

2014 ANNUAL GROUNDWATER REPORT

Hamner #9

Meter Code: 97213

T29N, 09W, Sec 20, Unit A

SITE DETAILS

Site Location: Latitude: 36.714939 N, Longitude: -107.796150

Land Type: Federal

Operator: Burlington Resources Oil & Gas Company, LP

SITE BACKGROUND

- **Site Assessment:** 5/94
- **Excavations:** 5/94 (70 cy)
- **ORC Nutrient Injection:** 11/02

Hamner #9 (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 Burlington Resources Oil & Gas Company, LP and is active.

The Site is located on Federal land. Various site investigations have occurred from 1994 through 2014. Monitoring wells were installed in 1995 (MW-1), 1999 (MW-2 and MW-3), and 2006 (MW-4). Currently, groundwater sampling is conducted on a semi-annual basis and free product has not been observed.

SUMMARY OF 2014 ACTIVITIES

On April 6 and October 24, 2014, groundwater levels were gauged at MW-1 and MW-4. Monitoring well MW-2 had an insufficient amount of water to collect a sample and MW-3 was damaged and could not be gauged or sampled during the 2014 sampling events. Groundwater samples were collected from monitoring wells MW-1 and MW-4 during each 2014 sampling event 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 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

Hamner #9

Meter Code: 97213

T29N, 09W, Sec 20, Unit A

SITE MAPS

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

ANALYTICAL LAB REPORTS

The groundwater analytical laboratory reports are included as Appendix A.

RESULTS

- The groundwater flow direction has historically been to the west at the Site; however, since only two wells had groundwater measurements, no groundwater contour or flow direction is shown on the Groundwater Elevation figures (Figures 2 and 4).
- Groundwater samples collected from monitoring well MW-1 had concentrations well below the New Mexico Water Quality Control Commission (NMWQCC) standards for BTEX constituents during the 2014 sampling events. Benzene and toluene were reported as non-detect or as values below the laboratory quantification limit (J-flagged) in both April and October, and the result for total xylenes was J-flagged in October 2014.
- Monitoring well MW-2 was dry during each sampling event in 2014.
- Monitoring well MW-3 was damaged and was not sampled or gauged.
- BTEX constituents were not detected in groundwater samples collected from MW-4 during the 2014 sampling events.

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 dissolved-phase hydrocarbons and to define the groundwater gradient at the Site. MW-1, MW-4, and the newly-installed monitoring wells will be sampled on a semi-annual basis. Monitoring wells MW-2 and MW-3 will be plugged and abandoned in accordance with New Mexico Environment Department, Ground Water Quality Bureau, Monitoring Well Construction and Abandonment Guidelines, dated March 2011.

TABLE

TABLE 1 – GROUNDWATER ANALYTICAL AND WATER LEVEL RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

HAMNER #9

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	08/25/95	198	1480	146	2250	29.53	-	-
MW-1	11/08/96	559	499	395	933	30.30	-	-
MW-1	02/10/97	350	101	233	476	30.07	-	-
MW-1	05/08/97	266	9.75	230	308	29.99	-	-
MW-1	08/05/97	272	228	172	370	30.16	-	-
MW-1	11/04/97	216	72.1	133	260	30.21	-	-
MW-1	02/03/98	245	276	109	375	32.48	-	-
MW-1	05/07/98	166	6.02	110	202	32.38	-	-
MW-1	08/04/98	171	74.4	86.1	209	32.54	-	-
MW-1	11/03/98	151	58.7	76.4	204	32.62	-	-
MW-1	02/02/99	153	64.8	89.7	217	32.42	-	-
MW-1	05/19/99	137	89.4	67.3	141	32.28	-	-
MW-1	08/04/99	105	32.6	63	113	32.28	-	-
MW-1	11/09/99	120	39	75	170	32.19	-	-
MW-1	02/25/00	130	70	78	190	32.05	-	-
MW-1	05/24/00	110	130	56	200	31.96	-	-
MW-1	08/01/00	120	39	80	210	32.08	-	-
MW-1	11/06/00	84	120	56	190	32.19	-	-
MW-1	02/12/01	95	44	60	150	32.12	-	-
MW-1	05/30/01	110	36	78	200	32.06	-	-
MW-1	08/07/01	99	43	58	150	32.28	-	-
MW-1	12/04/01	150	53	50	110	32.40	-	-
MW-1	02/25/02	83	25	59	120	32.39	-	-
MW-1	05/14/02	57	78	46	150	32.37	-	-
MW-1	11/04/02	72.5	50	47	178.6	32.67	-	-
MW-1	05/19/03	31.1	24.4	23.9	158	32.45	-	-
MW-1	11/15/03	65.5	65	44.5	190	32.76	-	-
MW-1	05/11/04	57.6	44.5	52.1	153	32.61	-	-
MW-1	11/16/04	38	26.4	34.7	126	32.88	-	-
MW-1	05/18/05	74	27.9	93.1	340	32.67	-	-
MW-1	08/23/05	28.6	7	46.3	175	33.05	-	-
MW-1	11/08/05	26.2	5.5	35.5	137	32.93	-	-
MW-1	02/23/06	22.1	7.1	28.2	102	32.81	-	-
MW-1	05/23/06	21.6	4.2	28.3	76.6	32.83	-	-
MW-1	08/23/06	18.9	5	29.1	76.7	33.06	-	-
MW-1	11/08/06	20.4	8.2	28.8	71.9	33.09	-	-
MW-1	02/26/07	14.8	4.7	23.7	72.1	32.94	-	-
MW-1	05/24/07	12.5	1.5	24.6	45.1	32.86	-	-
MW-1	08/21/07	10.1	0.75	22.2	38	33.13	-	-
MW-1	11/13/07	5.7	0.79	13.3	16.5	33.21	-	-
MW-1	02/12/08	7.5	1.6	19.6	32.9	33.10	-	-
MW-1	05/07/08					32.98	-	-
MW-1	05/08/08	4.3	5.8	17.4	51	32.98	-	-
MW-1	08/26/08	3.7	1.5	15.6	17.2	33.25	-	-
MW-1	11/06/08	3.8	3.1	17.5	22.2	33.29	-	-
MW-1	04/06/14	<1.0	5.1 J	26	13	33.33	-	-
MW-1	10/24/14	0.94 J	<0.70	28	8.8 J	33.70	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

HAMNER #9

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	0.5	0.5	0.5	29.57	-	-
MW-2	08/28/00	0.5	0.5	0.5	0.5	31.65	-	-
MW-2	05/30/01	0.5	0.5	0.5	0.5	31.57	-	-
MW-2	08/07/01					31.80	-	-
MW-2	02/25/02					31.85	-	-
MW-2	05/14/02	0.5	0.5	0.5	1	31.85	-	-
MW-2	05/19/03					31.92	-	-
MW-2	04/06/14					DRY	-	-
MW-2	10/24/14					DRY	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

HAMNER #9

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	0.5	0.5	0.5	28.34	-	-
MW-3	08/28/00	0.5	0.5	0.5	0.5	30.96	-	-
MW-3	05/30/01	0.5	0.5	0.5	0.5	30.87	-	-
MW-3	08/07/01					31.10	-	-
MW-3	02/25/02					31.21	-	-
MW-3	05/14/02					31.23	-	-
MW-3	06/13/02	0.5	0.5	0.5	1	31.33	-	-
MW-3	11/12/02					31.45	-	-
MW-3	05/19/03					31.33	-	-
MW-3	11/15/03					31.64	-	-
MW-3	05/11/04					31.51	-	-
MW-3	11/16/04					31.77	-	-
MW-3	05/18/05					31.63	-	-
MW-3	08/23/05					31.82	-	-
MW-3	11/08/05					38.03	-	-
MW-3	02/23/06					31.70	-	-
MW-3	05/23/06					31.73	-	-
MW-3	08/23/06					31.97	-	-
MW-3	11/08/06					31.96	-	-
MW-3	02/26/07					31.82	-	-
MW-3	04/06/14					DMGD	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

HAMNER #9

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	11/08/06	1	0.28	1	0.36	30.32	-	-
MW-4	02/26/07					30.15	-	-
MW-4	05/24/07					30.07	-	-
MW-4	08/21/07	1	1	1	2	30.31	-	-
MW-4	11/13/07	2	2	2	6	30.41	-	-
MW-4	02/12/08	2	2	2	6	30.31	-	-
MW-4	05/07/08					30.18	-	-
MW-4	05/08/08					30.18	-	-
MW-4	08/26/08	1	1	1	3	30.42	-	-
MW-4	11/06/08					30.50	-	-
MW-4	04/06/14	<0.20	<0.38	<0.20	<0.65	30.49	-	-
MW-4	10/24/14	<0.38	<0.70	<0.50	<1.6	36.83	-	-

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 6, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 6, 2014 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 24, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: OCTOBER 24, 2014 GROUNDWATER ELEVATION MAP

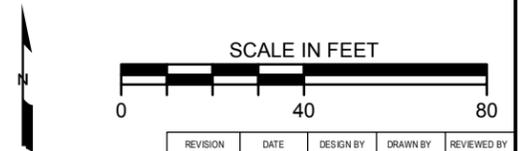


LEGEND:

- 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	12/31/2014	CCL	CCL	DAW

TITLE:
**HAMNER #9
 GROUNDWATER ANALYTICAL RESULTS
 SAMPLED APRIL 6, 2014**

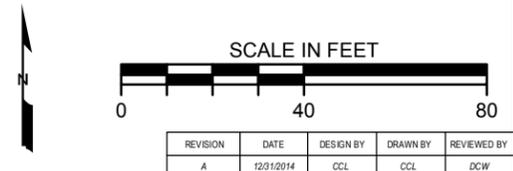
PROJECT: **SAN JUAN RIVER BASIN
 MONITORING AND REMEDIATION
 SAN JUAN COUNTY, NEW MEXICO**

MWH Figure No.: **1**



LEGEND:

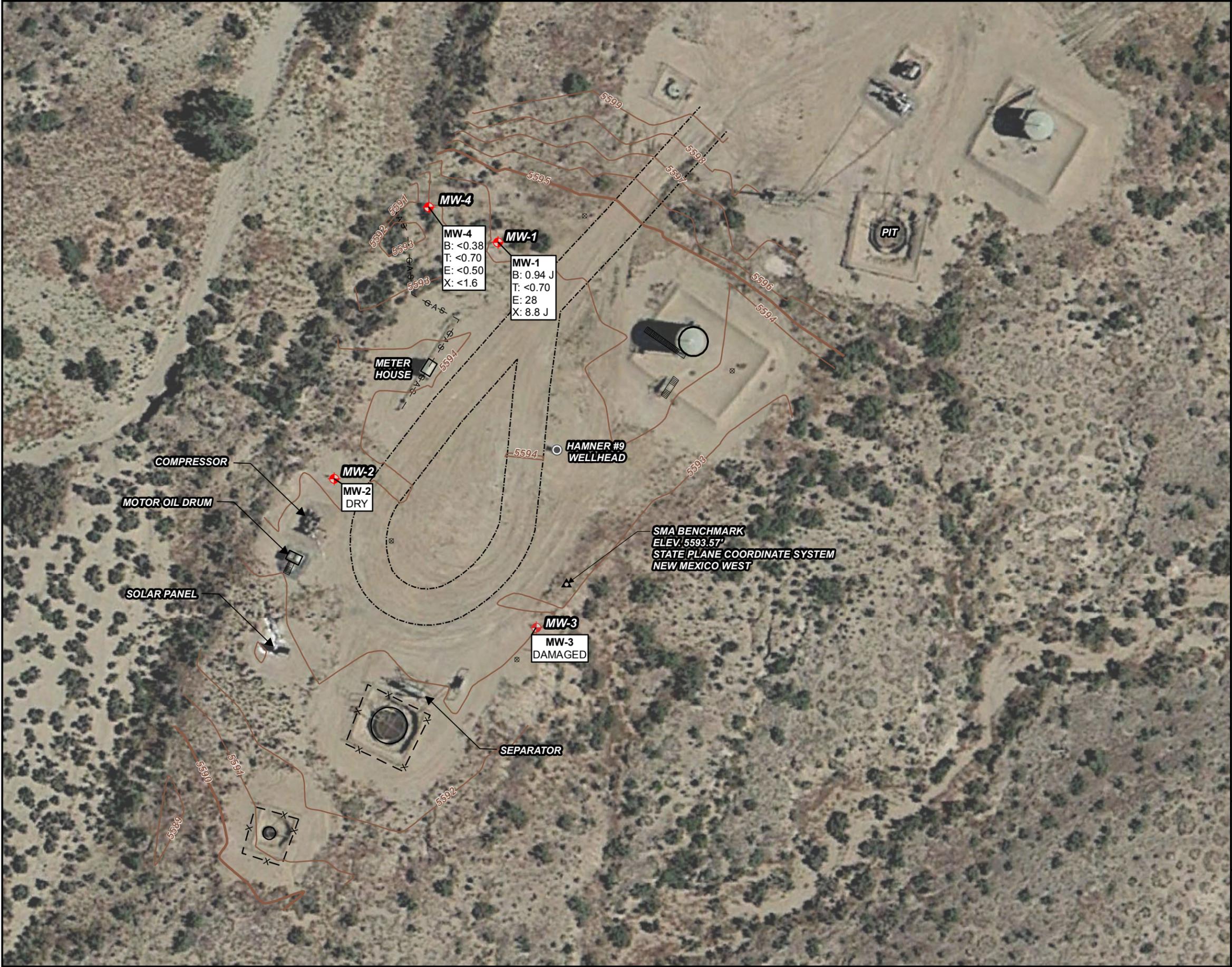
-  APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
-  ACCESS ROAD
-  NATURAL GAS LINE
-  MONITORING WELL
-  SMA BENCHMARK



TITLE:
**HAMNER #9
 GROUNDWATER ELEVATION MAP
 GAUGED APRIL 6, 2014**

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

	Figure No.:
	2

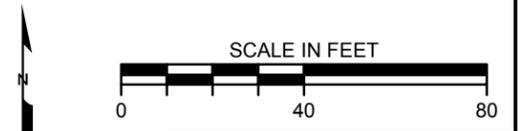


LEGEND:

- 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



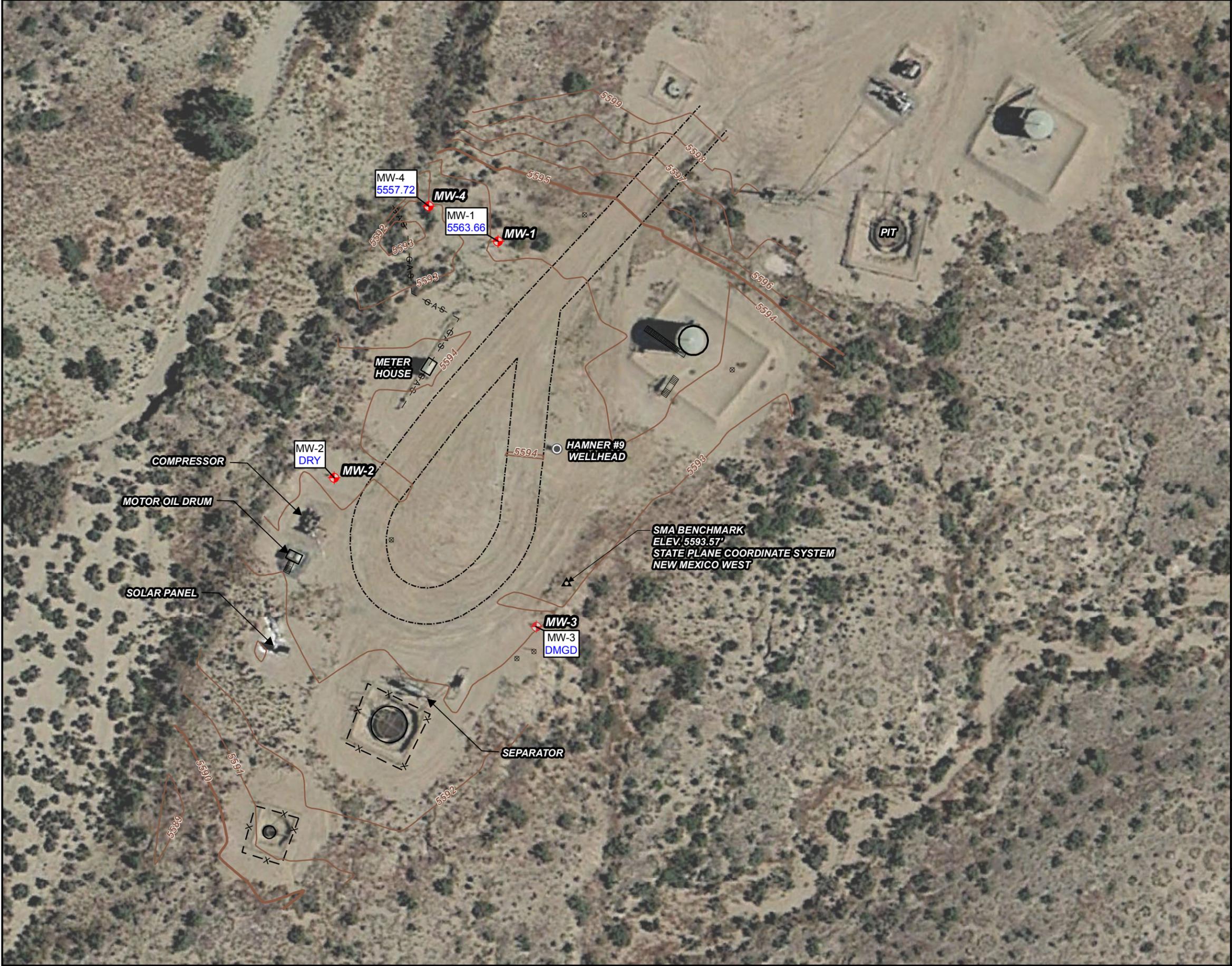
REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	12/31/2014	CCL	CCL	DAW

TITLE:
**HAMNER #9
 GROUNDWATER ANALYTICAL RESULTS
 SAMPLED OCTOBER 24, 2014**

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

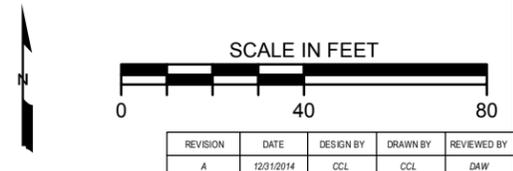


Figure No.:
3



LEGEND:

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



TITLE:
**HAMNER #9
 GROUNDWATER ELEVATION MAP
 GAUGED OCTOBER 24, 2014**

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

	Figure No.:
	4

APPENDIX A

APRIL 6, 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: 560-46605-1

Client Project/Site: Hamner #9, 4/6/14 BTEX

For:

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

Attn: Ms. Sarah Gardner



Authorized for release by:
4/21/2014 9:52:44 AM

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

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

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

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

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

1

2

3

4

5

6

7

8

9

10

11

Definitions/Glossary

Client: MWH Americas Inc
Project/Site: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

Qualifiers

GC VOA

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

Glossary

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

Case Narrative

Client: MWH Americas Inc
Project/Site: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

Job ID: 560-46605-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-46605-1

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 1.8° C.

GC VOA

Method(s) 8021B: LCS and MB are also designated as ICV and ICB for calibration...batch 100781

Method(s) 8021B: The following sample(s) was diluted due to the nature of the sample matrix: Elevated reporting limits (RLs) are provided.

8021

Batch 100789

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: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

Client Sample ID: MW-1

Lab Sample ID: 560-46605-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	5.1	J	10	1.9	ug/L	5		8021B	Total/NA
Ethylbenzene	26		10	1.0	ug/L	5		8021B	Total/NA
Xylenes, Total	13		10	3.2	ug/L	5		8021B	Total/NA

Client Sample ID: MW-4

Lab Sample ID: 560-46605-2

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Corpus Christi

Client Sample Results

Client: MWH Americas Inc
 Project/Site: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

Client Sample ID: MW-1
Date Collected: 04/06/14 14:25
Date Received: 04/08/14 09:45

Lab Sample ID: 560-46605-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		10	1.0	ug/L			04/14/14 19:18	5
Toluene	5.1	J	10	1.9	ug/L			04/14/14 19:18	5
Ethylbenzene	26		10	1.0	ug/L			04/14/14 19:18	5
Xylenes, Total	13		10	3.2	ug/L			04/14/14 19:18	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		58 - 129		04/14/14 19:18	5
Trifluorotoluene (Surr)	99		54 - 130		04/14/14 19:18	5

Client Sample ID: MW-4
Date Collected: 04/06/14 14:20
Date Received: 04/08/14 09:45

Lab Sample ID: 560-46605-2
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			04/14/14 19:46	1
Toluene	<0.38		2.0	0.38	ug/L			04/14/14 19:46	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/14/14 19:46	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/14/14 19:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		58 - 129		04/14/14 19:46	1
Trifluorotoluene (Surr)	99		54 - 130		04/14/14 19:46	1

QC Sample Results

Client: MWH Americas Inc
 Project/Site: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

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: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

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

1

2

3

4

5

6

7

8

9

10

11

Method Summary

Client: MWH Americas Inc
Project/Site: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

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: Hamner #9, 4/6/14 BTEX

TestAmerica Job ID: 560-46605-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-46605-1	MW-1	Water	04/06/14 14:25	04/08/14 09:45
560-46605-2	MW-4	Water	04/06/14 14:20	04/08/14 09:45

1

2

3

4

5

6

7

8

9

10

11

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: <u>Sarah Gardner / Chris Lee</u> Mr. Daniel Wade <u>Sarah Gardner</u> MWH Americas Inc Address: 1801 California Street, Suite 2900 City: Denver State, Zip: CO, 80202 Phone: 713-429-3444 (Tel) <u>303 291 2239</u> Email: <u>Sarah.gardner@us.mwhglobal.com</u> <u>Bentley.A.Wade@us.mwhglobal.com</u> Project Name: San Juan River Basin Pit Sites Site: Hammer #9		Lab Pw: Kellogg, Timothy L. E-Mail: tim.kellogg@testamerica.com Due Date Requested: TAT Requested (days): PO #: Purchase Order not required WO #: TWO # C-STLI- Project #: 56000058 SSOW#:		Sampler: <u>Sarah Gardner / Chris Lee</u> Phone: <u>303 291 2239</u> Carrier Tracking No(s): <u>FedEx 8945 2795 7392</u> Lab No: 560-13131-1157 Page: <u>1</u> Job #: <u>146605</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)		Analysis Requested Total Number of containers: <u>3</u> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> A Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> A 8250B - BTEX <input checked="" type="checkbox"/>		Special Instructions/Note: Preser: A - HC B - Nar C - Zn D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: O - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)			
Sample Identification <u>MW-1</u> <u>MW-2</u> <u>MW-3</u> <u>MW-4</u>		Sample Date <u>4/6/14</u> <u>4/6/14</u> <u>4/6/14</u> <u>4/6/14</u>	Sample Time <u>1425</u> <u>1430</u> <u>1420</u> <u>1420</u>	Sample Type (C=comp, G=grab) <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u>	Matrix (W=water, S=solid, O=other) <u>Water</u> <u>Water</u> <u>Water</u> <u>Water</u>	Preservation Code: <u>3</u> <u>Not Sampled</u> <u>Not Sampled</u> <u>3</u>	Barcode:  560-46605 Chain of Custody
Empty Kit Relinquished by:		Date:		Method of Shipment:		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 _____ Months	
Relinquished by: <u>Sarah Gardner</u>		Date/Time: <u>4/7/14 900</u>		Received by: <u>[Signature]</u>		Date/Time: <u>4/10/14 9:45</u>	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>0.8 1.6 °C cor. 1.8 °C JPH seal</u>		Company: <u>THC</u>	

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-46605-1

Login Number: 46605

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: 400-97690-1
Client Project/Site: KM Hamner #9

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

Attn: Ms. Sarah Gardner



Authorized for release by:
11/6/2014 1:51:05 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

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

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

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

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

1

2

3

4

5

6

7

8

9

10

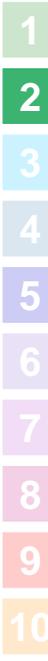


Table of Contents

Cover Page	1
Table of Contents	2
Definitions	3
Case Narrative	4
Sample Summary	5
Client Sample Results	6
QC Sample Results	7
Chronicle	8
Method Summary	9
Chain of Custody	10

Definitions/Glossary

Client: MWH Americas Inc
Project/Site: KM Hamner #9

TestAmerica Job ID: 400-97690-1

Qualifiers

GC/MS VOA

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
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 Hamner #9

TestAmerica Job ID: 400-97690-1

Job ID: 400-97690-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-97690-1

Comments

No additional comments.

Receipt

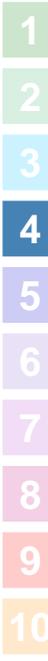
The samples were received on 10/28/2014 9:39 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

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 Hamner #9

TestAmerica Job ID: 400-97690-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-97690-1	MW-1	Water	10/24/14 08:20	10/28/14 09:39
400-97690-2	MW-4	Water	10/24/14 08:25	10/28/14 09:39
400-97690-3	TRIP BLANK	Water	10/24/14 08:30	10/28/14 09:39

1

2

3

4

5

6

7

8

9

10

Client Sample Results

Client: MWH Americas Inc
Project/Site: KM Hamner #9

TestAmerica Job ID: 400-97690-1

Client Sample ID: MW-1
Date Collected: 10/24/14 08:20
Date Received: 10/28/14 09:39

Lab Sample ID: 400-97690-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.94	J	1.0	0.38	ug/L			11/01/14 16:25	1
Ethylbenzene	28		1.0	0.50	ug/L			11/01/14 16:25	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 16:25	1
Xylenes, Total	8.8	J	10	1.6	ug/L			11/01/14 16:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		78 - 118					11/01/14 16:25	1
Dibromofluoromethane	110		81 - 121					11/01/14 16:25	1
Toluene-d8 (Surr)	92		80 - 120					11/01/14 16:25	1

Client Sample ID: MW-4
Date Collected: 10/24/14 08:25
Date Received: 10/28/14 09:39

Lab Sample ID: 400-97690-2
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 16:49	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 16:49	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 16:49	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 16:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		78 - 118					11/01/14 16:49	1
Dibromofluoromethane	111		81 - 121					11/01/14 16:49	1
Toluene-d8 (Surr)	89		80 - 120					11/01/14 16:49	1

Client Sample ID: TRIP BLANK
Date Collected: 10/24/14 08:30
Date Received: 10/28/14 09:39

Lab Sample ID: 400-97690-3
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 17:14	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 17:14	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 17:14	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 17:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	92		78 - 118					11/01/14 17:14	1
Dibromofluoromethane	109		81 - 121					11/01/14 17:14	1
Toluene-d8 (Surr)	90		80 - 120					11/01/14 17:14	1

QC Sample Results

Client: MWH Americas Inc
Project/Site: KM Hamner #9

TestAmerica Job ID: 400-97690-1

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 Chronicle

Client: MWH Americas Inc
Project/Site: KM Hamner #9

TestAmerica Job ID: 400-97690-1

Client Sample ID: MW-1

Date Collected: 10/24/14 08:20

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97690-1

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 16:25	CLN	TAL PEN

Client Sample ID: MW-4

Date Collected: 10/24/14 08:25

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97690-2

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 16:49	CLN	TAL PEN

Client Sample ID: TRIP BLANK

Date Collected: 10/24/14 08:30

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97690-3

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 17:14	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 Hamner #9

TestAmerica Job ID: 400-97690-1

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



Chain of Custody Record

Client Information Client Contact: Ms. Sarah Gardner Phone: 303 291-2242 E-Mail: sarah.gardner@mwglobal.com		Lab PM: Saicher, Neal E-Mail: neal.saicher@testamericainc.com		Carrier Tracking No(s): 560-15213-1509.1 Page: Page 1 of 1 Job #:	
Company: MWH Americas Inc Address: 1801 California Street, Suite 2900 City: Denver State, Zip: CO, 80202 Phone: 303-291-2239(Tel) Email: sarah.gardner@mwglobal.com Project Name: KM Hammer #9 Site:		Due Date Requested: TAT Requested (days): PO #: Purchase Order Requested WO #: As per Enfos Project #: 56004964 SSON#:		Analysis Requested  400-97690 COC	
Sample Identification MW-1 MW-4 TRIP BLANK		Sample Date 10/24/14 10/24/14 10/24/14		Sample Time 820 825 830	
Sample Type (C=Comp, G=grab) G G G		Matrix (W=Water, S=Solid, O=Other) Water Water Water		Field Filtered Sample (Yes or No) X X X	
Preservation Code: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		Total Number of Containers X X X		Special Instructions/Note: X X X	
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)		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 Archive For: Months	
Empty Kit Relinquished by:		Date/Time: 10/27/14 915		Method of Shipment:	
Relinquished by: <i>Sarah Lee</i>		Date/Time: 10-28-14 039		Company:	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: 302 ID-2		Cooler Temperature(s) °C and Other Remarks:	