

2014 ANNUAL GROUNDWATER REPORT

Miles Federal #1A
Meter Code: 94810
T26N, R7W, Sec5, Unit F

SITE DETAILS

Site Location: Latitude: 36.515700 N, Longitude -107.601460 W
Land Type: Federal
Operator: Cross Timbers Energy, LLC

SITE BACKGROUND

- **Site Assessment:** 1/94
- **Excavation:** 6/94

Miles Federal #1A (Site) is being 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, LLC's (EPCGP's) program methods. Currently, the Site is operated by XTO Energy, Inc. and is active.

The Site is located on Federal land. Several site investigations were conducted from 1994 to 1999. Monitoring wells were installed in 1994 (MW-1) and 1999 (MW-2 and MW-3). A temporary piezometer was installed in 1997 (PZ-1). Free product recovery has been periodically conducted at the Site. Currently, groundwater sampling is conducted on a semi-annual basis. Free product was not observed in 2014.

SUMMARY OF 2014 ACTIVITIES

On April 4 and October 24, 2014, water levels were gauged at MW-1, MW-2, and MW-3, and groundwater samples were collected from MW-1, MW-2, and MW-3 using HydraSleeve™ (HydraSleeve) no-purge passive 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 Corpus Christi, Texas where they were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional field parameters were collected including dissolved oxygen, temperature, conductivity, pH, and oxidation-reduction potential (ORP) using a YSI multi-parameter instrument. The water remaining in the HydraSleeves was combined in a waste container and taken to Basin Disposal, Inc. for disposal.

SUMMARY TABLES

Historic analytical and water level data are summarized in Table 1.

2014 ANNUAL GROUNDWATER REPORT

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T26N, R7W, Sec5, Unit F

SITE MAPS

Groundwater analytical and groundwater elevation contour maps from each sampling event are included as Figures 1 through 4.

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix A.

RESULTS

- The groundwater flow direction is generally to the northwest at the Site (see Figures 2 and 4).
- Concentrations of benzene and total xylenes in groundwater collected from MW-1 remained above the New Mexico Water Quality Control Commission (NMWQCC) standard for both 2014 semi-annual sampling events. Toluene and ethylbenzene were not detected above standards during any sampling event in 2014.
- BTEX constituents were not detected in groundwater samples collected from MW-2 during both of the events.
- BTEX constituents were not detected in samples collected from MW-3 during both of the events.

PLANNED FUTURE ACTIVITIES

A discussion with the New Mexico Oil Conservation District (NMOCD) on monitoring well installation is planned for 2015. New monitoring wells may be installed at the Site to further assess the extent of dissolved-phase hydrocarbons and to confirm and/or further define the groundwater gradient at the Site. MW-1, MW-2, MW-3, and the newly-installed monitoring wells will be sampled on a semi-annual basis.

TABLES

TABLE 1 – GROUNDWATER ANALYTICAL AND WATER LEVEL RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Miles Fed 1A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-1	11/05/96	1050	1630	391	2620	30.58	30.10	0.48
MW-1	02/07/97	671	809	439	2550	30.05	29.91	0.14
MW-1	05/06/97	300	350	320	1880	30.18	30.04	0.14
MW-1	04/11/01					31.81	30.61	1.20
MW-1	07/03/01					32.76	31.18	1.58
MW-1	09/04/01					31.80	30.68	1.12
MW-1	10/01/01					31.41	31.16	0.25
MW-1	01/02/02					32.17	31.20	0.97
MW-1	04/01/02					31.45	31.09	0.36
MW-1	07/15/02					32.35	31.43	0.92
MW-1	10/08/02					31.73	31.33	0.40
MW-1	01/27/03					31.59	31.21	0.38
MW-1	04/26/03					31.30	31.16	0.14
MW-1	07/17/03					32.31	31.73	0.58
MW-1	01/19/04					31.49	31.32	0.17
MW-1	07/27/04					32.47	31.89	0.58
MW-1	10/20/04					32.24	31.95	0.29
MW-1	01/25/05					31.91	31.75	0.16
MW-1	04/14/05					31.52	-	-
MW-1	07/19/05					32.43	32.32	0.11
MW-1	10/21/05					32.02	-	-
MW-1	01/23/06					31.93	31.92	0.01
MW-1	04/28/06					31.85	-	-
MW-1	07/26/06					31.94	-	-
MW-1	10/24/06					30.71	-	-
MW-1	01/17/07					30.99	-	-
MW-1	04/24/07					30.95	-	-
MW-1	07/31/07					31.32	-	-
MW-1	10/25/07					31.40	-	-
MW-1	01/25/08					31.12	-	-
MW-1	04/17/08	122	203	369	2550	31.04	-	-
MW-1	07/23/08					31.23	-	-
MW-1	10/08/08					31.77	-	-
MW-1	01/16/09					31.74	31.66	0.08
MW-1	04/06/09	104	199	596	1840	31.82	-	-
MW-1	08/25/09					32.30	-	-
MW-1	11/02/09					32.20	-	-
MW-1	02/16/10					31.74	-	-
MW-1	06/02/10	186	266	370	2320	31.53	31.50	0.03
MW-1	09/27/10					31.89	-	-
MW-1	11/01/10					31.76	-	-
MW-1	02/01/11					31.63	-	-
MW-1	05/09/11	14.6	19.3	86.9	236	31.60	-	-
MW-1	09/23/11					32.40	-	-
MW-1	11/02/11					32.27	-	-
MW-1	02/22/12					31.99	-	-
MW-1	05/15/12	60.9	79.9	136	602	32.08	-	-
MW-1	06/05/13	44	78	120	830	31.80	-	-
MW-1	09/10/13	300	510	250	2200	31.30	-	-
MW-1	12/11/13	21	37	21	230	31.16	-	-
MW-1	04/04/14	81	130	120	800	31.22	-	-
MW-1	10/24/14	73	32	95	1300	31.50	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Miles Fed 1A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-2	10/15/99	<0.5	2.1	5.5	2.8	27.97	-	-
MW-2	07/03/01					32.51	-	-
MW-2	09/04/01					28.30	-	-
MW-2	10/01/01					28.61	-	-
MW-2	07/15/02	<0.5	0.6	0.9	1.4	31.46	-	-
MW-2	10/08/02					30.77	-	-
MW-2	01/27/03					30.64	-	-
MW-2	04/26/03					31.51	-	-
MW-2	07/17/03					31.23	-	-
MW-2	01/19/04					31.14	-	-
MW-2	07/27/04					31.37	-	-
MW-2	10/20/04					31.33	-	-
MW-2	01/25/05					31.56	-	-
MW-2	04/14/05					31.33	-	-
MW-2	07/19/05					31.97	-	-
MW-2	10/21/05					31.09	-	-
MW-2	01/23/06					31.19	-	-
MW-2	04/28/06					31.21	-	-
MW-2	07/26/06					31.24	-	-
MW-2	10/24/06					30.55	-	-
MW-2	01/17/07					30.29	-	-
MW-2	04/24/07					30.75	-	-
MW-2	07/31/07					30.56	-	-
MW-2	10/25/07					30.71	-	-
MW-2	01/25/08					30.41	-	-
MW-2	04/17/08	<2	<2	<2	<6	30.36	-	-
MW-2	07/23/08					31.14	-	-
MW-2	10/08/08					31.57	-	-
MW-2	01/16/09					30.98	-	-
MW-2	04/06/09	<1	<1	<1	<2	31.40	-	-
MW-2	08/25/09					31.85	-	-
MW-2	11/02/09					31.93	-	-
MW-2	02/16/10					31.43	-	-
MW-2	06/02/10	<2	<2	<2	<6	31.33	-	-
MW-2	09/27/10					31.63	-	-
MW-2	11/01/10					31.57	-	-
MW-2	02/01/11					31.39	-	-
MW-2	05/09/11	<1	<1	<1	<3	31.40	-	-
MW-2	09/23/11					32.05	-	-
MW-2	11/02/11					32.01	-	-
MW-2	02/22/12					31.76	-	-
MW-2	05/15/12	<1	<1	<1	<3	31.87	-	-
MW-2	06/05/13	<0.14	<0.30	<0.20	<0.23	31.56	-	-
MW-2	09/10/13	<0.14	<0.30	<0.20	<0.23	31.13	-	-
MW-2	12/11/13	<2.0	<3.8	<2.0	<6.5	30.95	-	-
MW-2	04/04/14	<0.20	<0.38	<0.20	<0.65	31.02	-	-
MW-2	10/24/14	<0.38	<0.70	<0.50	<1.6	31.32	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Miles Fed 1A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-3	10/15/99	<0.5	0.9	<0.5	3.1	27.92	-	-
MW-3	07/03/01	<0.5	<0.5	<0.5	<0.5	28.97	-	-
MW-3	09/04/01					28.40	-	-
MW-3	10/01/01					28.63	-	-
MW-3	07/15/02					31.46	-	-
MW-3	10/08/02					31.22	-	-
MW-3	01/27/03					31.11	-	-
MW-3	04/26/03					30.99	-	-
MW-3	07/17/03					31.62	-	-
MW-3	01/19/04					30.66	-	-
MW-3	07/27/04					31.30	-	-
MW-3	10/20/04					31.32	-	-
MW-3	01/25/05					31.08	-	-
MW-3	04/14/05					30.87	-	-
MW-3	07/19/05					31.56	-	-
MW-3	10/21/05					31.66	-	-
MW-3	01/23/06					31.61	-	-
MW-3	04/28/06					31.62	-	-
MW-3	07/26/06					31.72	-	-
MW-3	10/24/06					30.03	-	-
MW-3	01/17/07					30.81	-	-
MW-3	04/24/07					30.28	-	-
MW-3	07/31/07					31.12	-	-
MW-3	10/25/07					31.19	-	-
MW-3	01/25/08					20.93	-	-
MW-3	04/17/08	<2	<2	<2	<6	30.36	-	-
MW-3	07/23/08					30.58	-	-
MW-3	10/08/08					31.15	-	-
MW-3	01/16/09					31.47	-	-
MW-3	04/06/09	<1	<1	<1	<2	30.93	-	-
MW-3	08/25/09					31.60	-	-
MW-3	11/02/09					31.47	-	-
MW-3	02/16/10					30.89	-	-
MW-3	06/02/10	<2	<2	<2	<6	30.88	-	-
MW-3	09/27/10					31.20	-	-
MW-3	11/01/10					30.96	-	-
MW-3	02/01/11					30.91	-	-
MW-3	05/09/11					30.95	-	-
MW-3	09/23/11					31.55	-	-
MW-3	11/02/11					31.52	-	-
MW-3	02/22/12					31.37	-	-
MW-3	05/15/12					31.45	-	-
MW-3	06/05/13	<0.14	<0.30	<0.20	<0.23	31.15	-	-
MW-3	09/10/13	<0.14	<0.30	<0.20	<0.23	30.58	-	-
MW-3	12/11/13	<0.20	<0.38	<0.20	<0.65	30.43	-	-
MW-3	04/04/14	<0.20	<0.38	<0.20	<0.65	30.51	-	-
MW-3	10/24/14	<0.38	<0.70	<0.50	<1.6	30.82	-	-

Notes:

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

"J" = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

FIGURES

FIGURE 1: APRIL 4, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 4, 2014 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 24, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: OCTOBER 24, 2014 GROUNDWATER ELEVATION MAP

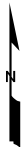


LEGEND:

- 6050** APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- NATURAL GAS LINE
- MONITORING WELL
- ▲ SMA BENCHMARK

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:
RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT
J = RESULT IS LESS THAN THE RL, BUT GREATER THAN OR EQUAL TO THE MDL AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
MDL = METHOD DETECTION LIMIT
RL = REPORTING LIMIT OR REQUESTED LIMIT (RADIOCHEMISTRY)

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
A	10/15/2014	CCL	CCL	DAW

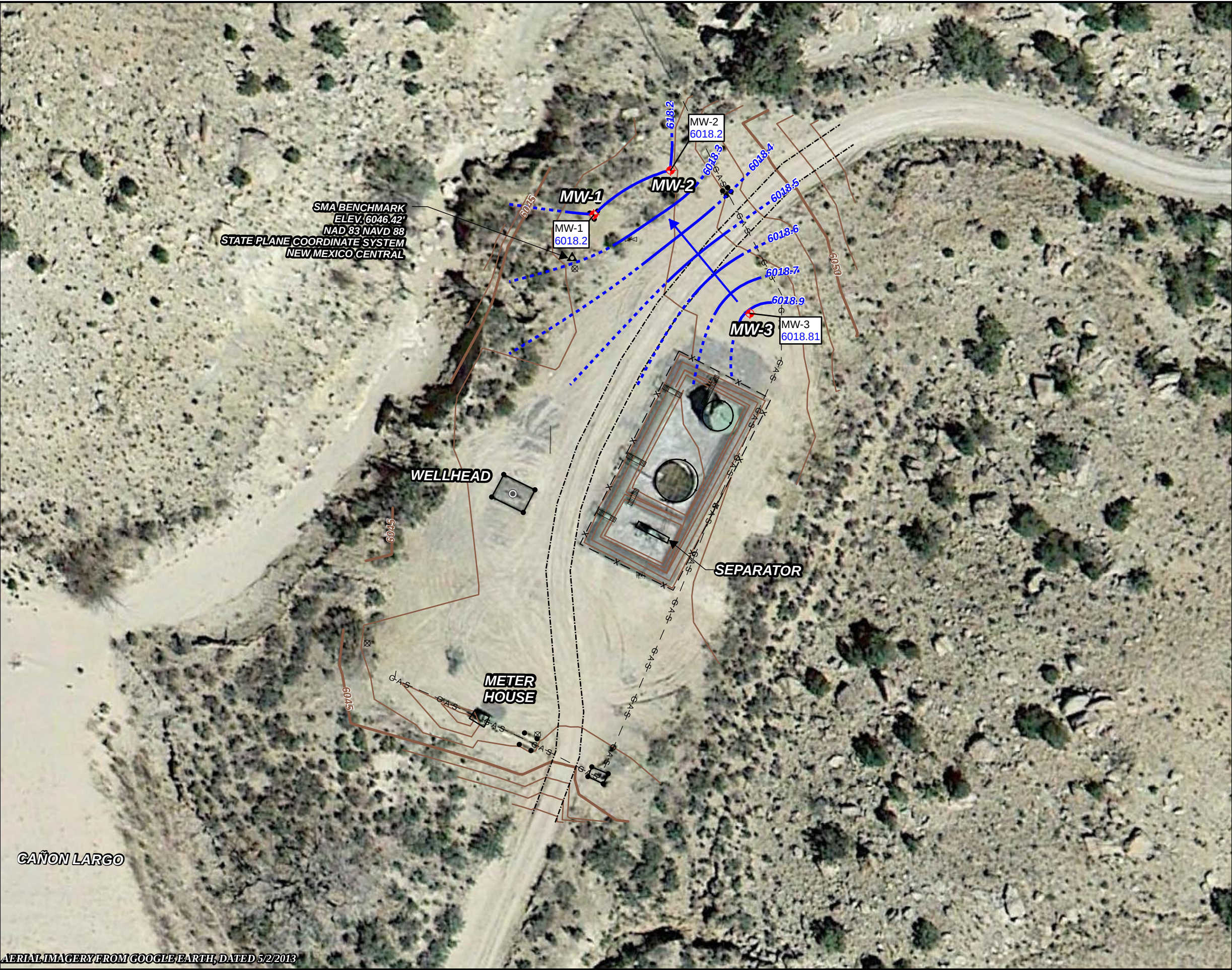
TITLE:
MILES FED #1A
GROUNDWATER ANALYTICAL RESULTS
SAMPLED APRIL 4, 2014

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



Figure No.:

1

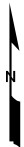


LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- NATURAL GAS LINE
- MONITORING WELL
- 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, 0.1 FOOT CONTOUR INTERVAL)
- DIRECTION OF GROUNDWATER FLOW



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/15/2014	CCL	CCL	DAW

TITLE: **MILES FED #1A
GROUNDWATER ELEVATION MAP
GAUGED APRIL 4, 2014**

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



Figure No.:

2



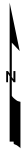


LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- NATURAL GAS LINE
- MONITORING WELL
- 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, 0.1 FOOT CONTOUR INTERVAL)
- DIRECTION OF GROUNDWATER FLOW



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	11/17/2014	CCL	CCL	DAW

TITLE: **MILES FED #1A**
GROUNDWATER ELEVATION MAP
GAUGED OCTOBER 24, 2014

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



Figure No.:

4

APPENDIX A

APRIL 4, 2014 GROUNDWATER SAMPLING ANALYTICAL REPORT
OCTOBER 24, 2014 GROUNDWATER SAMPLING ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Corpus Christi

1733 N. Padre Island Drive

Corpus Christi, TX 78408

Tel: (361)289-2673

TestAmerica Job ID: 560-46611-1

Client Project/Site: Miles Federal, 4/4/14 BTEX

For:

MWH Americas Inc

1801 California Street

Suite 2900

Denver, Colorado 80202

Attn: Ms. Sarah Gardner



Authorized for release by:

4/21/2014 4:54:25 PM

Neal Salcher, Senior Project Manager

neal.salcher@testamericainc.com

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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.

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Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

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
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: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

Job ID: 560-46611-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-46611-1

Comments

No additional comments.

Receipt

The samples were received on 4/8/2014 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

GC VOA

Method(s) 8021B: Archon instrument failure, MS/MSD in back of run and did not get run

8021

Batch 100860

No other analytical or quality issues were noted.

Organic 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: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

Client Sample ID: MW-1

Lab Sample ID: 560-46611-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	81		8.0	0.80	ug/L	4		8021B	Total/NA
Toluene	130		8.0	1.5	ug/L	4		8021B	Total/NA
Ethylbenzene	120		8.0	0.80	ug/L	4		8021B	Total/NA
Xylenes, Total	800		8.0	2.6	ug/L	4		8021B	Total/NA

Client Sample ID: MW-2

Lab Sample ID: 560-46611-2

No Detections.

Client Sample ID: MW-3

Lab Sample ID: 560-46611-3

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Corpus Christi

Client Sample Results

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

Client Sample ID: MW-1

Date Collected: 04/04/14 13:40

Date Received: 04/08/14 09:45

Lab Sample ID: 560-46611-1

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	81		8.0	0.80	ug/L			04/15/14 21:09	4
Toluene	130		8.0	1.5	ug/L			04/15/14 21:09	4
Ethylbenzene	120		8.0	0.80	ug/L			04/15/14 21:09	4
Xylenes, Total	800		8.0	2.6	ug/L			04/15/14 21:09	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		58 - 129					04/15/14 21:09	4
Trifluorotoluene (Surr)	103		54 - 130					04/15/14 21:09	4

Client Sample ID: MW-2

Date Collected: 04/04/14 13:35

Date Received: 04/08/14 09:45

Lab Sample ID: 560-46611-2

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/15/14 21:37	1
Toluene	<0.38		2.0	0.38	ug/L			04/15/14 21:37	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/15/14 21:37	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/15/14 21:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		58 - 129					04/15/14 21:37	1
Trifluorotoluene (Surr)	94		54 - 130					04/15/14 21:37	1

Client Sample ID: MW-3

Date Collected: 04/04/14 13:30

Date Received: 04/08/14 09:45

Lab Sample ID: 560-46611-3

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/16/14 17:18	1
Toluene	<0.38		2.0	0.38	ug/L			04/16/14 17:18	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/16/14 17:18	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/16/14 17:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		58 - 129					04/16/14 17:18	1
Trifluorotoluene (Surr)	87		54 - 130					04/16/14 17:18	1

TestAmerica Corpus Christi

QC Sample Results

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 560-100860/3

Matrix: Water

Analysis Batch: 100860

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/15/14 16:59	1
Toluene	<0.38		2.0	0.38	ug/L			04/15/14 16:59	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/15/14 16:59	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/15/14 16:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		58 - 129		04/15/14 16:59	1
Trifluorotoluene (Surr)	96		54 - 130		04/15/14 16:59	1

Lab Sample ID: LCS 560-100860/2

Matrix: Water

Analysis Batch: 100860

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	41.2		ug/L		103	70 - 130
Toluene	40.0	42.9		ug/L		107	70 - 130
Ethylbenzene	40.0	41.9		ug/L		105	70 - 130
Xylenes, Total	120	120		ug/L		100	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		58 - 129
Trifluorotoluene (Surr)	107		54 - 130

Lab Sample ID: MB 560-100888/3

Matrix: Water

Analysis Batch: 100888

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/16/14 10:43	1
Toluene	<0.38		2.0	0.38	ug/L			04/16/14 10:43	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/16/14 10:43	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/16/14 10:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		58 - 129		04/16/14 10:43	1
Trifluorotoluene (Surr)	88		54 - 130		04/16/14 10:43	1

Lab Sample ID: LCS 560-100888/2

Matrix: Water

Analysis Batch: 100888

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	40.0		ug/L		100	70 - 130
Toluene	40.0	41.1		ug/L		103	70 - 130
Ethylbenzene	40.0	40.9		ug/L		102	70 - 130
Xylenes, Total	120	118		ug/L		98	70 - 130

TestAmerica Corpus Christi

QC Sample Results

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

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

Lab Sample ID: LCS 560-100888/2

Matrix: Water

Analysis Batch: 100888

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	109		58 - 129
Trifluorotoluene (Surr)	99		54 - 130

Certification Summary

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

Laboratory: TestAmerica Corpus Christi

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Kansas	NELAP	7	E-10362	10-31-14
Oklahoma	State Program	6	9968	08-31-14
Texas	NELAP	6	T104704210	03-31-15

Method Summary

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

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

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: MWH Americas Inc
Project/Site: Miles Federal, 4/4/14 BTEX

TestAmerica Job ID: 560-46611-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-46611-1	MW-1	Water	04/04/14 13:40	04/08/14 09:45
560-46611-2	MW-2	Water	04/04/14 13:35	04/08/14 09:45
560-46611-3	MW-3	Water	04/04/14 13:30	04/08/14 09:45

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

Chain of Custody Record

Client Information Client Contact: Mr. Daniel Wade Company: Sarah Gardner Address: 1801 California Street Suite 2900 City: Denver State, Zip: CO, 80202 Phone: 743-426-9444 Email: sarah.gardner@us.mwhglobal.com Project Name: San Juan River Basin Pit Sites Site: Miles Federal		Sampler: Sarah Gardner Chris Lee Phone: 303 291 2239 Lab P.M.: Kellogg, Timothy L. E-Mail: tim.kellogg@testamericainc.com		Carrier Tracking No(s): 603645874188 Loc: 560 Job #: 46611	
Due Date Requested: TAT Requested (days): PO #: Purchase Order not required WO #: TWO # C-STLI- Project #: 56000058 SSOW#:		Analysis Requested Prese: A - HC B - Na C - Zn D - Nitric acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Sample Identification Sample ID: mw-1 Sample ID: mw-2 Sample ID: mw-3		Sample Date 4/4/14 4/4/14 4/4/14	Sample Time 1340 1335 1330	Sample Type (C=Comp, G=grab) Preservation Code: Water Water Water Water Water Water Water Water Water Water	Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8260B - BTEX A Y Y Y
Total Number of containers 3 3 3		Special Instructions/Note: 560-46611 Chain of Custody			
Possible Hazard Identification ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological Deliverable Requested: I, II, III, IV, Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months					
Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date: 4/7/14 900		Method of Shipment:	
Relinquished by: Sam Gardner		Date/Time: 4/7/14 900		Received by: [Signature]	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 68.17°C car 69°C TRC Seal	

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-46611-1

SDG Number:

Login Number: 46611

List Number: 1

Creator: Rood, Vivian R

List Source: TestAmerica Corpus Christi

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

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: 400-97695-1

Client Project/Site: KM Miles Fed #1A

For:

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

Attn: Ms. Sarah Gardner



Authorized for release by:

11/6/2014 1:54:20 PM

Bernard Kirkland, Manager of Project Management
(912)354-7858 e.3238

bernard.kirkland@testamericainc.com

Designee for

Neal Salcher, Senior Project Manager
(713)690-4444

neal.salcher@testamericainc.com

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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.

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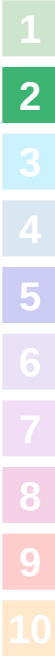


Table of Contents

Cover Page	1
Table of Contents	2
Definitions	3
Case Narrative	4
Sample Summary	5
Client Sample Results	6
QC Sample Results	8
Chronicle	10
Method Summary	11
Chain of Custody	12

Definitions/Glossary

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

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: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

Job ID: 400-97695-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-97695-1

Comments

No additional comments.

Receipt

The samples were received on 10/28/2014 9:39 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.8° C.

GC/MS 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.

Sample Summary

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-97695-1	MW-1	Water	10/24/14 12:10	10/28/14 09:39
400-97695-2	MW-2	Water	10/24/14 12:05	10/28/14 09:39
400-97695-3	MW-3	Water	10/24/14 12:00	10/28/14 09:39
400-97695-4	TRIP BLANK	Water	10/24/14 12:20	10/28/14 09:39

Client Sample Results

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

Client Sample ID: MW-1

Date Collected: 10/24/14 12:10

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	73		1.0	0.38	ug/L			11/01/14 18:28	1
Ethylbenzene	95		1.0	0.50	ug/L			11/01/14 18:28	1
Toluene	32		1.0	0.70	ug/L			11/01/14 18:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	109		78 - 118					11/01/14 18:28	1
Dibromofluoromethane	106		81 - 121					11/01/14 18:28	1
Toluene-d8 (Surr)	97		80 - 120					11/01/14 18:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	1300		50	8.0	ug/L			11/02/14 20:23	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		78 - 118					11/02/14 20:23	5
Dibromofluoromethane	103		81 - 121					11/02/14 20:23	5
Toluene-d8 (Surr)	93		80 - 120					11/02/14 20:23	5

Client Sample ID: MW-2

Date Collected: 10/24/14 12:05

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38		1.0	0.38	ug/L			11/01/14 18:53	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 18:53	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 18:53	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 18:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		78 - 118					11/01/14 18:53	1
Dibromofluoromethane	109		81 - 121					11/01/14 18:53	1
Toluene-d8 (Surr)	90		80 - 120					11/01/14 18:53	1

Client Sample ID: MW-3

Date Collected: 10/24/14 12:00

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38		1.0	0.38	ug/L			11/01/14 19:18	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 19:18	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 19:18	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 19:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		78 - 118					11/01/14 19:18	1
Dibromofluoromethane	108		81 - 121					11/01/14 19:18	1
Toluene-d8 (Surr)	89		80 - 120					11/01/14 19:18	1

TestAmerica Pensacola

Client Sample Results

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-97695-4

Date Collected: 10/24/14 12:20

Matrix: Water

Date Received: 10/28/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38		1.0	0.38	ug/L			11/01/14 19:42	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 19:42	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 19:42	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 19:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		78 - 118		11/01/14 19:42	1
Dibromofluoromethane	108		81 - 121		11/01/14 19:42	1
Toluene-d8 (Surr)	89		80 - 120		11/01/14 19:42	1

QC Sample Results

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

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

Lab Sample ID: MB 400-235149/4

Matrix: Water

Analysis Batch: 235149

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38		1.0	0.38	ug/L			11/01/14 11:00	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 11:00	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 11:00	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 11:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		78 - 118		11/01/14 11:00	1
Dibromofluoromethane	102		81 - 121		11/01/14 11:00	1
Toluene-d8 (Surr)	94		80 - 120		11/01/14 11:00	1

Lab Sample ID: LCS 400-235149/1002

Matrix: Water

Analysis Batch: 235149

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	58.9		ug/L		118	79 - 120
Ethylbenzene	50.0	52.1		ug/L		104	80 - 120
Toluene	50.0	50.3		ug/L		101	80 - 120
Xylenes, Total	100	105		ug/L		105	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	91		78 - 118
Dibromofluoromethane	106		81 - 121
Toluene-d8 (Surr)	93		80 - 120

Lab Sample ID: MB 400-235169/4

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<1.6		10	1.6	ug/L			11/02/14 12:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		78 - 118		11/02/14 12:03	1
Dibromofluoromethane	107		81 - 121		11/02/14 12:03	1
Toluene-d8 (Surr)	89		80 - 120		11/02/14 12:03	1

Lab Sample ID: LCS 400-235169/1006

Matrix: Water

Analysis Batch: 235169

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Xylenes, Total	100	98.3		ug/L		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	92		78 - 118
Dibromofluoromethane	109		81 - 121

TestAmerica Pensacola

QC Sample Results

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

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

Lab Sample ID: LCS 400-235169/1006

Matrix: Water

Analysis Batch: 235169

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

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	91		80 - 120

Lab Chronicle

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

Client Sample ID: MW-1

Date Collected: 10/24/14 12:10

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235149	11/01/14 18:28	CLN	TAL PEN
Total/NA	Analysis	8260B	DL	5	235169	11/02/14 20:23	CLN	TAL PEN

Client Sample ID: MW-2

Date Collected: 10/24/14 12:05

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235149	11/01/14 18:53	CLN	TAL PEN

Client Sample ID: MW-3

Date Collected: 10/24/14 12:00

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235149	11/01/14 19:18	CLN	TAL PEN

Client Sample ID: TRIP BLANK

Date Collected: 10/24/14 12:20

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97695-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235149	11/01/14 19:42	CLN	TAL PEN

Laboratory References:

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

Method Summary

Client: MWH Americas Inc
Project/Site: KM Miles Fed #1A

TestAmerica Job ID: 400-97695-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	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]