

2016 ANNUAL GROUNDWATER REPORT

Lateral O-21 Line Drip
NMOCD Case#: 3RP-213-0
Meter Code: LD151
T30N, R9W, Sec12, Unit O

SITE DETAILS

Site Location: Latitude: 36.818600 N, Longitude: -107.730400 W
Land Type: Federal
Operator: Enterprise

SITE BACKGROUND

- **Site Assessment:** 1/95
- **Excavation:** 1/95

Environmental Remediation activities at the Lateral O-21 Line Drip (Site) are 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 (EPCGP's) program methods. Currently, the Site is operated by Enterprise and is active. Enterprise operates one additional pipeline in the area, and BP operates two other pipelines in the area.

The Site is located on Federal land. Several site investigations were conducted from 1995 to 2000. Monitoring wells were installed in 1995 (MW-1) and 2000 (MW-2 and MW-3). Temporary piezometers were installed in 1997 (PZ-1 and PZ-2). Monitoring wells MW-2 and MW-3 have been dry since 2009. Free product recovery has been periodically conducted at the Site, but no free product was observed in 2016. Currently, groundwater sampling is conducted on a semi-annual basis.

SUMMARY OF 2016 ACTIVITIES

On April 16 and October 16, 2016, water levels were gauged at MW-1, MW-2, and MW-3. Monitoring wells MW-2 and MW-3 were dry on both dates.

During the April 2016 event, free product was not observed in MW-1 and a HydraSleeve™ (HydraSleeve) no-purge groundwater sampling device was installed in MW-1. The HydraSleeve was set approximately 0.5 foot above termination depth of the monitoring well using a suspension tether and a stainless steel weight to collect a sample from the screened interval. As a HydraSleeve had not previously been installed in the well due to the presence of measureable free product in 2015, a groundwater sample was not collected during this event.

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During the October 2016 event, a groundwater sample was collected from MW-1. The groundwater sample was placed into laboratory-supplied sample containers, packed on ice, and shipped under standard chain-of-custody protocols to TestAmerica Laboratories, Inc. in Pensacola, Florida where they were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional field parameters are collected from the excess sample water recovered by the HydraSleeve. Excess sample water is poured into a YSI multi-parameter instrument sample cup and analyzed. Field parameters include dissolved oxygen, temperature, conductivity, pH, and oxidation-reduction potential. Field parameters are not collected if free product is present. The unused sample water is combined in a waste container and taken to Basin Disposal, Inc. for disposal.

SUMMARY TABLES

Historic analytical and water level data are summarized in Table 1 and Table 2, respectively.

SITE MAPS

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

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix A.

GROUNDWATER RESULTS

- The groundwater flow direction cannot be determined. MW-1 is the only monitoring well where measurable groundwater elevation is present (see Figures 2 and 4).
- Benzene was not detected in the sample collected from MW-1 in 2016.
- Toluene was not detected in the sample collected from MW-1 in 2016.
- Ethylbenzene was not detected in the sample collected from MW-1 in 2016.
- Total xylenes was not detected in the sample collected from MW-1 in 2016.

PLANNED FUTURE ACTIVITIES

Additional monitoring wells are planned for future installation at the Site, and a work plan to complete these activities will be submitted to the NMOCD under separate cover. 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

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will be installed around the known extent of dissolved-phase hydrocarbons in order to better delineate impacts from the former pit. Monitoring wells MW-2 and MW-3 will be plugged and abandoned. Plugging activities will be completed in accordance with NMED, Ground Water Quality Bureau, Monitoring Well Construction and Abandonment Guidelines, dated March 2011. Groundwater monitoring events will be conducted on a semi-annual basis. The 2017 Annual Report will be submitted in early 2018.

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TABLES

TABLE 1 – GROUNDWATER ANALYTICAL RESULTS

TABLE 2 – GROUNDWATER ELEVATION RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL REPORT

LAT 0-21 Line Drip					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-1	11/06/95	935	2700	168	1890
MW-1	11/12/96	741	1620	99	1100
MW-1	02/11/97	202	313	15.6	230
MW-1	05/08/97	1050	1220	50.8	764
MW-1	08/05/97	99.5	179	8.42	160
MW-1	11/04/97	1370	3040	174	2530
MW-1	02/03/98	3000	3600	138	2180
MW-1	05/07/98	5380	7500	247	3500
MW-1	05/18/99	4860	6810	183	3450
MW-1	05/26/00	620	900	49	580
MW-1	06/18/01	1400	2000	37	2500
MW-1	06/04/02	270	170	12	1900
MW-1	09/10/02	NS	NS	NS	NS
MW-1	12/30/02	NS	NS	NS	NS
MW-1	03/27/03	NS	NS	NS	NS
MW-1	06/18/03	137	<10	<10	1730
MW-1	09/16/03	NS	NS	NS	NS
MW-1	12/17/03	NS	NS	NS	NS
MW-1	03/16/04	NS	NS	NS	NS
MW-1	06/22/04	NS	NS	NS	NS
MW-1	06/23/04	59.9	11.8	23.8	44.1
MW-1	09/21/04	NS	NS	NS	NS
MW-1	12/21/04	NS	NS	NS	NS

TABLE 1 - GROUNDWATER ANALYTICAL REPORT

LAT 0-21 Line Drip					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-1	04/18/05	66.6	9.3	21.5	56.5
MW-1	10/22/05	8.9	1.4	5.6	9.1
MW-1	01/19/06	37.6	3.6	17.4	42
MW-1	04/24/06	81.4	24.5	21.8	152
MW-1	10/24/06	9.4	1.7	2.3	8.2
MW-1	01/19/07	28.7	5.5	7.3	19.8
MW-1	04/24/07	104	82.1	41	244
MW-1	05/29/07	NS	NS	NS	NS
MW-1	10/25/07	3.8	4	4.4	8.8
MW-1	04/21/08	11.6	1.6 J	5.7	15.1
MW-1	07/23/08	11.2	1.4	3.2	9.3
MW-1	10/08/08	7.6	0.61 J	1.6 J	5.8 J
MW-1	01/07/09	3.1	<1	1	2.6
MW-1	04/06/09	6	2.2	1.6	6.2
MW-1	07/27/09	6.8	0.86 J	1.6	4.8
MW-1	06/06/13	<0.42	<0.90	69	1000
MW-1	09/09/13	NS	NS	NS	NS
MW-1	12/12/13	NS	NS	NS	NS
MW-1	04/02/14	NS	NS	NS	NS
MW-1	10/23/14	NS	NS	NS	NS
MW-1	05/30/15	NS	NS	NS	NS
MW-1	11/19/15	NS	NS	NS	NS
MW-1	04/16/16	NS	NS	NS	NS
MW-1	10/13/16	<1.0	<5.0	<1.0	<5.0

TABLE 1 - GROUNDWATER ANALYTICAL REPORT

LAT 0-21 Line Drip					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-2	08/30/00	1.3	<0.5	<0.5	9.5
MW-2	06/18/01	<0.5	<0.5	<0.5	2
MW-2	06/04/02	<0.5	<0.5	<0.5	<1
MW-2	09/10/02	NS	NS	NS	NS
MW-2	12/30/02	NS	NS	NS	NS
MW-2	03/27/03	NS	NS	NS	NS
MW-2	06/18/03	<1	<1	<1	<3
MW-2	06/18/03	NS	NS	NS	NS
MW-2	09/16/03	NS	NS	NS	NS
MW-2	12/17/03	NS	NS	NS	NS
MW-2	03/16/04	NS	NS	NS	NS
MW-2	06/22/04	NS	NS	NS	NS
MW-2	06/23/04	<0.5	<0.5	<0.5	<1
MW-2	09/21/04	NS	NS	NS	NS
MW-2	12/21/04	NS	NS	NS	NS
MW-2	04/18/05	NS	NS	NS	NS
MW-2	10/22/05	NS	NS	NS	NS
MW-2	01/19/06	NS	NS	NS	NS
MW-2	04/24/06	NS	NS	NS	NS
MW-2	10/24/06	NS	NS	NS	NS
MW-2	01/18/07	NS	NS	NS	NS
MW-2	04/24/07	NS	NS	NS	NS
MW-2	05/29/07	NS	NS	NS	NS
MW-2	10/25/07	NS	NS	NS	NS
MW-2	04/21/08	NS	NS	NS	NS
MW-2	07/23/08	NS	NS	NS	NS
MW-2	10/08/08	NS	NS	NS	NS
MW-2	01/07/09	<1	<1	<1	<2
MW-2	07/27/09	<1	<1	<1	<2
MW-2	06/06/13	NS	NS	NS	NS
MW-2	09/09/13	NS	NS	NS	NS
MW-2	12/12/13	NS	NS	NS	NS
MW-2	04/02/14	NS	NS	NS	NS
MW-2	10/23/14	NS	NS	NS	NS
MW-2	05/30/15	NS	NS	NS	NS
MW-2	11/19/15	NS	NS	NS	NS
MW-2	04/16/16	NS	NS	NS	NS
MW-2	10/13/16	NS	NS	NS	NS

TABLE 1 - GROUNDWATER ANALYTICAL REPORT

LAT 0-21 Line Drip					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-3	08/30/00	190	20	37	460
MW-3	06/18/01	34	4.7	68	130
MW-3	06/04/02	5.7	0.52	19	30
MW-3	09/10/02	NS	NS	NS	NS
MW-3	12/30/02	NS	NS	NS	NS
MW-3	03/27/03	NS	NS	NS	NS
MW-3	06/18/03	<50	<50	540	6490
MW-3	09/16/03	NS	NS	NS	NS
MW-3	12/17/03	NS	NS	NS	NS
MW-3	03/16/04	NS	NS	NS	NS
MW-3	06/22/04	NS	NS	NS	NS
MW-3	06/23/04	3.3	28.9	34	48.4
MW-3	09/21/04	NS	NS	NS	NS
MW-3	12/21/04	NS	NS	NS	NS
MW-3	04/18/05	<1	<1	5.3	<2
MW-3	10/22/05	<1	<1	<1	1.1
MW-3	01/19/06	<1	<1	<1	<2
MW-3	04/24/06	<1	<1	<1	<2
MW-3	10/24/06	<1	<1	<1	1.2 J
MW-3	01/19/07	<1	<1	<1	<2
MW-3	04/24/07	<1	<1	<1	<2
MW-3	05/29/07	NS	NS	NS	NS
MW-3	10/25/07	<1	<1	<1	<2
MW-3	04/21/08	<2	<2	<2	<6

TABLE 1 - GROUNDWATER ANALYTICAL REPORT

LAT 0-21 Line Drip					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-3	07/23/08	<1	<1	<1	2.3
MW-3	10/08/08	<2	<2	<2	<6
MW-3	01/07/09	<1	<1	0.44 J	2.2
MW-3	04/06/09	NS	NS	NS	NS
MW-3	07/27/09	NS	NS	NS	NS
MW-3	06/06/13	NS	NS	NS	NS
MW-3	09/09/13	NS	NS	NS	NS
MW-3	12/12/13	NS	NS	NS	NS
MW-3	04/02/14	NS	NS	NS	NS
MW-3	10/23/14	NS	NS	NS	NS
MW-3	05/30/15	NS	NS	NS	NS
MW-3	11/19/15	NS	NS	NS	NS
MW-3	04/16/16	NS	NS	NS	NS
MW-3	10/13/16	NS	NS	NS	NS

Notes:

"µg/L" = micrograms per liter

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

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

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

"NS" = Monitoring well not sampled

TABLE 2 - GROUNDWATER ELEVATION RESULTS

LAT 0-21 Line Drip						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	11/06/95	5816.10	34.45	NR		5781.65
MW-1	11/12/96	5816.10	34.75	NR		5781.35
MW-1	02/11/97	5816.10	33.82	NR		5782.28
MW-1	05/08/97	5816.10	33.54	NR		5782.56
MW-1	08/05/97	5816.10	34.20	NR		5781.90
MW-1	11/04/97	5816.10	35.42	NR		5780.68
MW-1	02/03/98	5816.10	35.08	NR		5781.02
MW-1	05/07/98	5816.10	34.83	NR		5781.27
MW-1	05/18/99	5816.10	34.64	NR		5781.46
MW-1	05/26/00	5816.10	34.76	NR		5781.34
MW-1	06/18/01	5816.10	35.60	NR		5780.50
MW-1	06/04/02	5816.10	35.98	NR		5780.12
MW-1	09/10/02	5816.10	37.15	36.85	0.30	5779.18
MW-1	12/30/02	5816.10	36.39	36.08	0.31	5779.94
MW-1	03/27/03	5816.10	35.96	ND		5780.14
MW-1	06/18/03	5816.10	36.26	ND		5779.84
MW-1	09/16/03	5816.10	37.06	ND		5779.04
MW-1	12/17/03	5816.10	36.72	ND		5779.38
MW-1	03/16/04	5816.10	36.22	ND		5779.88
MW-1	06/22/04	5816.10	36.38	ND		5779.72
MW-1	06/23/04	5816.10	36.38	ND		5779.72
MW-1	09/21/04	5816.10	37.43	ND		5778.67
MW-1	12/21/04	5816.10	36.98	ND		5779.12
MW-1	04/18/05	5816.10	35.93	ND		5780.17

TABLE 2 - GROUNDWATER ELEVATION RESULTS

LAT 0-21 Line Drip						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	10/22/05	5816.10	36.99	ND		5779.11
MW-1	01/19/06	5816.10	36.18	ND		5779.92
MW-1	04/24/06	5816.10	35.71	ND		5780.39
MW-1	10/24/06	5816.10	36.81	ND		5779.29
MW-1	01/19/07	5816.10	36.14	ND		5779.96
MW-1	04/24/07	5816.10	35.73	ND		5780.37
MW-1	05/29/07	5816.10	36.90	ND		5779.20
MW-1	10/25/07	5816.10	37.39	ND		5778.71
MW-1	04/21/08	5816.10	35.97	ND		5780.13
MW-1	07/23/08	5816.10	36.55	ND		5779.55
MW-1	10/08/08	5816.10	36.88	ND		5779.22
MW-1	01/07/09	5816.10	36.52	ND		5779.58
MW-1	04/06/09	5816.10	36.03	ND		5780.07
MW-1	07/27/09	5816.10	36.83	ND		5779.27
MW-1	06/06/13	5816.10	39.98	39.91	0.07	5776.17
MW-1	09/09/13	5816.10	40.04	39.77	0.27	5776.26
MW-1	12/12/13	5816.10	39.39	39.32	0.07	5776.76
MW-1	04/02/14	5816.10	39.01	38.99	0.02	5777.11
MW-1	10/23/14	5816.10	40.09	40.07	0.02	5776.03
MW-1	05/30/15	5816.10	39.49	39.48	0.01	5776.62
MW-1	11/19/15	5816.10	39.86	39.85	0.01	5776.25
MW-1	04/16/16	5816.10	39.40	ND		5776.70
MW-1	10/13/16	5816.10	40.54	ND		5775.56

TABLE 2 - GROUNDWATER ELEVATION RESULTS

LAT 0-21 Line Drip						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-2	08/30/00	5813.91	33.62	NR		5780.29
MW-2	06/18/01	5813.91	33.16	NR		5780.75
MW-2	06/04/02	5813.91	33.42	NR		5780.49
MW-2	09/10/02	5813.91	41.48	NR		5772.43
MW-2	12/30/02	5813.91	33.91	NR		5780.00
MW-2	03/27/03	5813.91	33.45	ND		5780.46
MW-2	06/18/03	5813.91	33.80	ND		5780.11
MW-2	06/18/03	5813.91	34.61	ND		5779.30
MW-2	09/16/03	5813.91	34.23	ND		5779.68
MW-2	12/17/03	5813.91	33.70	ND		5780.21
MW-2	03/16/04	5813.91	33.92	ND		5779.99
MW-2	06/22/04	5813.91	33.92	ND		5779.99
MW-2	06/23/04	5813.91	34.99	ND		5778.92
MW-2	09/21/04	5813.91	34.49	ND		5779.42
MW-2	12/21/04	5813.91	33.40	ND		5780.51
MW-2	04/18/05	5813.91	34.49	ND		5779.42
MW-2	10/22/05	5813.91	33.68	ND		5780.23
MW-2	01/19/06	5813.91	33.21	ND		5780.70
MW-2	04/24/06	5813.91	34.31	ND		5779.60
MW-2	10/24/06	5813.91	33.66	ND		5780.25
MW-2	01/18/07	5813.91	32.70	ND		5781.21
MW-2	04/24/07	5813.91	33.44	ND		5780.47
MW-2	05/29/07	5813.91	34.78	ND		5779.13
MW-2	10/25/07	5813.91	33.45	ND		5780.46
MW-2	04/21/08	5813.91	34.10	ND		5779.81
MW-2	07/23/08	5813.91	34.45	ND		5779.46
MW-2	10/08/08	5813.91	34.03	ND		5779.88
MW-2	01/07/09	5813.91	33.53	ND		5780.38
MW-2	07/27/09	5813.91	34.42	ND		5779.49
MW-2	06/06/13	5813.91	DRY	ND		DRY
MW-2	09/09/13	5813.91	DRY	ND		DRY
MW-2	12/12/13	5813.91	DRY	ND		DRY
MW-2	04/02/14	5813.91	DRY	ND		DRY
MW-2	10/23/14	5813.91	DRY	ND		DRY
MW-2	05/30/15	5813.91	DRY	ND		DRY
MW-2	11/19/15	5813.91	DRY	ND		DRY
MW-2	04/16/16	5813.91	DRY	ND		DRY
MW-2	10/13/16	5813.91	DRY	ND		DRY

TABLE 2 - GROUNDWATER ELEVATION RESULTS

LAT 0-21 Line Drip						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-3	08/30/00	5814.64	34.56	NR		5780.08
MW-3	06/18/01	5814.64	34.14	NR		5780.50
MW-3	06/04/02	5814.64	34.42	NR		5780.22
MW-3	09/10/02	5814.64	35.92	35.29	0.64	5779.20
MW-3	12/30/02	5814.64	34.97	34.42	0.55	5780.08
MW-3	03/27/03	5814.64	34.49	ND		5780.15
MW-3	06/18/03	5814.64	34.80	ND		5779.84
MW-3	09/16/03	5814.64	35.64	35.62	0.02	5779.02
MW-3	12/17/03	5814.64	35.24	ND		5779.40
MW-3	03/16/04	5814.64	34.75	ND		5779.89
MW-3	06/22/04	5814.64	34.95	ND		5779.69
MW-3	06/23/04	5814.64	34.95	ND		5779.69
MW-3	09/21/04	5814.64	35.95	ND		5778.69
MW-3	12/21/04	5814.64	35.51	ND		5779.13
MW-3	04/18/05	5814.64	34.48	ND		5780.16
MW-3	10/22/05	5814.64	35.52	ND		5779.12
MW-3	01/19/06	5814.64	34.71	ND		5779.93
MW-3	04/24/06	5814.64	34.23	ND		5780.41
MW-3	10/24/06	5814.64	35.33	ND		5779.31
MW-3	01/19/07	5814.64	34.66	ND		5779.98
MW-3	04/24/07	5814.64	33.25	ND		5781.39
MW-3	05/29/07	5814.64	34.42	ND		5780.22
MW-3	10/25/07	5814.64	35.88	ND		5778.76
MW-3	04/21/08	5814.64	34.50	ND		5780.14
MW-3	07/23/08	5814.64	35.06	ND		5779.58
MW-3	10/08/08	5814.64	35.41	ND		5779.23
MW-3	01/07/09	5814.64	35.05	ND		5779.59
MW-3	04/06/09	5814.64	34.53	ND		5780.11
MW-3	07/27/09	5814.64	DRY	ND		DRY
MW-3	06/06/13	5814.64	DRY	ND		DRY
MW-3	09/09/13	5814.64	DRY	ND		DRY
MW-3	12/12/13	5814.64	DRY	ND		DRY
MW-3	04/02/14	5814.64	DRY	ND		DRY
MW-3	10/23/14	5814.64	DRY	ND		DRY
MW-3	05/30/15	5814.64	DRY	ND		DRY
MW-3	11/19/15	5814.64	DRY	ND		DRY
MW-3	04/16/16	5814.64	DRY	ND		DRY
MW-3	10/13/16	5814.64	DRY	ND		DRY

Notes:

"ft" = feet

"TOC" = Top of casing

"LNAPL" = Light non-aqueous phase liquid

"ND" = LNAPL not detected

"NR" = LNAPL not recorded

FIGURES

FIGURE 1: APRIL 16, 2016 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: APRIL 16, 2016 GROUNDWATER ELEVATION MAP

FIGURE 3: OCTOBER 13, 2016 GROUNDWATER ANALYTICAL RESULTS MAP

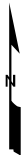
FIGURE 4: OCTOBER 13, 2016 GROUNDWATER ELEVATION MAP



AERIAL IMAGERY FROM GOOGLE EARTH, DATED 5/2/2013

LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- OVERHEAD ELECTRIC LINE
- NATURAL GAS LINE
- MONITORING WELL
- SMA BENCHMARK
- NS NOT SAMPLED



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	11/28/2016	SLG	SLG	SRV

TITLE:
**GROUNDWATER ANALYTICAL RESULTS
APRIL 16, 2016**

PROJECT: **LAT 0-21
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



Figure No.:
1



LEGEND:

- APPROXIMATE GROUND SURFACE
CONTOUR AND ELEVATION, FEET**
- 5846**
- O—O—O— OVERHEAD ELECTRIC LINE
- G—A—S— GAS LINE
- +— MONITORING WELL
- ▲ SMA BENCHMARK

NOTES:

5776.62 GROUNDWATER ELEVATION
CORRECTED FOR PRODUCT THICKNESS
(FEET ABOVE MEAN SEA LEVEL).

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	5/6/2016	SLG	SLG	SRV

TITLE:

GROUNDWATER ELEVATION MAP
APRIL 16, 2016

PROJECT:

LAT 0-21
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO



Figure No.:

2



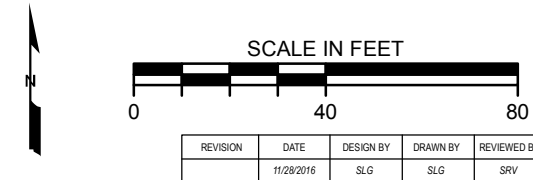


LEGEND:

- 5816 APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- OVHD OVERHEAD ELECTRIC LINE
- GAS NATURAL GAS LINE
- MONITORING WELL
- SMA BENCHMARK

NOTES:

GROUNDWATER ELEVATION
CORRECTED FOR PRODUCT THICKNESS
(FEET ABOVE MEAN SEA LEVEL).



REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	11/28/2016	SLG	SLG	SRV

TITLE:
**GROUNDWATER ELEVATION MAP
OCTOBER 13, 2016**

PROJECT: **LAT 0-21
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO**



Figure No.:

4

APPENDIX A

OCTOBER 27, 2016 GROUNDWATER SAMPLING ANALYTICAL REPORT

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

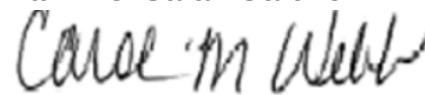
TestAmerica Job ID: 400-128736-1

Client Project/Site: Lat 0-21

For:

MWH Americas Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner



Authorized for release by:
10/27/2016 10:47:53 AM

Carol Webb, Project Manager II
(850)471-6250
carol.webb@testamericainc.com

LINKS

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results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAP 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: Lat 0-21

TestAmerica Job ID: 400-128736-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits

Glossary

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

Case Narrative

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Job ID: 400-128736-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-128736-1

Comments

No additional comments.

Receipt

The samples were received on 10/15/2016 9:37 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.9° C.

GC VOA

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

VOA Prep

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

Detection Summary

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Client Sample ID: MW-1

Lab Sample ID: 400-128736-1

☐ No Detections.

Client Sample ID: TB

Lab Sample ID: 400-128736-2

☐ No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Sample Summary

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-128736-1	MW-1	Water	10/13/16 15:58	10/15/16 09:37
400-128736-2	TB	Water	10/13/16 00:00	10/15/16 09:37

1

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Client Sample Results

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Client Sample ID: MW-1

Date Collected: 10/13/16 15:58

Date Received: 10/15/16 09:37

Lab Sample ID: 400-128736-1

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 19:47	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 19:47	1
Toluene	<5.0		5.0	ug/L			10/25/16 19:47	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 19:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124				10/25/16 19:47	1

Client Sample Results

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Client Sample ID: TB

Date Collected: 10/13/16 00:00

Date Received: 10/15/16 09:37

Lab Sample ID: 400-128736-2

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 15:33	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 15:33	1
Toluene	<5.0		5.0	ug/L			10/25/16 15:33	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 15:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	95		78 - 124				10/25/16 15:33	1

QC Association Summary

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

GC VOA

Analysis Batch: 328065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-128736-1	MW-1	Total/NA	Water	8021B	
400-128736-2	TB	Total/NA	Water	8021B	
MB 400-328065/34	Method Blank	Total/NA	Water	8021B	
LCS 400-328065/1043	Lab Control Sample	Total/NA	Water	8021B	
400-128758-B-12 MS	Matrix Spike	Total/NA	Water	8021B	
400-128758-B-12 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

QC Sample Results

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 400-328065/34

Matrix: Water

Analysis Batch: 328065

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0	ug/L			10/25/16 08:33	1
Ethylbenzene	<1.0		1.0	ug/L			10/25/16 08:33	1
Toluene	<5.0		5.0	ug/L			10/25/16 08:33	1
Xylenes, Total	<5.0		5.0	ug/L			10/25/16 08:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (pid)	94		78 - 124		10/25/16 08:33	1

Lab Sample ID: LCS 400-328065/1043

Matrix: Water

Analysis Batch: 328065

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	46.9		ug/L		94	85 - 115
Ethylbenzene	50.0	47.4		ug/L		95	85 - 115
Toluene	50.0	47.4		ug/L		95	85 - 115
Xylenes, Total	150	138		ug/L		92	85 - 115

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

Lab Sample ID: 400-128758-B-12 MS

Matrix: Water

Analysis Batch: 328065

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<1.0		50.0	50.7		ug/L		101	44 - 150
Ethylbenzene	<1.0		50.0	45.0		ug/L		90	70 - 142
Toluene	<5.0		50.0	47.5		ug/L		95	69 - 136
Xylenes, Total	<5.0	F2	150	132		ug/L		88	68 - 142

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

Lab Sample ID: 400-128758-B-12 MSD

Matrix: Water

Analysis Batch: 328065

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	54.0		ug/L		108	44 - 150	6	16
Ethylbenzene	<1.0		50.0	52.9		ug/L		106	70 - 142	16	16
Toluene	<5.0		50.0	52.8		ug/L		106	69 - 136	11	16
Xylenes, Total	<5.0	F2	150	156	F2	ug/L		104	68 - 142	16	15

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

TestAmerica Pensacola

Lab Chronicle

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Client Sample ID: MW-1

Date Collected: 10/13/16 15:58

Date Received: 10/15/16 09:37

Lab Sample ID: 400-128736-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328065	10/25/16 19:47	SAB	TAL PEN
Instrument ID: CH_JOAN										

Client Sample ID: TB

Date Collected: 10/13/16 00:00

Date Received: 10/15/16 09:37

Lab Sample ID: 400-128736-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	328065	10/25/16 15:33	SAB	TAL PEN
Instrument ID: CH_JOAN										

Laboratory References:

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

Certification Summary

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-17
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-16
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-16 *
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17

* Certification renewal pending - certification considered valid.

TestAmerica Pensacola

Method Summary

Client: MWH Americas Inc
Project/Site: Lat 0-21

TestAmerica Job ID: 400-128736-1

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

Protocol References:

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

Laboratory References:

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

[illegible]

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 400-128736-1

Login Number: 128736

List Source: TestAmerica Pensacola

List Number: 1

Creator: Chambers, Cheryle A

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.9°C IR5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	