW-2	02/06/09	5780.03	39.73	ND		5740.30
MW-2	05/04/09	5780.03	39.83	ND		5740.20
MW-2	08/26/09	5780.03	40.19	ND		5739.84
MW-2	11/03/09	5780.03	40.32	ND		5739.71
MW-2	02/11/10	5780.03	40.17	ND		5739.86
MW-2	05/25/10	5780.03	40.40	ND		5739.63
MW-2	09/24/10	5780.03	40.74	ND		5739.29
MW-2	11/09/10	5780.03	40.35	ND		5739.68
MW-2	02/01/11	5780.03	40.39	ND		5739.64
MW-2	05/03/11	5780.03	40.96	ND		5739.07
MW-2	09/27/11	5780.03	41.05	ND		5738.98
MW-2	11/16/11	5780.03	41.07	ND		5738.96
MW-2	02/16/12	5780.03	41.15	ND		5738.88
MW-2	05/07/12	5780.03	41.15	ND		5738.88
MW-2	06/04/13	5780.03	41.54	ND		5738.49
MW-2	09/09/13	5780.03	41.64	ND		5738.39
MW-2	12/13/13	5780.03	41.66	ND		5738.37
MW-2	04/05/14	5780.03	41.64	ND		5738.39
MW-2	10/21/14	5780.03	41.93	ND		5738.10
MW-2	05/30/15	5780.03	42.10	ND		5737.93
MW-2	11/18/15	5780.03	42.03	ND		5738.00
MW-2	04/16/16	5780.03	42.01	ND		5738.02
MW-2	10/14/16	5780.03	42.38	ND		5737.65

TABLE-2 GROUNDWATER ELEVATION RESULTS

Fogelson 4-1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-3	07/27/00	5780.83	41.21	NR		5739.62
MW-3	05/30/01	5780.83	40.77	NR		5740.06
MW-3	05/15/02	5780.83	41.14	NR		5739.69
MW-3	11/04/02	5780.83	41.48	NR		5739.35
MW-3	05/21/03	5780.83	41.71	ND		5739.12
MW-3	11/15/03	5780.83	41.30	ND		5739.53
MW-3	11/16/04	5780.83	40.10	ND		5740.73
MW-3	11/08/05	5780.83	40.71	ND		5740.12
MW-3	11/08/06	5780.83	41.47	ND		5739.36
MW-3	11/29/07	5780.83	43.10	43.01	0.09	5737.80
MW-3	08/12/08	5780.83	42.47	ND		5738.36
MW-3	11/07/08	5780.83	42.69	ND		5738.14
MW-3	02/06/09	5780.83	42.47	ND		5738.36
MW-3	05/04/09	5780.83	42.50	ND		5738.33
MW-3	08/26/09	5780.83	42.90	ND		5737.93
MW-3	11/03/09	5780.83	43.03	ND		5737.80
MW-3	02/11/10	5780.83	42.79	ND		5738.04
MW-3	05/25/10	5780.83	42.97	ND		5737.86
MW-3	09/24/10	5780.83	43.25	ND		5737.58
MW-3	11/09/10	5780.83	42.97	ND		5737.86
MW-3	02/01/11	5780.83	42.82	ND		5738.01
MW-3	05/03/11	5780.83	43.41	ND		5737.42
MW-3	09/27/11	5780.83	43.40	ND		5737.43
MW-3	11/16/11	5780.83	43.36	ND		5737.47
MW-3	02/16/12	5780.83	43.41	ND		5737.42
MW-3	05/07/12	5780.83	43.46	ND		5737.37
MW-3	06/04/13	5780.83	43.82	ND		5737.01
MW-3	09/09/13	5780.83	43.93	ND		5736.90
MW-3	12/13/13	5780.83	43.93	ND		5736.90
MW-3	04/05/14	5780.83	43.88	ND		5736.95
MW-3	10/21/14	5780.83	44.16	ND		5736.67
MW-3	05/30/15	5780.83	44.31	ND		5736.52
MW-3	11/18/15	5780.83	44.18	ND		5736.65
MW-3	04/16/16	5780.83	44.10	ND		5736.73
MW-3	10/14/16	5780.83	44.58	ND		5736.25

Notes:

"ft" = feet

"TOC" = Top of casing

"LNAPL" = light non-aqueous phase liquid

"ND" = LNAPL not detected

"NR" = LNAPL not recorded

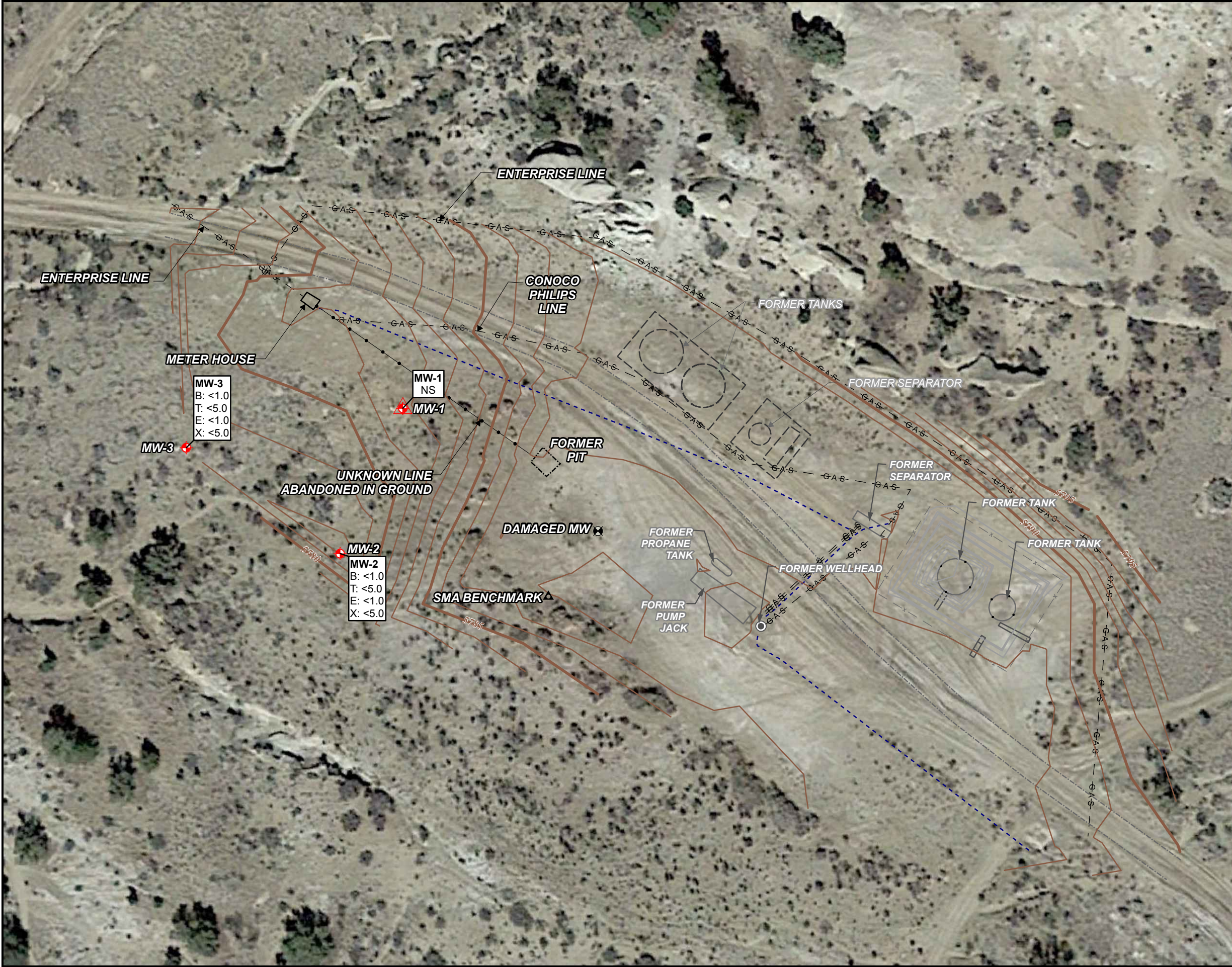
FIGURES

FIGURE 1: APRIL 16, 2016 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 16, 2016 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 14, 2016 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: OCTOBER 14, 2016 GROUNDWATER ELEVATION MAP



LEGEND:

- APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER EPC PIT
- GAS LINE
- UNDERGROUND CABLE
- DAMAGED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- FORMER WELLHEAD
- SMA BENCHMARK

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

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

SCALE IN FEET

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	12/6/2016	SLG	SLG	SRV

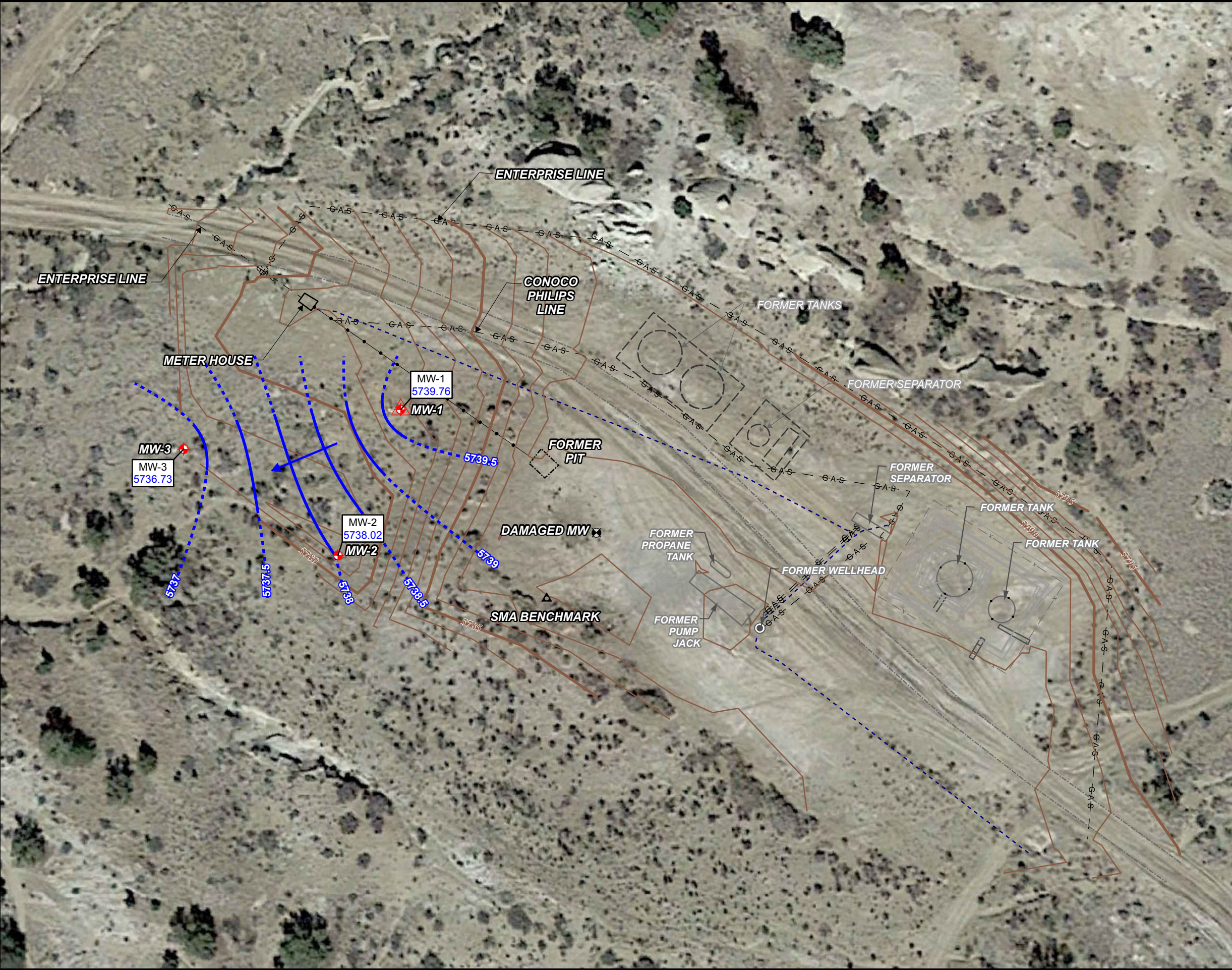
TITLE:

GROUNDWATER ANALYTICAL RESULTS
APRIL 16, 2016

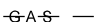
PROJECT:

FOGELSON 4-1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Figure No.:
1

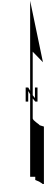


LEGEND:

-  APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
-  ACCESS ROAD
-  FORMER EPC PIT
-  GAS LINE
-  UNDERGROUND CABLE
-  DAMAGED MONITORING WELL
-  MONITORING WELL
-  MONITORING WELL WITH MEASUREABLE FREE PRODUCT
-  FORMER WELLHEAD
-  SMA BENCHMARK

NOTES:

-  GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL
-  CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 1 FOOT CONTOUR INTERVAL)
-  DIRECTION OF APPARENT GROUNDWATER FLOW



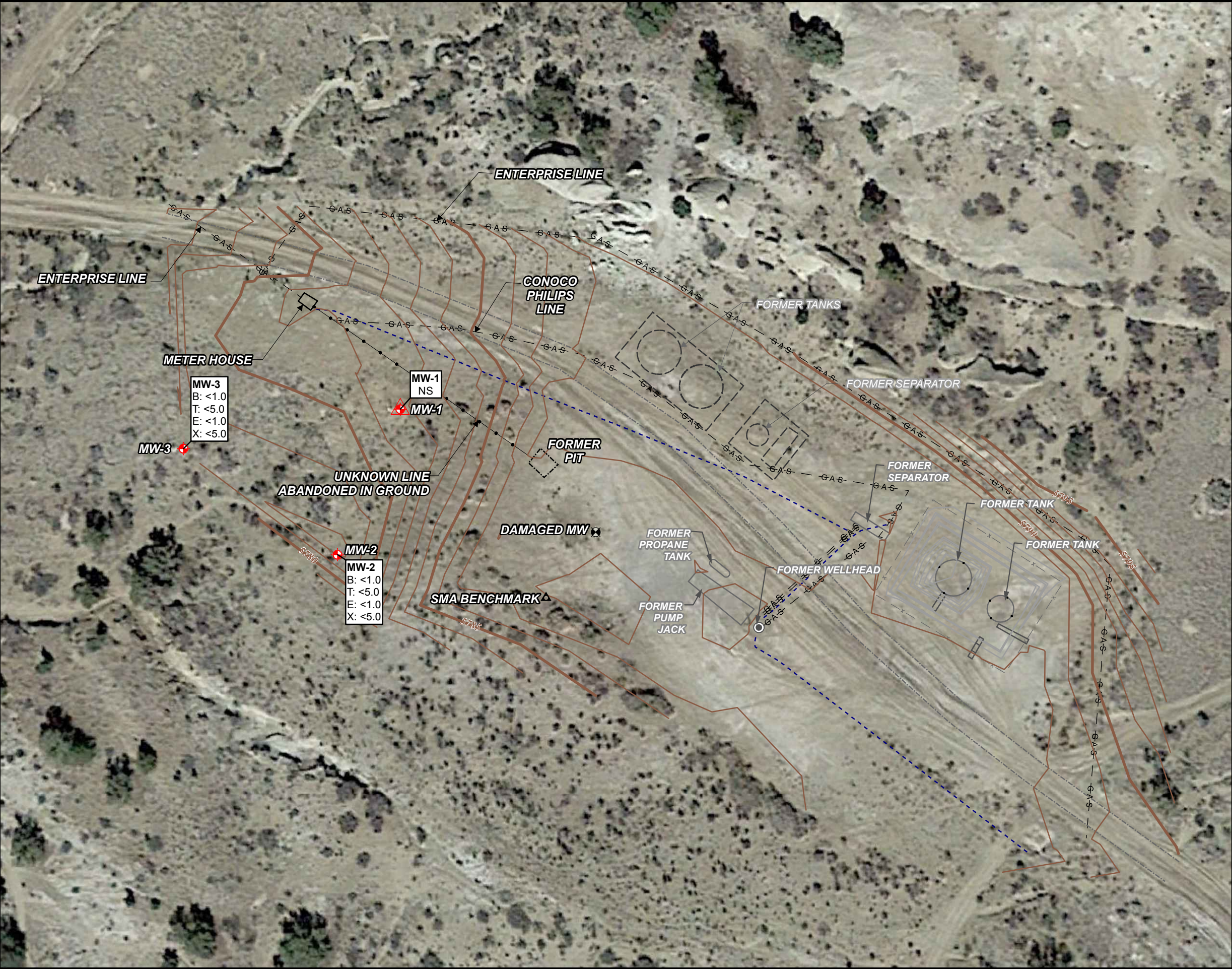
REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	11/14/2016	SLG	SLG	SRV

TITLE: **GROUNDWATER ELEVATION MAP
APRIL 16, 2016**

PROJECT: **FOGELSON 4-1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



Figure No.: **2**

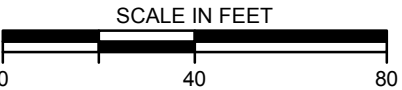
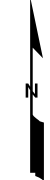


LEGEND:

- APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER EPC PIT
- GAS LINE
- UNDERGROUND CABLE
- DAMAGED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- FORMER WELLHEAD
- SMA BENCHMARK

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

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



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

TITLE:

**GROUNDWATER ANALYTICAL RESULTS
OCTOBER 14, 2016**

PROJECT:

**FOGELSON 4-1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**

Figure No.:

3



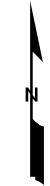


LEGEND:

- APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER EPC PIT
- GAS LINE
- UNDERGROUND CABLE
- DAMAGED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- FORMER WELLHEAD
- SMA BENCHMARK

NOTES:

- GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL
- CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL)
- DIRECTION OF APPARENT GROUNDWATER FLOW



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

TITLE: **GROUNDWATER ELEVATION MAP
OCTOBER 14, 2016**

PROJECT: **FOGELSON 4-1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



Figure No.: **4**

APPENDIX A

APRIL 30, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT

OCTOBER 27, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT

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: 400-120428-1

Client Project/Site: Fogelson 4-1 Com #14

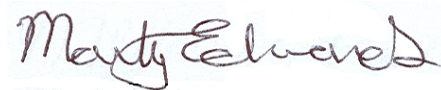
For:

MWH Americas Inc

11153 Aurora Avenue

Des Moines, Iowa 50322-7904

Attn: Steve Varsa



Authorized for release by:

4/30/2016 10:38:03 AM

Marty Edwards, Manager of Project Management

(850)474-1001

marty.edwards@testamericainc.com

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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	10
QC Sample Results	11
Chronicle	12
Certification Summary	13
Method Summary	14
Chain of Custody	15
Receipt Checklists	16



Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Glossary

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

Case Narrative

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Job ID: 400-120428-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-120428-1

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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-120428-1

No Detections.

Client Sample ID: MW-2

Lab Sample ID: 400-120428-2

No Detections.

Client Sample ID: MW-3

Lab Sample ID: 400-120428-3

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Sample Summary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-120428-1	TRIP BLANK	Water	04/16/16 06:00	04/19/16 09:43
400-120428-2	MW-2	Water	04/16/16 16:35	04/19/16 09:43
400-120428-3	MW-3	Water	04/16/16 16:45	04/19/16 09:43

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-120428-1

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			04/29/16 12:42	1
Ethylbenzene	<1.0		1.0	ug/L			04/29/16 12:42	1
Toluene	<5.0		5.0	ug/L			04/29/16 12:42	1
Xylenes, Total	<5.0		5.0	ug/L			04/29/16 12:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124				04/29/16 12:42	1

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Client Sample ID: MW-2

Lab Sample ID: 400-120428-2

Date Collected: 04/16/16 16:35

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			04/29/16 13:16	1
Ethylbenzene	<1.0		1.0	ug/L			04/29/16 13:16	1
Toluene	<5.0		5.0	ug/L			04/29/16 13:16	1
Xylenes, Total	<5.0		5.0	ug/L			04/29/16 13:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	94		78 - 124				04/29/16 13:16	1

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Client Sample ID: MW-3

Lab Sample ID: 400-120428-3

Date Collected: 04/16/16 16:45

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			04/29/16 13:50	1
Ethylbenzene	<1.0		1.0	ug/L			04/29/16 13:50	1
Toluene	<5.0		5.0	ug/L			04/29/16 13:50	1
Xylenes, Total	<5.0		5.0	ug/L			04/29/16 13:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	92		78 - 124				04/29/16 13:50	1

QC Association Summary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

GC VOA

Analysis Batch: 304029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-120428-1	TRIP BLANK	Total/NA	Water	8021B	
400-120428-2	MW-2	Total/NA	Water	8021B	
400-120428-3	MW-3	Total/NA	Water	8021B	
400-120432-A-10 MS	Matrix Spike	Total/NA	Water	8021B	
400-120432-A-10 MSD	Matrix Spike Duplicate	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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Method: 8021B - Volatile Organic Compounds (GC)

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-A-10 MS

Matrix: Water

Analysis Batch: 304029

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	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-A-10 MSD

Matrix: Water

Analysis Batch: 304029

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	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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

Client Sample ID: TRIP BLANK

Date Collected: 04/16/16 06:00

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120428-1

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	304029	04/29/16 12:42	MKA	TAL PEN
Instrument ID: CH_JOAN										

Client Sample ID: MW-2

Date Collected: 04/16/16 16:35

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120428-2

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	304029	04/29/16 13:16	MKA	TAL PEN
Instrument ID: CH_JOAN										

Client Sample ID: MW-3

Date Collected: 04/16/16 16:45

Date Received: 04/19/16 09:43

Lab Sample ID: 400-120428-3

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	304029	04/29/16 13:50	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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-120428-1

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: 400-120428-1

Login Number: 120428

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	

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: 400-128744-1

Client Project/Site: Fogelson 4-1 Com #14

For:

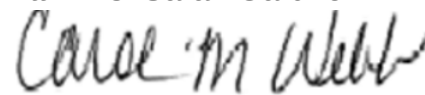
MWH Americas Inc

1560 Broadway

Suite 1800

Denver, Colorado 80202

Attn: Ms. Sarah Gardner



Authorized for release by:

10/27/2016 1:06:13 PM

Carol Webb, Project Manager II

(850)471-6250

carol.webb@testamericainc.com

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www.testamericainc.com

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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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QC Sample Results	11
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Certification Summary	13
Method Summary	14
Chain of Custody	15
Receipt Checklists	16



Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Job ID: 400-128744-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-128744-1

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 2.6° C.

GC VOA

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

VOA Prep

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

Detection Summary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Client Sample ID: MW-2

Lab Sample ID: 400-128744-1

☐ No Detections.

Client Sample ID: MW-3

Lab Sample ID: 400-128744-2

☐ No Detections.

Client Sample ID: TB

Lab Sample ID: 400-128744-3

☐ No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Sample Summary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-128744-1	MW-2	Water	10/14/16 12:24	10/15/16 09:13
400-128744-2	MW-3	Water	10/14/16 12:29	10/15/16 09:13
400-128744-3	TB	Water	10/14/16 00:00	10/15/16 09:13

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Client Sample ID: MW-2
Date Collected: 10/14/16 12:24
Date Received: 10/15/16 09:13

Lab Sample ID: 400-128744-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/21/16 17:14	1
Ethylbenzene	<1.0		1.0	ug/L			10/21/16 17:14	1
Toluene	<5.0		5.0	ug/L			10/21/16 17:14	1
Xylenes, Total	<5.0		5.0	ug/L			10/21/16 17:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124				10/21/16 17:14	1

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Client Sample ID: MW-3
Date Collected: 10/14/16 12:29
Date Received: 10/15/16 09:13

Lab Sample ID: 400-128744-2
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			10/21/16 20:41	1
Ethylbenzene	<1.0		1.0	ug/L			10/21/16 20:41	1
Toluene	<5.0		5.0	ug/L			10/21/16 20:41	1
Xylenes, Total	<5.0		5.0	ug/L			10/21/16 20:41	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124				10/21/16 20:41	1

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Client Sample ID: TB

Date Collected: 10/14/16 00:00

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128744-3

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			10/21/16 15:31	1
Ethylbenzene	<1.0		1.0	ug/L			10/21/16 15:31	1
Toluene	<5.0		5.0	ug/L			10/21/16 15:31	1
Xylenes, Total	<5.0		5.0	ug/L			10/21/16 15:31	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124				10/21/16 15:31	1

TestAmerica Pensacola

QC Association Summary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

GC VOA

Analysis Batch: 327760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-128744-1	MW-2	Total/NA	Water	8021B	
400-128744-2	MW-3	Total/NA	Water	8021B	
400-128744-3	TB	Total/NA	Water	8021B	
MB 400-327760/5	Method Blank	Total/NA	Water	8021B	
LCS 400-327760/1002	Lab Control Sample	Total/NA	Water	8021B	
400-128744-1 MS	MW-2	Total/NA	Water	8021B	
400-128744-1 MSD	MW-2	Total/NA	Water	8021B	

QC Sample Results

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 400-327760/5

Matrix: Water

Analysis Batch: 327760

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			10/21/16 14:56	1
Ethylbenzene	<1.0		1.0	ug/L			10/21/16 14:56	1
Toluene	<5.0		5.0	ug/L			10/21/16 14:56	1
Xylenes, Total	<5.0		5.0	ug/L			10/21/16 14:56	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124		10/21/16 14:56	1

Lab Sample ID: LCS 400-327760/1002

Matrix: Water

Analysis Batch: 327760

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	48.4		ug/L		97	85 - 115
Ethylbenzene	50.0	48.4		ug/L		97	85 - 115
Toluene	50.0	47.8		ug/L		96	85 - 115
Xylenes, Total	150	144		ug/L		96	85 - 115

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

Lab Sample ID: 400-128744-1 MS

Matrix: Water

Analysis Batch: 327760

Client Sample ID: MW-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<1.0		50.0	54.3		ug/L		109	44 - 150
Ethylbenzene	<1.0		50.0	53.8		ug/L		108	70 - 142
Toluene	<5.0		50.0	53.3		ug/L		107	69 - 136
Xylenes, Total	<5.0		150	159		ug/L		106	68 - 142

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

Lab Sample ID: 400-128744-1 MSD

Matrix: Water

Analysis Batch: 327760

Client Sample ID: MW-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	53.2		ug/L		106	44 - 150	2	16
Ethylbenzene	<1.0		50.0	54.1		ug/L		108	70 - 142	1	16
Toluene	<5.0		50.0	53.3		ug/L		107	69 - 136	0	16
Xylenes, Total	<5.0		150	160		ug/L		107	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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

Client Sample ID: MW-2

Date Collected: 10/14/16 12:24

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128744-1

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	327760	10/21/16 17:14	SAB	TAL PEN
Instrument ID: CH_JOAN										

Client Sample ID: MW-3

Date Collected: 10/14/16 12:29

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128744-2

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	327760	10/21/16 20:41	SAB	TAL PEN
Instrument ID: CH_JOAN										

Client Sample ID: TB

Date Collected: 10/14/16 00:00

Date Received: 10/15/16 09:13

Lab Sample ID: 400-128744-3

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	327760	10/21/16 15:31	SAB	TAL PEN
Instrument ID: CH_JOAN										

Laboratory References:

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

Certification Summary

Client: MWH Americas Inc
Project/Site: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

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: Fogelson 4-1 Com #14

TestAmerica Job ID: 400-128744-1

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

[illegible]

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-128744-1

Login Number: 128744

List Source: TestAmerica Pensacola

List Number: 1

Creator: Benforado, Jessica L

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	2.6°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	