

2014 ANNUAL GROUNDWATER REPORT

Fields A#7A
Meter Code: 89961
T32N, R11W, S34, Unit E

SITE DETAILS

Site Location: Latitude: 36.944245 N, Longitude: -107.982116 W
Land Type: Federal
Operator: BP America Production Company

SITE BACKGROUND

- **Site Assessment:** 8/94
- **Excavation:** 9/94 (70 cy)

Fields A#7A (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 BP America Production Company and is active.

The Site is located on Federal land. Various site investigations have occurred since 1994. There are four monitoring wells at the Site (installed in 1995): MW-1, MW-2, MW-3, and MW-4. Temporary piezometers PZ-1 through PZ-5 were installed and removed in 1997. Free product has been observed and periodically recovered. Currently, groundwater sampling is conducted on a semi-annual basis and no free product was observed in 2014.

SUMMARY OF 2014 ACTIVITIES

On April 5 and October 21, 2014, water levels were gauged at MW-1, MW-2, MW-3, and MW-4 and groundwater samples were collected from MW-1 using a HydraSleeve™ (HydraSleeve) no-purge passive groundwater sampling device. MW-2, MW-3, and MW-4 were gauged, but did not contain enough water to collect a sample. The HydraSleeve was 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 Test America 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 HydraSleeve 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.

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SITE MAPS

Groundwater analytical maps (Figures 1 and 3) and groundwater elevation maps (Figures 2 and 4) summarize the results of the 2014 groundwater sampling and gauging events.

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix A.

RESULTS

- During both 2014 sampling events, MW-2, MW-3, and MW-4 water levels were all gauged and measured as dry. Groundwater flow direction is historically to the southwest at the Site, but because MW-1 was the only well that contained measurable groundwater; elevation contours are not provided (Figures 2 and 4).
- Concentrations of benzene in groundwater collected from MW-1 remained above the New Mexico Water Quality Control Commission (NMQCC) standards for both 2014 events. Ethylbenzene was reported as non-detect in April and below NMQCC standards in October 2014. Toluene, ethylbenzene, and total xylene concentrations remained below standards at MW-1 for both sampling events.
- BTEX constituents were not sampled at MW-2, MW-3, and MW-4 due to insufficient groundwater during the 2014 sampling events.
- The presence of several monitoring wells and one passive vent well, which do not belong to EPCGP, implies that the current operator has had a release at the Site.

PLANNED FUTURE ACTIVITIES

Installation of additional monitoring wells is planned, after establishment of a right-of-way with the United States Bureau of Land Management. The wells will be installed to further assess the extent of the dissolved-phase hydrocarbons and to confirm and/or further define the groundwater gradient at the Site. Monitoring wells will be installed around the known extent of dissolved-phase hydrocarbons in order to better delineate impacts from the former pit. The existing monitoring well and newly-installed monitoring wells will be sampled on a semi-annual basis.

The current operator will be contacted to determine the nature of environmental issues which have apparently occurred, based on the presence of monitoring wells and a passive vent well observed by EPCGP personnel.

TABLE

TABLE 1 – GROUNDWATER ANALYTICAL AND WATER LEVEL RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fields A#7A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-1	08/09/95	1950	1946	115	1361	22.50	-	-
MW-1	01/03/96	3150	5280	361	3460	23.28	-	-
MW-1	04/18/96	1300	2140	119	1240	24.20	-	-
MW-1	05/08/96					24.20	-	-
MW-1	07/29/96	503	804	28	363	25.07	25.02	0.05
MW-1	10/21/96	843	1300	26	422	25.45	25.38	0.07
MW-1	01/30/97	1300	2200	76.8	966	26.83	26.57	0.26
MW-1	04/21/97	951	1920	73	894	26.47	26.44	0.03
MW-1	01/30/01					30.08	28.74	1.34
MW-1	02/08/01					29.85	28.65	1.20
MW-1	02/16/01					30.20	29.08	1.12
MW-1	02/17/01					29.66	29.08	0.58
MW-1	02/26/01					29.54	29.39	0.15
MW-1	03/05/01					29.28	29.25	0.03
MW-1	04/11/01					29.33	-	-
MW-1	06/05/01					29.46	29.34	0.12
MW-1	06/15/01					29.65	29.57	0.08
MW-1	07/06/01					30.00	-	-
MW-1	07/13/01					29.96	-	-
MW-1	07/20/01					29.69	-	-
MW-1	08/01/01					30.19	-	-
MW-1	08/08/01					30.12	-	-
MW-1	08/18/01					30.44	-	-
MW-1	08/20/01					30.32	-	-
MW-1	09/05/01					30.38	-	-
MW-1	09/21/01					30.63	-	-
MW-1	09/26/01					30.78	-	-
MW-1	10/03/01					30.69	-	-
MW-1	10/10/01					30.33	30.32	0.01
MW-1	12/04/01					30.51	-	-
MW-1	12/13/01					29.43	29.42	0.01
MW-1	12/21/01					30.40	30.39	0.01
MW-1	12/28/01					30.64	-	-
MW-1	01/07/02					30.59	30.58	0.01
MW-1	01/23/02					30.41	30.40	0.01
MW-1	01/31/02					30.95	30.94	0.01
MW-1	02/07/02					31.12	31.11	0.01
MW-1	02/14/02					31.18	31.17	0.01
MW-1	02/20/02					31.15	31.14	0.01
MW-1	03/21/02					30.80	30.78	0.02
MW-1	03/28/02					30.92	-	-
MW-1	04/04/02					30.64	-	-
MW-1	04/12/02					31.45	-	-
MW-1	04/19/02					31.56	-	-
MW-1	04/25/02					31.54	-	-
MW-1	05/03/02					31.51	-	-
MW-1	05/10/02					31.59	-	-
MW-1	05/17/02					31.16	-	-
MW-1	05/24/02					31.38	-	-
MW-1	05/31/02					31.23	-	-
MW-1	06/06/02					31.32	-	-
MW-1	06/14/02					31.34	-	-
MW-1	06/21/02					31.67	-	-
MW-1	06/27/02					31.81	-	-
MW-1	07/02/02					31.82	-	-
MW-1	07/11/02					31.84	-	-
MW-1	07/18/02					31.45	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fields A#7A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-1	08/21/02					32.12	-	-
MW-1	10/01/02					31.77	-	-
MW-1	01/15/03					31.90	-	-
MW-1	04/27/03					31.07	31.06	0.01
MW-1	07/16/03					31.30	-	-
MW-1	10/27/03					30.97	-	-
MW-1	01/26/04	121	54	15.8	216	30.67	-	-
MW-1	04/21/04	116	58.1	29.3	83.3	30.83	-	-
MW-1	07/27/04					30.97	-	-
MW-1	10/18/04					31.15	-	-
MW-1	01/25/05					30.19	-	-
MW-1	04/18/05	108	29	14.2	274	30.19	-	-
MW-1	10/22/05	180	69.2	6.3	154	30.74	-	-
MW-1	04/25/06	83.7	23.8	2.1 J	82.5	31.41	-	-
MW-1	10/24/06	254	108	4	169	31.39	-	-
MW-1	04/24/07	106	37.2	3.3	112	31.66	-	-
MW-1	10/29/07					31.73	-	-
MW-1	04/21/08	246	38.3	1.6 J	81.3	30.31	-	-
MW-1	10/09/08					30.69	-	-
MW-1	04/07/09	25.5	11	0.6 J	21.5	31.24	-	-
MW-1	11/04/09					31.77	-	-
MW-1	05/24/10	100	43.8	1.1 J	56.9	31.33	-	-
MW-1	11/02/10					29.93	-	-
MW-1	05/04/11	158	2.6	2.4	12.1	29.91	-	-
MW-1	11/01/11					29.80	-	-
MW-1	05/07/12	27.1	8.7	1.1	14.2	30.29	-	-
MW-1	06/07/13	910	110	14.0	170	31.41	-	-
MW-1	09/12/13	130	13	3.1	29	31.55	-	-
MW-1	12/13/13	380	30	4.7	98	31.09	-	-
MW-1	04/05/14	66	11	<0.20	10	31.24	-	-
MW-1	10/21/14	93	3.8	2.1	23	31.65	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fields A#7A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-2	01/03/96	28.8	<2.5	297	1169	24.27	-	-
MW-2	04/18/96	<1	<1	2.64	<3	25.53	-	-
MW-2	05/08/96					25.53	-	-
MW-2	07/29/96	<2	<2	<2	<6	26.48	-	-
MW-2	10/21/96	<1	<1	<1	<3	26.96	-	-
MW-2	01/30/97	<2	<2	<2	<6	27.73	-	-
MW-2	04/21/97	<1	<1	<1	<3	27.77	-	-
MW-2	04/13/01	<0.5	<0.5	<0.5	<0.5	30.33	-	-
MW-2	06/05/01					30.71	-	-
MW-2	07/20/01					30.95	-	-
MW-2	08/20/01					31.03	-	-
MW-2	05/17/02					31.38	-	-
MW-2	10/27/03					31.79	-	-
MW-2	04/21/04					31.10	-	-
MW-2	04/18/05	<1	<1	<1	<2	30.98	-	-
MW-2	04/21/08	<2	<2	<2	<6	30.66	-	-
MW-2	11/02/10					29.65	-	-
MW-2	05/04/11	0.38 J	<1	<1	<3	31.10	-	-
MW-2	11/01/11					31.42	-	-
MW-2	05/07/12					31.29	-	-
MW-2	06/07/13					DRY	-	-
MW-2	09/12/13					DRY	-	-
MW-2	12/13/13					DRY	-	-
MW-2	04/05/14					DRY	-	-
MW-2	10/21/14					DRY	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fields A#7A								
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	01/03/96	176	16.4	225	1550	24.88	-	-
MW-3	04/18/96	129	<2	212	463	25.75	-	-
MW-3	05/08/96					25.75	-	-
MW-3	07/29/96	212	<2	167	393	26.64	-	-
MW-3	10/21/96	165	<1	157	467	27.16	-	-
MW-3	01/30/97	144	<1	198	851	27.92	-	-
MW-3	04/21/97	2070	4340	332	4730	28.00	-	-
MW-3	04/13/01	120	5.2	<5	80	30.48	-	-
MW-3	06/05/01					30.79	-	-
MW-3	07/20/01					31.03	-	-
MW-3	08/20/01					31.14	-	-
MW-3	04/02/02					31.62	-	-
MW-3	05/17/02					32.05	-	-
MW-3	01/25/05					31.93	-	-
MW-3	04/18/05	<1	<1	<1	<2	30.77	-	-
MW-3	10/22/05					31.57	-	-
MW-3	04/25/06	46.4	<5	<5	<10	31.61	-	-
MW-3	10/24/06					31.90	-	-
MW-3	04/24/07	179	<5	12.3	37.9	31.90	-	-
MW-3	10/29/07					31.93	-	-
MW-3	04/21/08	140	2.5	2.7	16.9	30.40	-	-
MW-3	10/09/08					31.56	-	-
MW-3	04/07/09	182	<50	<50	<100	31.40	-	-
MW-3	11/04/09					31.97	-	-
MW-3	05/24/10					31.87	-	-
MW-3	11/02/10					29.83	-	-
MW-3	05/04/11	5.7	<1	0.42 J	<3	30.71	-	-
MW-3	11/01/11					31.08	-	-
MW-3	05/07/12	14.6	<1	0.3 J	2.5 J	31.57	-	-
MW-3	06/07/13					DRY	-	-
MW-3	09/12/13					DRY	-	-
MW-3	12/13/13					DRY	-	-
MW-3	04/05/14					DRY	-	-
MW-3	10/21/14					DRY	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fields A#7A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-4	01/03/96	2470	1880	206	2350	25.69	-	-
MW-4	04/18/96	4760	2460	235	1880	26.42	-	-
MW-4						26.42	25.83	0.59
MW-4	07/29/96	1830	2380	106	967	28.65	26.82	1.83
MW-4	10/21/96	3320	4520	149	1680	28.84	27.45	1.39
MW-4	01/30/97	4320	7420	280	3250	28.85	28.43	0.42
MW-4	04/21/97	2410	5170	219	2530	28.68	28.58	0.10
MW-4	06/05/01					31.25	31.01	0.24
MW-4	06/15/01					31.56	31.12	0.44
MW-4	07/06/01					DRY	31.20	-
MW-4	07/13/01					DRY	31.44	-
MW-4	07/20/01					DRY	31.51	-
MW-4	08/01/01					DRY	31.54	-
MW-4	08/08/01					DRY	-	-
MW-4	08/16/01					DRY	-	-
MW-4	08/20/01					DRY	-	-
MW-4	09/05/01					DRY	-	-
MW-4	09/21/01					DRY	-	-
MW-4	09/26/01					DRY	-	-
MW-4	10/03/01					DRY	-	-
MW-4	10/10/01					DRY	-	-
MW-4	12/04/01					DRY	-	-
MW-4	12/13/01					DRY	31.65	-
MW-4	12/21/01					DRY	31.61	-
MW-4	12/28/01					31.61	-	-
MW-4	01/07/02					DRY	31.61	-
MW-4	01/23/02					DRY	31.62	-
MW-4	01/31/02					DRY	31.61	-
MW-4	02/07/02					DRY	31.60	-
MW-4	02/14/02					DRY	31.62	-
MW-4	02/20/02					DRY	31.62	-
MW-4	03/21/02					DRY	-	-
MW-4	04/04/02					DRY	-	-
MW-4	05/17/02					DRY	-	-
MW-4	05/24/02					DRY	-	-
MW-4	05/31/02					DRY	-	-
MW-4	06/06/02					DRY	-	-
MW-4	06/14/02					DRY	-	-
MW-4	07/18/02					DRY	-	-
MW-4	10/01/02					DRY	-	-
MW-4	01/15/03					DRY	-	-
MW-4	01/26/04					DRY	-	-
MW-4	04/21/04					DRY	-	-
MW-4	07/27/04					DRY	-	-
MW-4	10/18/04					DRY	-	-
MW-4	01/25/05					DRY	-	-
MW-4	04/18/05					DRY	-	-
MW-4	04/21/08	1580	679	6.8 J	3900	31.22	-	-
MW-4	10/09/08					31.40	-	-
MW-4	04/07/09	695	206	<50	745	31.40	-	-
MW-4	11/04/09					31.58	-	-
MW-4	05/24/10					31.47	-	-
MW-4	11/02/10					30.60	-	-
MW-4	05/04/11					31.05	-	-
MW-4	11/01/11	533	207	<10	419	31.05	-	-
MW-4	05/07/12					31.47	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Fields A#7A								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-4	06/07/13					31.42	-	-
MW-4	09/12/13					DRY	-	-
MW-4	12/13/13					DRY	-	-
MW-4	04/05/14					DRY	-	-
MW-4	10/21/14					DRY	-	-
Notes: Results highlighted yellow exceed their respective New Mexico Water Quality Control Commission 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).								

FIGURES

FIGURE 1: APRIL 5, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 5, 2014 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 21, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: OCTOBER 21, 2014 GROUNDWATER ELEVATION MAP

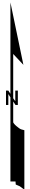


LEGEND:

- 6082 APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- ▲ BENCHMARK
- MONITORING WELL
- OTHER MONITORING WELL
- ⊕ PASSIVE VENT WELL

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

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



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/14/2014	CCL	CCL	DAW

TITLE:
FIELDS A#7A
GROUNDWATER ANALYTICAL RESULTS
SAMPLED APRIL 5, 2014

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



Figure No.:

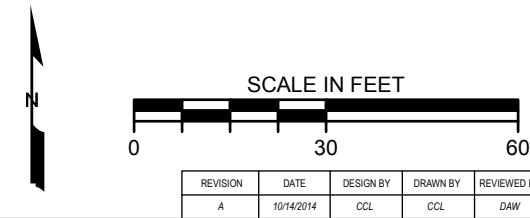
1



AERIAL IMAGERY FROM GOOGLE EARTH, DATED 11.17.2013

LEGEND:

- APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- OTHER MONITORING WELL
- PASSIVE VENT WELL



TITLE: **FIELDS A#7A
GROUNDWATER ELEVATION MAP
GAUGED APRIL 5, 2014**

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

Figure No.: **2**

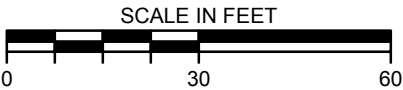
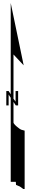


LEGEND:

- APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- OTHER MONITORING WELL
- PASSIVE VENT WELL

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

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



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	12/09/2014	CCL	CCL	DAW

TITLE:
FIELDS A#7A
GROUNDWATER ANALYTICAL RESULTS
SAMPLED OCTOBER 21, 2014

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



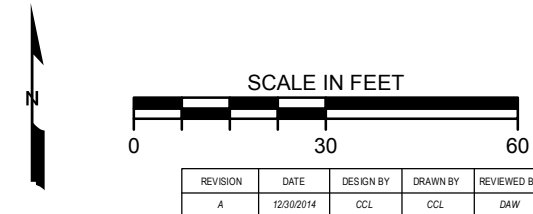
Figure No.:
3



AERIAL IMAGERY FROM GOOGLE EARTH, DATED 11.17.2013

LEGEND:

- APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL
- OTHER MONITORING WELL
- PASSIVE VENT WELL



TITLE: **FIELDS A#7A
GROUNDWATER ELEVATION MAP
GAUGED OCTOBER 21, 2014**

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



Figure No.: **4**

APPENDIX A

APRIL 5, 2014 GROUNDWATER SAMPLING ANALYTICAL REPORT

OCTOBER 21, 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: 560-46601-1

Client Project/Site: Fields A#7, 4/5/14 BTEX

For:

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

Attn: Ms. Sarah Gardner



Authorized for release by:
4/21/2014 9:20:02 AM

Neal Salcher, Senior Project Manager
neal.salcher@testamericainc.com

LINKS

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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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Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

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: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

Job ID: 560-46601-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-46601-1

Comments

No additional comments.

Receipt

The sample was received on 4/8/2014 9:45 AM; the sample 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: LCS and MB are also designated as ICV and ICB for calibration...batch 100781

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: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

Client Sample ID: MW-1

Lab Sample ID: 560-46601-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	66		2.0	0.20	ug/L	1		8021B	Total/NA
Toluene	11		2.0	0.38	ug/L	1		8021B	Total/NA
Xylenes, Total	10		2.0	0.65	ug/L	1		8021B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Corpus Christi

Client Sample Results

Client: MWH Americas Inc
Project/Site: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

Client Sample ID: MW-1

Date Collected: 04/05/14 10:25

Date Received: 04/08/14 09:45

Lab Sample ID: 560-46601-1

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	66		2.0	0.20	ug/L			04/14/14 17:27	1
Toluene	11		2.0	0.38	ug/L			04/14/14 17:27	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/14/14 17:27	1
Xylenes, Total	10		2.0	0.65	ug/L			04/14/14 17:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		58 - 129		04/14/14 17:27	1
Trifluorotoluene (Surr)	106		54 - 130		04/14/14 17:27	1

QC Sample Results

Client: MWH Americas Inc
Project/Site: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 560-100789/7

Matrix: Water

Analysis Batch: 100789

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			04/14/14 16:55	1
Toluene	<0.38		2.0	0.38	ug/L			04/14/14 16:55	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/14/14 16:55	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/14/14 16:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		58 - 129		04/14/14 16:55	1
Trifluorotoluene (Surr)	100		54 - 130		04/14/14 16:55	1

Lab Sample ID: LCS 560-100789/6

Matrix: Water

Analysis Batch: 100789

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	38.5		ug/L		96	70 - 130
Toluene	40.0	40.6		ug/L		101	70 - 130
Ethylbenzene	40.0	39.6		ug/L		99	70 - 130
Xylenes, Total	120	114		ug/L		95	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		58 - 129
Trifluorotoluene (Surr)	106		54 - 130

Certification Summary

Client: MWH Americas Inc
Project/Site: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

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: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

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: Fields A#7, 4/5/14 BTEX

TestAmerica Job ID: 560-46601-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-46601-1	MW-1	Water	04/05/14 10:25	04/08/14 09:45

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Chain of Custody Record

Client Information Client Contact: <u>Mr. Daniel Wade, Sarah Gardner</u> Company: <u>MWH Americas Inc</u> Address: <u>1801 California Street Suite 2900</u> City: <u>Denver</u> State, Zip: <u>CO, 80202</u> Phone: <u>743-420-3414 (Tel) 303 291 2239</u> Email: <u>sarah.gardner@us.mwhglobal.com</u> Project Name: <u>San Juan River Basin Pit Sites</u> Site: <u>Fields A#7</u>		Sampler: <u>Sarah Gardner / Chris Lee</u> Lab PM: <u>Kellogg, Timothy L.</u> E-Mail: <u>tim.kellogg@testamericainc.com</u> Due Date Requested: <u>TAT Requested (days):</u> PO #: <u>Purchase Order not required</u> WO #: <u>TWO # C-STLI-</u> Project #: <u>56000058</u> SSOW#: <u></u>		Carrier Tracking No(s): <u>Feb 08</u> Job #: <u>003645897188</u> Loc: <u>560</u> Analysis Requested: <u>46601</u>		COC No: <u>560-13131-1157</u> Page: <u>1 of 1</u> Job #: <u></u>	
Sample Identification Sample ID: <u>mw-1</u> Sample ID: <u>mw-2</u> Sample ID: <u>mw-3</u> Sample ID: <u>mw-4</u>		Sample Date: <u>4/5/14</u> Sample Time: <u>1025</u>		Sample Type: <u>(C=Comp, G=grab)</u> Preservation Code: <u></u>		Matrix: <u>Water</u> Field Filtered Sample (Yes or No): <u>X</u> Perform MS/MSD (Yes or No): <u>X</u> 8260B - BTEX: <u>A</u>	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify) <u></u>		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <u>Months</u>		Special Instructions/Note: <u>560-46601 Chain of Custody</u>	
Empty Kit Relinquished by: <u>Sarah Gardner</u> Relinquished by: <u></u> Relinquished by: <u></u>		Date: <u>4/7/14</u> Date/Time: <u>900</u>		Received by: <u>RTK</u> Received by: <u></u> Received by: <u></u>		Date/Time: <u>4/8/14 9:45</u> Date/Time: <u></u> Date/Time: <u></u>	
Custody Seals Intact: <u>Yes</u> <u>No</u>		Custody Seal No.: <u></u>		Cooler Temperature(s) °C and Other Remarks: <u>003645897188 cor 190c JPL sent</u>		Company: <u>MWH</u> Company: <u></u> Company: <u></u>	

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-46601-1

Login Number: 46601

List Source: TestAmerica Corpus Christi

List Number: 1

Creator: Rood, Vivian R

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.	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 $<6\text{mm}$ (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: 400-97674-1

Client Project/Site: KM Fields A#7A

For:

MWH Americas Inc

1801 California Street

Suite 2900

Denver, Colorado 80202

Attn: Ms. Sarah Gardner



Authorized for release by:

11/6/2014 1:22:28 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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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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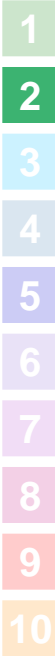


Table of Contents

Cover Page	1
Table of Contents	2
Definitions	3
Case Narrative	4
Sample Summary	5
Client Sample Results	6
QC Sample Results	7
Chronicle	9
Method Summary	10
Chain of Custody	11

Definitions/Glossary

Client: MWH Americas Inc
Project/Site: KM Fields A#7A

TestAmerica Job ID: 400-97674-1

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 Fields A#7A

TestAmerica Job ID: 400-97674-1

Job ID: 400-97674-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-97674-1

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 3.0° 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 Fields A#7A

TestAmerica Job ID: 400-97674-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-97674-1	MW-1	Water	10/21/14 07:45	10/28/14 09:39
400-97674-2	TRIP BLANK	Water	10/21/14 08:05	10/28/14 09:39

Client Sample Results

Client: MWH Americas Inc
Project/Site: KM Fields A#7A

TestAmerica Job ID: 400-97674-1

Client Sample ID: MW-1

Date Collected: 10/21/14 07:45

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97674-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	93		1.0	0.38	ug/L			10/30/14 09:12	1
Ethylbenzene	2.1		1.0	0.50	ug/L			10/30/14 09:12	1
Toluene	3.8		1.0	0.70	ug/L			10/30/14 09:12	1
Xylenes, Total	23		10	1.6	ug/L			10/30/14 09:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		78 - 118					10/30/14 09:12	1
Dibromofluoromethane	101		81 - 121					10/30/14 09:12	1
Toluene-d8 (Surr)	104		80 - 120					10/30/14 09:12	1

Client Sample ID: TRIP BLANK

Date Collected: 10/21/14 08:05

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97674-2

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			10/30/14 12:29	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			10/30/14 12:29	1
Toluene	<0.70		1.0	0.70	ug/L			10/30/14 12:29	1
Xylenes, Total	<1.6		10	1.6	ug/L			10/30/14 12:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		78 - 118					10/30/14 12:29	1
Dibromofluoromethane	97		81 - 121					10/30/14 12:29	1
Toluene-d8 (Surr)	101		80 - 120					10/30/14 12:29	1

QC Sample Results

Client: MWH Americas Inc
Project/Site: KM Fields A#7A

TestAmerica Job ID: 400-97674-1

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

Lab Sample ID: MB 400-234834/4

Matrix: Water

Analysis Batch: 234834

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			10/30/14 08:23	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			10/30/14 08:23	1
Toluene	<0.70		1.0	0.70	ug/L			10/30/14 08:23	1
Xylenes, Total	<1.6		10	1.6	ug/L			10/30/14 08:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		78 - 118		10/30/14 08:23	1
Dibromofluoromethane	99		81 - 121		10/30/14 08:23	1
Toluene-d8 (Surr)	102		80 - 120		10/30/14 08:23	1

Lab Sample ID: LCS 400-234834/1002

Matrix: Water

Analysis Batch: 234834

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	44.4		ug/L		89	79 - 120
Ethylbenzene	50.0	49.3		ug/L		99	80 - 120
Toluene	50.0	48.8		ug/L		98	80 - 120
Xylenes, Total	100	97.5		ug/L		97	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	98		78 - 118
Dibromofluoromethane	98		81 - 121
Toluene-d8 (Surr)	105		80 - 120

Lab Sample ID: 400-97674-1 MS

Matrix: Water

Analysis Batch: 234834

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	93		50.0	121		ug/L		56	10 - 150
Ethylbenzene	2.1		50.0	45.3		ug/L		86	10 - 150
Toluene	3.8		50.0	47.4		ug/L		87	10 - 150
Xylenes, Total	23		100	103		ug/L		81	10 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene	102		78 - 118
Dibromofluoromethane	97		81 - 121
Toluene-d8 (Surr)	105		80 - 120

Lab Sample ID: 400-97674-1 MSD

Matrix: Water

Analysis Batch: 234834

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	93		50.0	136		ug/L		84	10 - 150	11	19
Ethylbenzene	2.1		50.0	50.1		ug/L		96	10 - 150	10	40

TestAmerica Pensacola

QC Sample Results

Client: MWH Americas Inc
Project/Site: KM Fields A#7A

TestAmerica Job ID: 400-97674-1

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

Lab Sample ID: 400-97674-1 MSD

Matrix: Water

Analysis Batch: 234834

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	3.8		50.0	52.9		ug/L		98	10 - 150	11	26
Xylenes, Total	23		100	111		ug/L		88	10 - 150	7	41

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene	103		78 - 118
Dibromofluoromethane	97		81 - 121
Toluene-d8 (Surr)	105		80 - 120

Lab Chronicle

Client: MWH Americas Inc
Project/Site: KM Fields A#7A

TestAmerica Job ID: 400-97674-1

Client Sample ID: MW-1

Date Collected: 10/21/14 07:45

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97674-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	234834	10/30/14 09:12	WPD	TAL PEN

Client Sample ID: TRIP BLANK

Date Collected: 10/21/14 08:05

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97674-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	234834	10/30/14 12:29	WPD	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 Fields A#7A

TestAmerica Job ID: 400-97674-1

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

11/6/2014