

2014 ANNUAL GROUNDWATER REPORT

Sandoval GC A#1A

Meter Code: 89620

Latitude: 36.772101, Longitude: -107.753601

SITE DETAILS

Site Location: Latitude: 36.772101, Longitude: -107.753601

Land Type: Federal

Operator: BP America Production Company

SITE BACKGROUND

- **Site Assessment:** 5/94
- **Excavation:** 9/94 (50 cy)
- **Re-Excavation:** 7/97 (504 cy)
- **ORC Nutrient Injection** 10/01

Sandoval GC A#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 BP America Production Company and is active.

The Site is located on Federal land. Various site investigations occurred from 1994 through 1997. A monitoring well was installed in 1994 (MW-1). Additional borings for wells were advanced for well purposes but were refused in 1995 and 1997. Currently, groundwater sampling is conducted on a semi-annual basis and free product is not observed.

SUMMARY OF 2014 ACTIVITIES

On April 2 and October 23, 2014, water levels were gauged at MW-1, and groundwater samples were collected 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. (TestAmerica) 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

Sandoval GC A#1A

Meter Code: 89620

Latitude: 36.772101, Longitude: -107.753601

SITE MAPS

Groundwater analytical maps 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 cannot be determined based on observations because MW-1 was the only monitoring well where groundwater elevation data was collected (see Figures 2 and 4).
- BTEX constituents were either nondetect or reported values were below the quantitative limit (J-flagged values) during both 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 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

Sandoval GC A #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	05/30/95	5500	3980	579	4780	34.49	-	-
MW-1	04/12/96	10400	8960	925	10100	35.39	-	-
MW-1	07/26/96	8980	7980	1000	9430	35.61	-	-
MW-1	10/18/96	11050	9960	900	10700	35.79	-	-
MW-1	01/21/97	7700	7210	787	8430	35.80	-	-
MW-1	04/16/97	8900	8680	996	9250	35.99	-	-
MW-1	07/11/97	8240	7850	709	8230	36.05	-	-
MW-1	09/04/97	4420	2370	850	9660	35.18	-	-
MW-1	10/22/97	3460	39.6	714	7690	35.14	-	-
MW-1	01/06/98	3850	194	795	8570	35.10	-	-
MW-1	04/23/98	4330	406	783	7220	35.15	-	-
MW-1	04/19/99	4300	1260	629	7440	35.10	-	-
MW-1	04/13/00	2300	1500	590	5900	34.70	-	-
MW-1	05/30/01	2800	710	560	5200	34.97	-	-
MW-1	10/08/01					35.19	-	-
MW-1	05/16/02	3000	1500	440	5300	35.11	-	-
MW-1	05/21/03	3850	601	443	6360	35.26	-	-
MW-1	11/16/04	2490	30.9	346	2860	34.84	-	-
MW-1	11/08/05	338	8.5	80.1	757	33.87	-	-
MW-1	11/08/06	198	3.4	14.9	83.6	34.02	-	-
MW-1	11/29/07	441	3.8	52.2	72.2	33.29	-	-
MW-1	11/18/08	120	<2	17.9	8.3	33.41	-	-
MW-1	11/04/09	88.4	<1	14.8	4.3	33.64	-	-
MW-1	06/03/10					33.46	-	-
MW-1	11/09/10	54	<2	8.7	12.7	32.94	-	-
MW-1	11/16/11	31.3	<1	14.2	8.9	33.28	-	-
MW-1	06/08/13	0.27 J	<0.30	<0.20	<0.23	33.67	-	-
MW-1	09/09/13	0.36 J	<0.30	<0.20	<0.23	33.78	-	-
MW-1	12/12/13	0.31 J	<0.38	<0.20	<0.65	33.80	-	-
MW-1	04/02/14	1.1 J	1.7 J	<0.20	1.4 J	33.85	-	-
MW-1	10/23/14	3.3	<0.70	3.8	<1.6	34.04	-	-

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 2, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 2, 2014 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 23, 2014 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: OCTOBER 23, 2014 GROUNDWATER ELEVATION MAP



LEGEND:

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

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	NMWWCC 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
1	10/25/2014	CCL	CCL	DAW

TITLE:
 SANDOVAL GC A#1A
 GROUNDWATER ANALYTICAL RESULTS
 SAMPLED APRIL 2, 2014

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

Figure No.: **1**



LEGEND:

-  6503 APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
-  ACCESS ROAD
-  NATURAL GAS LINE
-  MONITORING WELL
-  OTHER'S MONITORING WELL
-  SMA BENCHMARK



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/25/2014	CCL	CCL	DAW

TITLE: SANDOVAL GC A#1A
GROUNDWATER ELEVATION MAP
GAUGED APRIL 2, 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
- OTHER'S MONITORING WELL
- SMA BENCHMARK
- 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)

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 RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
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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	10/23/2014	CCL	CCL	DAW

TITLE:
 SANDOVAL GC A#1A
 GROUNDWATER ANALYTICAL RESULTS
 SAMPLED OCTOBER 23, 2014

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

MWH Figure No.: **3**



LEGEND:

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



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/23/2014	CCL	CCL	DAW

TITLE: SANDOVAL GC A#1A
GROUNDWATER ELEVATION MAP
GAUGED OCTOBER 23, 2014

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

MWH Figure No.: 4

APPENDIX A

APRIL 2, 2014 GROUNDWATER SAMPLING ANALYTICAL REPORT
OCTOBER 23, 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: 560-46603-1

Client Project/Site: Sandoval, 4/2/14 BTEX

For:

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

Attn: Ms. Sarah Gardner



Authorized for release by:
4/21/2014 9:31:00 AM

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: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

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: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

Job ID: 560-46603-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-46603-1

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 1.8° 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: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

Client Sample ID: MW-1

Lab Sample ID: 560-46603-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.1	J	2.0	0.20	ug/L	1		8021B	Total/NA
Toluene	1.7	J	2.0	0.38	ug/L	1		8021B	Total/NA
Xylenes, Total	1.4	J	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: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

Client Sample ID: MW-1
Date Collected: 04/02/14 16:30
Date Received: 04/08/14 09:45

Lab Sample ID: 560-46603-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.1	J	2.0	0.20	ug/L			04/14/14 18:23	1
Toluene	1.7	J	2.0	0.38	ug/L			04/14/14 18:23	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/14/14 18:23	1
Xylenes, Total	1.4	J	2.0	0.65	ug/L			04/14/14 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		58 - 129		04/14/14 18:23	1
Trifluorotoluene (Surr)	124		54 - 130		04/14/14 18:23	1



QC Sample Results

Client: MWH Americas Inc
 Project/Site: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

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: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

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

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Method Summary

Client: MWH Americas Inc
Project/Site: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

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: Sandoval, 4/2/14 BTEX

TestAmerica Job ID: 560-46603-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-46603-1	MW-1	Water	04/02/14 16:30	04/08/14 09:45

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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</u> (Chris Lee) Phone: <u>303 291-2239</u> Email: <u>Sarah.gardner@us.mwhglobal.com</u>		Lab PM: <u>Kellogg, Timothy L.</u> E-Mail: <u>tim.kellogg@testamericainc.com</u>		Carrier Tracking No(s): <u>Fedex 8445 2175 7362</u> Lab No: <u>560-13131-1157</u> Page: <u>1</u> of <u>1</u> Job #: <u>46603</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>713-420-3444 ext. 303 291 2239</u> Email: <u>Sarah.gardner@us.mwhglobal.com</u> Project Name: <u>San Juan River Basin Pit Sites</u> Site: <u>Sandoval</u>		Due Date Requested: TAT Requested (days): PO #: <u>Purchase Order not required</u> WO #: <u>TWO # C-STLI-</u> Project #: <u>56000058</u> SSOW#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> A Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> A 8260B - BTEX <input checked="" type="checkbox"/> X	
Sample Identification <u>MW-1</u>		Sample Date: <u>4/2/14</u> Sample Time: <u>1630</u>	Sample Type (C=comp, G=grab): Preservation Code:	Matrix (Water, Snow/Ice, Sewage/Solid, Other): <u>Water</u>	Total Number of Containers: <u>3</u> Special Instructions/Note:  560-46603 Chain of Custody
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)					
Relinquished by: <u>Sarah Gardner</u>		Date: <u>4/1/14</u> <u>900</u>		Method of Shipment:	
Relinquished by:		Date/Time: <u>4/1/14 9:45</u>		Return To Client <input checked="" type="checkbox"/> Archive For <input type="checkbox"/> Months	
Relinquished by:		Date/Time:		Company: <u>TRAC</u>	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: <u>Δ Yes Δ No</u>		Relinquished by:		Date/Time:	
Custody Seal No.:		Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:		Cooler Temperature(s) °C and Other Remarks: <u>605.69 for 1.80C RP4 Seal</u>	

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-46603-1

Login Number: 46603

List Number: 1

Creator: Rood, Vivian R

List Source: TestAmerica Corpus Christi

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.	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: 400-97672-1
Client Project/Site: KM Sandoval GC A#1

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

Attn: Ms. Sarah Gardner



Authorized for release by:
11/6/2014 1:21:15 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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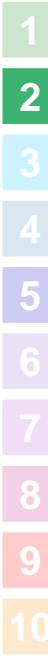


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Definitions/Glossary

Client: MWH Americas Inc
Project/Site: KM Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

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 Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

Job ID: 400-97672-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-97672-1

Comments

No additional comments.

Receipt

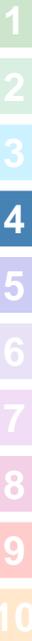
The samples were received on 10/28/2014 9:39 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

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 Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-97672-1	MW-1	Water	10/23/14 15:10	10/28/14 09:39
400-97672-2	TRIP BLANK	Water	10/23/14 15:20	10/28/14 09:39

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Client Sample Results

Client: MWH Americas Inc
Project/Site: KM Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

Client Sample ID: MW-1
Date Collected: 10/23/14 15:10
Date Received: 10/28/14 09:39

Lab Sample ID: 400-97672-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3.3		1.0	0.38	ug/L			10/30/14 21:23	1
Ethylbenzene	3.8		1.0	0.50	ug/L			10/30/14 21:23	1
Toluene	<0.70		1.0	0.70	ug/L			10/30/14 21:23	1
Xylenes, Total	<1.6		10	1.6	ug/L			10/30/14 21:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		78 - 118					10/30/14 21:23	1
Dibromofluoromethane	97		81 - 121					10/30/14 21:23	1
Toluene-d8 (Surr)	94		80 - 120					10/30/14 21:23	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-97672-2

Date Collected: 10/23/14 15:20
Date Received: 10/28/14 09:39

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 21:48	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			10/30/14 21:48	1
Toluene	<0.70		1.0	0.70	ug/L			10/30/14 21:48	1
Xylenes, Total	<1.6		10	1.6	ug/L			10/30/14 21:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		78 - 118					10/30/14 21:48	1
Dibromofluoromethane	100		81 - 121					10/30/14 21:48	1
Toluene-d8 (Surr)	90		80 - 120					10/30/14 21:48	1

QC Sample Results

Client: MWH Americas Inc
Project/Site: KM Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

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

Lab Sample ID: MB 400-234839/5

Matrix: Water

Analysis Batch: 234839

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 13:46	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			10/30/14 13:46	1
Toluene	<0.70		1.0	0.70	ug/L			10/30/14 13:46	1
Xylenes, Total	<1.6		10	1.6	ug/L			10/30/14 13:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		78 - 118		10/30/14 13:46	1
Dibromofluoromethane	99		81 - 121		10/30/14 13:46	1
Toluene-d8 (Surr)	91		80 - 120		10/30/14 13:46	1

Lab Sample ID: LCS 400-234839/1003

Matrix: Water

Analysis Batch: 234839

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	55.0		ug/L		110	79 - 120
Ethylbenzene	50.0	54.1		ug/L		108	80 - 120
Toluene	50.0	51.4		ug/L		103	80 - 120
Xylenes, Total	100	107		ug/L		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	91		78 - 118
Dibromofluoromethane	95		81 - 121
Toluene-d8 (Surr)	95		80 - 120

Lab Chronicle

Client: MWH Americas Inc
Project/Site: KM Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

Client Sample ID: MW-1

Date Collected: 10/23/14 15:10

Date Received: 10/28/14 09:39

Lab Sample ID: 400-97672-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	234839	10/30/14 21:23	CAR	TAL PEN

Client Sample ID: TRIP BLANK

Date Collected: 10/23/14 15:20

Date Received: 10/28/14 09:39

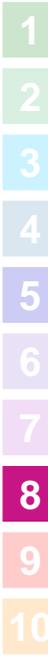
Lab Sample ID: 400-97672-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	234839	10/30/14 21:48	CAR	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 Sandoval GC A#1

TestAmerica Job ID: 400-97672-1

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

