2017 ANNUAL GROUNDWATER REPORT

Gallegos Canyon Unit #124E
NMOCD Case#: 3RP-407-0
Meter Code: 95608
T28N, R12W, Sec 35, Unit N

SITE DETAILS

Site Location: Latitude: 36.614105 N, Longitude: -108.083662 W
Land Type: Navajo
Operator: BP America Production Company

SITE BACKGROUND

Environmental Remediation activities at the Gallegos Canyon Unit #124E (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 NMOCD approval conditions were adopted into El Paso CGP Company (EPCGP's) program methods. Currently, the Site is operated by BP America Production Company and is active.

The Site is located on Navajo Agricultural Products Industry land. An initial site assessment was completed in January 1995, and an excavation to approximately 12 feet below ground surface (bgs) was completed in October 1995, removing approximately 196 cubic yards (cy) of soil. Various site investigations have occurred since 1995. Monitoring wells were installed in 1995 (MW-1) and 2013 (MW-2 through MW-7). Monitoring well MW-2 was plugged and abandoned on January 19, 2014. Currently, groundwater sampling is conducted on a semi-annual basis. In 2017, free product was observed in monitoring well MW-1 and approximately 0.20 milliliters was removed by hand-bailing.

GROUNDWATER SAMPLING ACTIVITIES

Pursuant to the Remediation Plan, Stantec provided field work notifications via email to the NMOCD on May 30, 2017 and November 6, 2017, prior to initiating groundwater sampling activities at the Site. Copies of the 2017 NMOCD notifications are provided in Appendix A. On June 10 and November 11, 2017, water levels were gauged at MW-1, MW-3, MW-4, MW-5, MW-6, and MW-7. Groundwater samples were collected from MW-3, MW-4, MW-5, MW-6, and MW-7 using HydraSleeve™ (HydraSleeve) no-purge 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 Pensacola, Florida where they were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). As requested by the OCD on November 13, 2018, BTEX constituents were analyzed using United States Environmental Protection Agency (EPA) Method 8260 during the November sampling event. The unused sample water is

combined in a waste container and taken to Basin Disposal, Inc. for disposal. Waste disposal documentation was included as Appendix B.

FREE PRODUCT RECOVERY

Free product was observed in monitoring well MW-1 during both semi-annual sampling events. In June 2017, 0.10 feet of product was observed and 20 milliliters (mL) were recovered by hand-bailing. In November 2017, 0.01 feet of product was observed and a trace amount was recovered by hand-bailing. The recovered free product was disposed of with wastewater generated during monitoring well sampling activities.

Mobile dual phase extraction (MDPE) events were completed on July 20 through 23, September 21 through 22, and September 26 through 27, 2017, by AcuVac Remediation, LLC, of Houston, Texas (AcuVac). The purpose of the MDPE events was to evaluate more aggressive free product recovery methods from monitoring well MW-1. MDPE is a process combining soil vapor extraction (SVE) with groundwater depression to enhance the removal of liquid and vapor phase hydrocarbons. A submersible pump is used to simultaneously remove dissolved-phase contaminated groundwater, inducing a hydraulic gradient toward the extraction well, and creating groundwater depression to expose the hydrocarbon smear zone to SVE. Recovered liquids were transferred to a portable storage tank for off-site disposal. Recovered vapors were used as fuel and burned in the MDPE internal combustion engine (ICE), resulting in little to no emissions. Power generated by the ICE is used to create the induced vacuum for SVE.

Three MDPE events were completed, one 72-hour event and two 24-hour events using MW-1 as an extraction well. Based on field data collected by AcuVac, approximately 10.4 gallons of hydrocarbons were recovered from MW-1 during event #1, approximately 1.7 gallons of hydrocarbons were recovered during event #2A, and approximately 1.9 gallons of hydrocarbons were recovered during event #2B. AcuVac's report summarizing the MDPE events at the Site is presented as Appendix C. Recovered fluids from the MDPE event where transported to Basin for disposal. Waste disposal documentation is included as Appendix B.

SUMMARY TABLES

Historic analytical and water level data are summarized in Table 1 and Table 2, respectively. When free product was present, static water level elevations were corrected for measurable thicknesses of free product (specific gravity of 0.75).

SITE MAPS

Groundwater analytical maps (Figures 1 and 3) and groundwater elevation contour maps (Figures 2 and 4) summarize results of the 2017 groundwater sampling and gauging events.

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix D.

GROUNDWATER RESULTS

- The groundwater elevations indicate the flow direction at the Site was to the north in June and to the west-southwest in November (see Figures 2 and 4).
- Free product was observed in MW-1 in 2017 sampling events. No samples were collected from MW-1 in 2017.
- Concentrations of benzene were either below the New Mexico Water Quality Control Commission (NMWQCC) standard (10 micrograms per liter [µg/L]) or not detected in any of the Site monitoring wells sampled in 2017.
- Concentrations of toluene were not detected in any of the Site monitoring wells sampled in 2017.
- Concentrations of ethylbenzene were either below the NMWQCC standard (750 µg/L) or not detected in any of the Site monitoring wells sampled in 2017.
- Concentrations of total xylenes were not detected in any of the Site monitoring wells sampled in 2017.

PLANNED FUTURE ACTIVITIES

Groundwater monitoring events will continue to be conducted on a semi-annual basis. Groundwater samples will be collected from monitoring wells not containing free product and analyzed for BTEX constituents using EPA Method 8260. No additional activities are planned for 2018 at this time.

The activities completed in 2018 and their results will be summarized in the 2018 Annual Report, completed for submittal in early 2019.

TABLES

TABLE 1 – GROUNDWATER ANALYTICAL RESULTS

TABLE 2 – GROUNDWATER ELEVATION RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Gallegos Canyon Unit #124E					
Location	**Date**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NMWQCC Standards:		10	750	750	620
MW-1	06/25/98	340	271	111	510
MW-1	09/14/98	410	251	68.3	220
MW-1	12/15/98	710	1300	160	940
MW-1	03/16/99	2960	5130	367	2890
MW-1	04/19/05	38.8	<1	142	1160
MW-1	07/20/05	125	11.4	371	2640
MW-1	10/20/05	86.8	11.3	125	864
MW-1	01/19/06	77.9	12	101	656
MW-1	04/24/06	45.1	3.5 J	56.1	377
MW-1	07/31/06	60.8	1.5 J	79.3	524
MW-1	10/24/06	21.1	<1	56.6	349
MW-1	01/19/07	22.4	<1	60	367
MW-1	04/24/07	30.3	<1	60.6	407
MW-1	07/31/07	35.3	<2	68.4	416
MW-1	10/25/07	9	<1	33.2	173
MW-1	01/28/08	6	<2	41.6	210
MW-1	04/23/08	14.1	0.59 J	50.1	360
MW-1	07/23/08	72.7	6.7	65.8	210
MW-1	10/08/08	194	<50	43.6 J	328
MW-1	01/07/09	281	6 J	110	653
MW-1	08/25/09	57.9	8.8 J	58.4	298
MW-1	02/15/10	98.3	4.1	80.6	385
MW-1	09/27/10	159	<2	56.4	348
MW-1	02/01/11	109	0.28 J	54.1	436
MW-1	09/23/11	288	<1	116	1020
MW-1	02/22/12	255	<5	145	853
MW-1	06/04/13	33	<0.60	11	0.86
MW-1	09/11/13	25	<0.30	9.8	8.9
MW-1	12/15/13	87	<0.30	50	100
MW-1	04/05/14	31	6.2	23	15
MW-2	12/15/13	<0.14	<0.30	<0.20	<0.23
MW-2	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-2	10/25/14	<0.38	<0.70	<0.50	<1.6
MW-2	Well abandoned 1/19/2014				

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Gallegos Canyon Unit #124E					
Location	**Date**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NMWQCC Standards:		10	750	750	620
MW-3	12/15/13	4.1	<0.30	7.4	27
MW-3	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-3	10/25/14	<0.38	<0.70	<0.50	<1.6
MW-3	05/31/15	<1.0	<5.0	<1.0	<5.0
MW-3	11/22/15	<1.0	<1.0	<1.0	<3.0
MW-3	04/18/16	<1.0	<5.0	<1.0	<5.0
MW-3	10/14/16	<1.0	<5.0	<1.0	<5.0
MW-3	06/10/17	<1.0	<5.0	<1.0	<5.0
MW-3	11/11/17	<1.0	<1.0	<1.0	<10
MW-4	12/15/13	<0.14	<0.30	0.28 J	1.4 J
MW-4	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-4	10/25/14	<0.38	<0.70	<0.50	<1.6
MW-4	05/31/15	<1.0	<5.0	<1.0	<5.0
MW-4	11/22/15	<1.0	<1.0	<1.0	<3.0
MW-4	04/18/16	<1.0	<5.0	<1.0	<5.0
MW-4	10/14/16	<1.0	<5.0	<1.0	<5.0
MW-4	06/10/17	<1.0	<5.0	<1.0	<5.0
MW-4	11/11/17	<1.0	<1.0	4	<10
MW-5	12/15/13	9.3	<0.30	53	32
MW-5	04/05/14	11	5.8	13	<0.65
MW-5	10/25/14	5.9	<0.70	5.2	<1.6
MW-5	05/31/15	0.65 J	<5.0	<1.0	<5.0
MW-5	11/22/15	1.6	<1.0	2.7	<3.0
MW-5	04/18/16	<1.0	<5.0	<1.0	<5.0
MW-5	10/14/16	<1.0	<5.0	3.6	<5.0
MW-5	06/10/17	1	<5.0	6.5	<5.0
MW-5	11/11/17	2.1	<1.0	14	<10
MW-6	12/15/13	<0.14	<0.30	<0.20	2.0 J
MW-6	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-6	10/25/14	<0.38	<0.70	<0.50	<1.6
MW-6	05/31/15	<1.0	<5.0	<1.0	<5.0
MW-6	11/22/15	<1.0	<1.0	<1.0	<3.0
MW-6	04/18/16	<1.0	<5.0	<1.0	<5.0
MW-6	10/14/16	<1.0	<5.0	<1.0	<5.0
MW-6	06/10/17	<1.0	<5.0	<1.0	<5.0
MW-6	11/11/17	<1.0	<1.0	<1.0	<10

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Gallegos Canyon Unit #124E					
Location	**Date**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NMWQCC Standards:		10	750	750	620
MW-7	12/15/13	<0.14	<0.30	<0.20	<0.23
MW-7	04/05/14	<0.20	<0.38	<0.20	<0.65
MW-7	10/25/14	<0.38	<0.70	<0.50	<1.6
MW-7	05/31/15	<1.0	<5.0	<1.0	<5.0
MW-7	11/22/15	<1.0	<1.0	<1.0	<3.0
MW-7	11/11/17	<1.0	<1.0	<1.0	<10

Notes:

The groundwater monitoring dates for each monitoring well where no groundwater samples were collected and analyzed have been omitted.

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 in an approximate value.

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

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Gallegos Canyon Unit #124E						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	06/25/98	5949.45	27.21	NR		5922.24
MW-1	09/14/98	5949.45	27.50	NR		5921.95
MW-1	12/15/98	5949.45	28.16	27.61	0.55	5921.70
MW-1	03/16/99	5949.45	29.02	27.60	1.42	5921.50
MW-1	10/05/00	5949.45	29.46	29.04	0.42	5920.31
MW-1	11/15/00	5949.45	28.93	28.93		5920.52
MW-1	12/20/00	5949.45	28.98	NR		5920.47
MW-1	01/09/01	5949.45	29.21	29.18	0.03	5920.26
MW-1	01/15/01	5949.45	29.07	29.04	0.03	5920.40
MW-1	01/22/01	5949.45	28.99	NR		5920.46
MW-1	01/30/01	5949.45	29.09	NR		5920.36
MW-1	03/12/01	5949.45	29.26	NR		5920.19
MW-1	06/05/01	5949.45	29.32	29.28	0.04	5920.16
MW-1	07/13/01	5949.45	29.65	NR		5919.80
MW-1	08/02/01	5949.45	29.53	NR		5919.92
MW-1	08/31/01	5949.45	29.27	NR		5920.18
MW-1	09/21/01	5949.45	29.33	NR		5920.12
MW-1	10/02/01	5949.45	28.98	NR		5920.47
MW-1	01/02/02	5949.45	28.96	28.85	0.11	5920.57
MW-1	01/07/02	5949.45	28.99	28.94	0.05	5920.50
MW-1	01/23/02	5949.45	29.35	26.35	3.00	5922.35
MW-1	01/30/02	5949.45	29.24	29.22	0.02	5920.23
MW-1	02/07/02	5949.45	29.70	29.66	0.04	5919.78
MW-1	02/14/02	5949.45	29.29	29.28	0.01	5920.17
MW-1	02/20/02	5949.45	29.76	29.75	0.01	5919.70
MW-1	03/04/02	5949.45	29.30	NR		5920.15
MW-1	03/11/02	5949.45	29.17	NR		5920.28
MW-1	03/21/02	5949.45	29.47	NR		5919.98
MW-1	03/28/02	5949.45	29.33	NR		5920.12
MW-1	04/03/02	5949.45	29.33	NR		5920.12
MW-1	04/12/02	5949.45	29.70	NR		5919.75
MW-1	04/18/02	5949.45	29.31	NR		5920.14
MW-1	04/25/02	5949.45	30.11	NR		5919.34
MW-1	05/03/02	5949.45	30.18	NR		5919.27
MW-1	05/10/02	5949.45	30.25	NR		5919.20
MW-1	05/17/02	5949.45	29.57	NR		5919.88
MW-1	05/24/02	5949.45	29.70	NR		5919.75
MW-1	05/31/02	5949.45	29.54	NR		5919.91
MW-1	06/07/02	5949.45	29.42	NR		5920.03
MW-1	06/12/02	5949.45	29.21	NR		5920.24

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Gallegos Canyon Unit #124E						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	06/21/02	5949.45	30.12	NR		5919.33
MW-1	06/27/02	5949.45	30.18	NR		5919.27
MW-1	07/02/02	5949.45	29.99	29.98	0.01	5919.47
MW-1	07/11/02	5949.45	30.06	NR		5919.39
MW-1	07/15/02	5949.45	29.63	NR		5919.82
MW-1	10/16/02	5949.45	29.65	29.24	0.41	5920.11
MW-1	01/15/03	5949.45	28.63	ND		5920.82
MW-1	05/05/03	5949.45	27.72	27.69	0.03	5921.75
MW-1	07/18/03	5949.45	27.08	27.06	0.02	5922.39
MW-1	01/29/04	5949.45	25.40	ND		5924.05
MW-1	04/15/04	5949.45	24.98	ND		5924.47
MW-1	07/26/04	5949.45	24.50	ND		5924.95
MW-1	10/15/04	5949.45	24.98	ND		5924.47
MW-1	01/17/05	5949.45	25.49	ND		5923.96
MW-1	04/19/05	5949.45	25.45	ND		5924.00
MW-1	07/20/05	5949.45	24.73	ND		5924.72
MW-1	10/20/05	5949.45	24.85	ND		5924.60
MW-1	01/19/06	5949.45	24.53	ND		5924.92
MW-1	04/24/06	5949.45	24.25	ND		5925.20
MW-1	07/31/06	5949.45	25.68	ND		5923.77
MW-1	10/24/06	5949.45	24.94	ND		5924.51
MW-1	01/19/07	5949.45	26.33	ND		5923.12
MW-1	04/24/07	5949.45	25.97	ND		5923.48
MW-1	07/31/07	5949.45	26.26	ND		5923.19
MW-1	10/25/07	5949.45	26.44	ND		5923.01
MW-1	01/28/08	5949.45	26.67	ND		5922.78
MW-1	04/23/08	5949.45	26.67	ND		5922.78
MW-1	07/23/08	5949.45	23.49	ND		5925.96
MW-1	10/08/08	5949.45	22.30	ND		5927.15
MW-1	01/07/09	5949.45	23.74	ND		5925.71
MW-1	08/25/09	5949.45	26.65	ND		5922.80
MW-1	11/03/09	5949.45	25.62	ND		5923.83
MW-1	02/15/10	5949.45	25.93	ND		5923.52
MW-1	05/24/10	5949.45	19.47	ND		5929.98
MW-1	09/27/10	5949.45	19.78	ND		5929.67
MW-1	11/01/10	5949.45	19.82	ND		5929.63
MW-1	02/01/11	5949.45	21.70	ND		5927.75
MW-1	05/02/11	5949.45	23.32	ND		5926.13
MW-1	09/23/11	5949.45	24.71	ND		5924.74
MW-1	02/22/12	5949.45	23.51	ND		5925.94

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Gallegos Canyon Unit #124E						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-1	05/07/12	5949.45	24.20	ND		5925.25
MW-1	06/04/13	5949.45	25.87	ND		5923.58
MW-1	09/11/13	5949.45	25.74	ND		5923.71
MW-1	12/15/13	5949.45	25.67	ND		5923.78
MW-1	04/05/14	5949.45	26.27	ND		5923.18
MW-1	10/25/14	5949.45	27.07	27.06	0.01	5922.39
MW-1	05/31/15	5946.73	24.70	24.70	0.00	5922.03
MW-1	11/22/15	5946.73	24.33	24.33	0.00	5922.40
MW-1	04/18/16	5946.73	24.99	24.92	0.07	5921.79
MW-1	10/14/16	5946.73	25.21	25.06	0.15	5921.63
MW-1	06/10/17	5946.73	25.50	25.40	0.10	5921.31
MW-1	11/11/17	5946.73	25.57	25.56	0.01	5921.17

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Gallegos Canyon Unit #124E						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-2	12/15/13	5950.12	26.46	ND		5923.66
MW-2	04/05/14	5950.12	27.05	ND		5923.07
MW-2	10/25/14	5950.12	27.84	ND		5922.28
MW-2	Well abandoned 1/19/2014					
MW-3	12/15/13	5949.84	26.02	ND		5923.82
MW-3	04/05/14	5949.84	26.59	ND		5923.25
MW-3	10/25/14	5949.84	27.37	ND		5922.47
MW-3	05/31/15	5946.94	24.82	ND		5922.12
MW-3	11/22/15	5946.94	24.50	ND		5922.44
MW-3	04/18/16	5946.94	25.12	ND		5921.82
MW-3	10/14/16	5946.94	25.36	ND		5921.58
MW-3	06/10/17	5946.94	25.61	ND		5921.33
MW-3	11/11/17	5946.94	25.72	ND		5921.22
MW-4	12/15/13	5949.57	25.62	ND		5923.95
MW-4	04/05/14	5949.57	26.22	ND		5923.35
MW-4	10/25/14	5949.57	26.98	ND		5922.59
MW-4	05/31/15	5946.67	24.52	ND		5922.15
MW-4	11/22/15	5946.67	24.16	ND		5922.51
MW-4	04/18/16	5946.67	24.80	ND		5921.87
MW-4	10/14/16	5946.67	24.99	ND		5921.68
MW-4	06/10/17	5946.67	25.28	ND		5921.39
MW-4	11/11/17	5946.67	25.37	ND		5921.30
MW-5	12/15/13	5948.92	25.17	ND		5923.75
MW-5	04/05/14	5948.92	25.85	ND		5923.07
MW-5	10/25/14	5948.92	26.60	ND		5922.32
MW-5	05/31/15	5946.07	24.17	ND		5921.90
MW-5	11/22/15	5946.07	23.83	ND		5922.24
MW-5	04/18/16	5946.07	24.42	ND		5921.65
MW-5	10/14/16	5946.07	24.64	ND		5921.43
MW-5	06/10/17	5946.07	24.93	ND		5921.14
MW-5	11/11/17	5946.07	24.98	ND		5921.09

TABLE 2 - GROUNDWATER ELEVATION RESULTS

Gallegos Canyon Unit #124E						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-6	12/15/13	5949.34	25.48	ND		5923.86
MW-6	04/05/14	5949.34	26.16	ND		5923.18
MW-6	10/25/14	5949.34	26.90	ND		5922.44
MW-6	05/31/15	5946.39	24.44	ND		5921.95
MW-6	11/22/15	5946.39	24.13	ND		5922.26
MW-6	04/18/16	5946.39	24.66	ND		5921.73
MW-6	10/14/16	5946.39	24.89	ND		5921.50
MW-6	06/10/17	5946.39	24.19	ND		5922.20
MW-6	11/11/17	5946.39	25.29	ND		5921.10
MW-7	12/15/13	5948.68	25.34	ND		5923.34
MW-7	04/05/14	5948.68	26.13	ND		5922.55
MW-7	10/25/14	5948.68	26.89	ND		5921.79
MW-7	05/31/15	5945.92	24.41	ND		5921.51
MW-7	11/22/15	5945.92	23.97	ND		5921.95
MW-7	04/18/16	5945.92	24.52	ND		5921.40
MW-7	10/14/16	5945.92	25.29	ND		5920.63
MW-7	06/10/17	5945.92	24.04	ND		5921.88
MW-7	11/11/17	5945.92	29.13	ND		5916.79

Notes:
"ft" = feet
"TOC" = Top of casing
"LNAPL" = Light non-aqueous phase liquid
"ND" = LNAPL not detected
"NR" = LNAPL not recorded

FIGURES

FIGURE 1: JUNE 10, 2017 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 2: JUNE 10, 2017 GROUNDWATER ELEVATION MAP

FIGURE 3: NOVEMBER 11, 2017 GROUNDWATER ANALYTICAL RESULTS MAP

FIGURE 4: NOVEMBER 11, 2017 GROUNDWATER ELEVATION MAP

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\GALLEGOS CANYON UNIT #124E\2017 MAPS\GCU#124E_GARM_1SA_2017.mxd

TANK

TANK

SEPARATOR

APPROXIMATE FORMER PIT LOCATION

WELLHEAD

MW-2

METER HOUSE

MW-3
B: <1.0
T: <5.0
E: <1.0
X: <5.0

MW-3

MW-5
B: 1
T: <5.0
E: 6.5
X: <5.0

MW-5

MW-1
NS

MW-1

SOLAR PANEL

FORMER EPC PIT

MW-4

ELECTRIC BOXES

MW-4
B: <1.0
T: <5.0
E: <1.0
X: <5.0

MW-7
NS

MW-7

MW-6

MW-6
B: <1.0
T: <5.0
E: <1.0
X: <5.0

SMA BENCHMARK
ELEV. 5946.32'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 3/15/2015

LEGEND:

- ABANDONED MONITORING WELL
- SMA BENCHMARK
- GAS VALVE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- WELLHEAD

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
<1 = BELOW METHOD DETECTION LIMIT

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	7/18/2017	SLG	SLG	SRV

TITLE:

GROUNDWATER ANALYTICAL RESULTS
JUNE 10, 2017

PROJECT: **GALLEGOS CANYON UNIT #124E**
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: 1

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\GALLEGOS CANYON UNIT #124E\2017 MAPS\GCU#124E_GECM_1SA_2017.mxd

TANK

TANK

SEPARATOR

APPROXIMATE FORMER PIT LOCATION

WELLHEAD

MW-2

METER HOUSE

MW-3
5921.33
MW-3

MW-5
5921.14
MW-5

FORMER EPC PIT

SOLAR PANEL

5921.4

MW-1
MW-1
5921.31

MW-4
MW-4
5921.39

ELECTRIC BOXES

5921.8

MW-7
MW-7
5921.88

5922.2
MW-6
MW-6
5922.20

SMA BENCHMARK
ELEV. 5946.32'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 3/15/2015

LEGEND:

- ABANDONED MONITORING WELL
- SMA BENCHMARK
- GAS VALVE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- WELLHEAD

NOTES:

5922.44 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

5922.2 CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	7/18/2017	SLG	SLG	SRV

TITLE:

GROUNDWATER ELEVATION MAP
JUNE 10, 2017

PROJECT: **GALLEGOS CANYON UNIT #124E**
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: **2**

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\GALLEGOS CANYON UNIT #124E\2017 MAPS\GCU#124E_GARM_2SA_2017.mxd

TANK

TANK

SEPARATOR

APPROXIMATE FORMER PIT LOCATION

WELLHEAD

MW-2

METER HOUSE

MW-3
B: <1.0
T: <1.0
E: <1.0
X: <10

MW-3

MW-5
B: 2.1
T: <1.0
E: 14
X: <10

MW-5

MW-7
B: <1.0
T: <1.0
E: <1.0
X: <10

MW-7

MW-1

MW-1
NS

FORMER EPC PIT

SOLAR PANEL

MW-4

ELECTRIC BOXES

MW-4
B: <1.0
T: <1.0
E: 4
X: <10

MW-6

MW-6
B: <1.0
T: <1.0
E: <1.0
X: <10

SMA BENCHMARK
ELEV. 5946.32'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 3/15/2015

LEGEND:

- ABANDONED MONITORING WELL
- SMA BENCHMARK
- GAS VALVE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- WELLHEAD

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
<1 = BELOW METHOD DETECTION LIMIT

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	12/1/2017	SLG	SLG	SRV

TITLE:

GROUNDWATER ANALYTICAL RESULTS
NOVEMBER 11, 2017

PROJECT: **GALLEGOS CANYON UNIT #124E**
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: 3

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\GALLEGOS CANYON UNIT #124E\2017 MAPS\GCU#124E_GECM_2SA_2017.mxd

TANK

TANK

SEPARATOR

APPROXIMATE FORMER PIT LOCATION

WELLHEAD

MW-2

METER HOUSE

5920.9

5921

5921.1

5921.2

MW-3 5921.22

MW-3

MW-5 5921.09

MW-5

FORMER EPC PIT

SOLAR PANEL

MW-1

MW-4

MW-4 5921.30

ELECTRIC BOXES

5920.8

MW-7 5920.79

MW-6 5921.10

MW-1 5921.24

5921.3

MW-7

MW-6

SMA BENCHMARK
ELEV. 5946.32'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

AERIAL IMAGERY FROM GOOGLE EARTH; DATE 3/15/2015

LEGEND:

- ABANDONED MONITORING WELL
- SMA BENCHMARK
- GAS VALVE
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- WELLHEAD

NOTES:

5922.44 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

5922.2 CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET

0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	12/1/2017	SLG	SLG	SRV

TITLE:

GROUNDWATER ELEVATION MAP
NOVEMBER 11, 2017

PROJECT: **GALLEGOS CANYON UNIT #124E**
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: **4**

APPENDICES

APPENDIX A – NOTIFICATIONS OF SITE ACTIVITIES

APPENDIX B – WASTE DISPOSAL DOCUMENTATION

APPENDIX C – MOBILE DUAL PHASE EXTRACTION REPORTS

APPENDIX D – JUNE 10, 2017 GROUNDWATER SAMPLING ANALYTICAL REPORT
NOVEMBER 11, 2017 GROUNDWATER SAMPLING ANALYTICAL REPORT

APPENDIX A

From: Varsa, Steve
To: Randolph.Bayliss@state.nm.us
Cc: brandon.powell@state.nm.us; Wiley, Joe
Subject: El Paso CGP Company - Notice of upcoming groundwater sampling activities
Date: Tuesday, May 30, 2017 3:05:18 PM

Hi Randy –

This correspondence is to provide notice to the NMOCD of upcoming semi-annual groundwater sampling and monitoring activities at the following project sites:

Site Name	NMOCD Case #
Canada Mesa #2	3RP-155-0
Fields A#7A	3RP-170-0
Fogelson 4-1	3RP-068-0
Gallegos Canyon Unit #124E	3RP-407-0
GCU Com A #142E	3RP-179-0
Hammond #41A	3RP-186-0
James F. Bell #1E	3RP-196-0
Johnston Fed #4	3RP-201-0
Johnston Fed #6A	3RP-202-0
K27 LDO72	3RP-204-0
Knight #1	3RP-207-0
Lateral L 40 Line Drip	3RP-212-0
Lat O-21 Line Drip	3RP-213-0
Lindrith B #24	3RP-214-0
Miles Fed #1A	3RP-223-0
Sandoval GC A #1A	3RP-235-0
Standard Oil Com #1	3RP-238-0
State Gas Com N #1	3RP-239-0

Groundwater sampling and monitoring is planned to be conducted the week of June 5, 2017.

Thank you,
Steve

Stephen Varsa, P.G.
Supervising Hydrogeologist
MWH, now part of Stantec
11153 Aurora Avenue
Des Moines, Iowa 50322
Direct: (515) 251-1020
Cell: (515) 710-7523

Office: (515) 253-0830
steve.varsa@stantec.com

From:	Varsa, Steve
To:	Bayliss, Randolph, EMNRD
Cc:	Griswold, Jim, EMNRD; Perrin, Charlie, EMNRD; Powell, Brandon, EMNRD; Smith, Cory, EMNRD; Fields, Vanessa, EMNRD; Wiley, Joe
Subject:	RE: MPDE Work Plan Approvals
Date:	Saturday, July 08, 2017 4:55:00 PM

Hi Randy –

Pursuant to the conditions in the above-referenced July 5, 2017, approval letter, the following is the schedule for the MDPE activities:

James F. Bell #1E – start late the afternoon of Tuesday, July 11, and will go through Friday, July 14.
Johnston Federal #4 and Johnston Federal #6A – both sites beginning on Saturday, July 15, and go through Tuesday, July 18.
No work planned for Wednesday, July 19 (rest day).
GCU #124 – Thursday, July 20 through Sunday, July 23.
Knight #1 – Monday and Tuesday, July 24 and 25.
K27 LD072 – Wednesday, July 26.
Miles Federal #1A – Thursday, July 27.

As noted in the work plan submittal, work at State Gas Com N#1 is still pending receipt of a State Water Easement. NMOCD will be notified once the State Gas Com pilot testing activities have been scheduled, or if there are changes to the schedule offered above. Do you anticipate any OCD staff will be on-site during one or more of these events?

Thank you,
Steve

Stephen Varsa, P.G.
Supervising Hydrogeologist
MWH, now part of Stantec
11153 Aurora Avenue
Des Moines, Iowa 50322
Direct: (515) 251-1020
Cell: (515) 710-7523
Office: (515) 253-0830
steve.varsa@stantec.com

From: Bayliss, Randolph, EMNRD [mailto:Randolph.Bayliss@state.nm.us]
Sent: Wednesday, July 05, 2017 9:08 AM
To: Wiley, Joe <Joe_Wiley@kindermorgan.com>; Varsa, Steve <steve.varsa@stantec.com>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Perrin, Charlie, EMNRD <charlie.perrin@state.nm.us>; Powell, Brandon, EMNRD <Brandon.Powell@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>

Subject: MPDE Work Plan Approvals

Good morning Joe, Steve, others.

Thank you for your proposed MPDE efforts.

Cheers

Randolph Bayliss, P.E.
Hydrologist, Districts III and IV
NMOCD Environmental Bureau
1220 S St Francis St, Santa Fe, NM 87505
505-476-3084, Cell 575-840-5961

From:	Varsa, Steve
To:	Bayliss, Randolph, EMNRD
Cc:	Fields, Vanessa, EMNRD; Smith, Cory, EMNRD; NNEPAUIC@frontiernet.net; Wiley, Joe
Subject:	FW: 3RP-407-0 Gallegos Canyon Unit #124E - LNAPL Recovery Work Plan
Date:	Friday, September 15, 2017 7:44:00 PM
Attachments:	2017-06 Ltr_Bayliss-2017 LNAPL Work Plan (GCU124E).pdf

Hi Randy –

Stantec, on behalf of El Paso CGP Company, LLC, is providing notice of plans to completed additional light non-aqueous phase liquid (LNAPL) recovery activities at the above-referenced site. Two separate LNAPL recovery events, each 24-hours in length, will be completed. The first will begin on Thursday morning and run through Friday morning, September 21 and 22, 2017. The second will begin on Tuesday morning and run through Wednesday morning, September 26 and 27, 2017. With the exception of the event duration, and collection of just one Summa sample on September 22, 2017, the methods and procedures to be utilized are anticipated to be the same for both events, as outlined in the attached work plan. The results of the LNAPL recovery activities will be included in the 2017 annual report for the Site.

Please feel free to contact Joe Wiley or me if you have any questions.

Thank you,
Steve

Stephen Varsa, P.G.
Supervising Hydrogeologist
MWH, now part of Stantec
11153 Aurora Avenue
Des Moines, Iowa 50322
Direct: (515) 251-1020
Cell: (515) 710-7523
Office: (515) 253-0830
steve.varsa@stantec.com

From: Varsa, Steve
Sent: Wednesday, June 28, 2017 5:44 PM
To: 'Randolph.Bayliss@state.nm.us' <Randolph.Bayliss@state.nm.us>
Cc: 'Wiley, Joe' <Joe_Wiley@kindermorgan.com>
Subject: 3RP-179-0 Gallegos Canyon Unit #124 - LNAPL Recovery Work Plan

Hi Randy – Please find attached the above-referenced work plan for your review. The work is scheduled to begin the week of July 10, 2017. Please contact Joe Wiley or me if you have any questions.

Thank you,
Steve

Stephen Varsa, P.G.
Supervising Hydrogeologist
MWH, now part of Stantec
11153 Aurora Avenue
Des Moines, Iowa 50322
Direct: (515) 251-1020
Cell: (515) 710-7523
Office: (515) 253-0830
steve.varsa@stantec.com

From: Varsa, Steve
To: Bayliss, Randolph, EMNRD
Cc: Smith, Cory, EMNRD; Fields, Vanessa, EMNRD; Wiley, Joe
Subject: El Paso CGP Company - Notice of upcoming groundwater sampling activities
Date: Monday, November 06, 2017 11:41:36 AM

Hi Randy –

This correspondence is to provide notice to the NMOCD of upcoming semiannual groundwater sampling and monitoring activities at the following project sites:

Site Name	NMOCD Case #
Canada Mesa #2	3RP-155-0
Fields A#7A	3RP-170-0
Fogelson 4-1	3RP-068-0
Gallegos Canyon Unit #124E	3RP-407-0
GCU Com A #142E	3RP-179-0
James F. Bell #1E	3RP-196-0
Johnston Fed #4	3RP-201-0
Johnston Fed #6A	3RP-202-0
K27 LDO72	3RP-204-0
Knight #1	3RP-207-0
Lateral L 40 Line Drip	3RP-212-0
Lat O-21 Line Drip	3RP-213-0
Miles Fed #1A	3RP-223-0
Sandoval GC A #1A	3RP-235-0
Standard Oil Com #1	3RP-238-0
State Gas Com N #1	3RP-239-0

Groundwater sampling and monitoring is planned to be conducted November 10-14, 2017.

Please contact Joe Wiley, remediation manager with El Paso CGP Company, at (713) 420-3475, or me, if you have any questions.

Thank you,
Steve

Stephen Varsa, P.G.
Supervising Hydrogeologist
MWH, now part of Stantec
11153 Aurora Avenue
Des Moines, Iowa 50322
Direct: (515) 251-1020
Cell: (515) 710-7523
Office: (515) 253-0830
steve.varsa@stantec.com

APPENDIX B

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 688185
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 6/11/17
DEL. TKT#.

GENERATOR: ElPaso CGP
BILL TO: ElPaso CGP

HAULING CO. ~~Stan. Oil~~ Stantec
DRIVER:

ORDERED BY: Joseph Wiley
(Print Full Name)
CODES:

WASTE DESCRIPTION: ☒ **Exempt Oilfield Waste** ☑ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☐ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1		Fogelson 4-1, Gallegos CO 124E	50 BBL					
2		SCU Com A 142E Johnson Fed 4						
3		Johnston Federal 6A Lateral L-40 Lat 0-21 line						
4		Sandoval GC A#1A Standard Oil Com 1						
5								

I, [signature] representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE [signature]

san juan reproduction 168-6

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 690877
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 7-22-17
GENERATOR: El Paso
HAULING CO. Siria
ORDERED BY: Joseph Wilkey

DEL. TKT#.
BILL TO: El Paso
DRIVER: Juan
(Print Full Name)
CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☑ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	54	Gallegos Canyon Unit 124E	55	750			41.25	
2								
3								
4								
5								

'17 JUL 22 [illegible]

I, [illegible] representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE Juan Lujan

san juan reproduction 168-6

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 690936
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 7-23-17
DEL. TKT#.
GENERATOR: El Paso
BILL TO: El Paso
HAULING CO. Sima
DRIVER: Jaime
(Print Full Name)
ORDERED BY: Joseph Wiley
CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☑ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	54	Gallegos Canyon Unit 12E	55	.75			41.25	
2								
3						'17 JUL 23		9:47AM
4								
5								

I, _____ representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE _____

san juan reproduction 168-6

30 Years of Environmental Health and Safety Excellence

BASIN DISPOSAL

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 690825
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 7-21-17
DEL. TKT#.
GENERATOR: El Paso / GP
BILL TO: El Paso
HAULING CO. Cruz
DRIVER: Juan
(Print Full Name)
ORDERED BY: Joseph Wiley
CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☒ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☐ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	54	Gallegos Canyon #124E	55	75				
2							7/21/17	11:34AM
3								
4								
5								

I, _____ representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☐ Approved ☐ Denied ATTENDANT SIGNATURE _____

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 690949
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 7-23-17
GENERATOR: El Paso
HAULING CO. Silva
ORDERED BY:

DEL. TKT#.
BILL TO: El Paso
DRIVER: Silva
(Print Full Name)
CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☐ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☐ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	54	Gallegos Canyon Unit 120	Oil	0			78	
2							'17 JUL 23 10:26AM	
3								
4								
5								

I, [signature] representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE [signature]

san juan reproduction 168-6

30 Years of Environmental Health and Safety Excellence

BASIN DISPOSAL

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 695443

NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 9-22-17

GENERATOR: ElPaso

HAULING CO. Sierra

ORDERED BY: Joseph Willey

DEL. TKT#

BILL TO: ElPaso

DRIVER: Ryan B
(Print Full Name)

CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☑ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	06	Gallegos Canyon Unit 124E	24	70			16 80	
2							17 SEP 22 10:54 AM	
3								
4								
5								

I, _____ representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE _____

san juan reproduction 168-6

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 695702
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 9-27-11
GENERATOR: El Paso
HAULING CO. Sierra
ORDERED BY: Joseph Wiley

DEL. TKT#.
BILL TO: El Paso
DRIVER: C J
(Print Full Name)
CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☑ Produced Water ☐ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1	39	Gallegos Canyon Unit 124E	24	20			16 80	7:27AM
2	39	Gallegos Canyon Unit 124E	5	20			3 50	11:17AM
3								
4								
5								

I, [signature] representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE [signature]

san juan reproduction 168-6

BASIN DISPOSAL

30 Years of Environmental Health and Safety Excellence

200 Montana, Bloomfield, NM 87413
505-632-8936 or 505-334-3013
OPEN 24 Hours per Day

NO. 699930
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 11.12.17

GENERATOR: El Paso

HAULING CO. Stantec

ORDERED BY: Joe Wiley

DEL. TKT#.

BILL TO: Stantec

DRIVER: Sam Spiering
(Print Full Name)

CODES:

WASTE DESCRIPTION: ☒ Exempt Oilfield Waste ☐ Produced Water ☑ Drilling/Completion Fluids ☐ Reserve Pit

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1		Fogelson 4-1	1	70			70 17 NOV 12	1:45PM
2		State Gas Com, Knight, JF Bell Lat L-40, Std Oil Com						
3		Sandoval, GCU 124E, J-Fed 4 J-Fed 6						
4								
5								

I, [signature], representitive or authorized agent for the above generator and hauler hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination that the above described waste is RCRA Exempt Oil field wastes.

☑ Approved ☐ Denied ATTENDANT SIGNATURE [signature]

san juan reproduction 168-6

APPENDIX C

AcuVac Remediation, LLC
1656-H Townhurst, Houston, Texas 77043
713.468.6688 • www.acuvac.com

August 15, 2017

Mr. Stephen Varsa
Supervising Hydrogeologist
Stantec Consulting Services, Inc.
11153 Aurora Avenue
Des Moines, IA 50322

Dear Stephen:

Re: Gallegos Canyon Unit #124E, San Juan County, NM (Event #1)

At your request, AcuVac Remediation, LLC (AcuVac) performed one 72.0-hour Mobile Dual Phase Extraction (MDPE) Event #1 on well MW-1 at the above referenced site (Site) on July 20 through 23, 2017. The following is the Report and a copy of the Operating Data collected during Event #1. Additionally, the attached Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

The purpose of the MDPE event was to enhance recovery of Phase Separated Hydrocarbons (PSH) present at the Site through the removal of petroleum hydrocarbons in both liquid and vapor phases. PSH is referred to as petroleum hydrocarbons and Light Non-Aqueous Phase Liquids (LNAPL). The source of the PSH is a historical release of natural gas condensate.

OBJECTIVES

The objectives of the MDPE events were to:

- Maximize liquid and vapor phase petroleum hydrocarbon removal from groundwater and soils in the subsurface formations within the influence of the extraction well.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the vapor phase and liquid LNAPL specific yields with high induced vacuums.
- Create an induced hydraulic gradient to gain hydraulic control of the area surrounding the extraction well during the event periods.
- Select and monitor the groundwater depression and pump rates to accomplish the above objectives.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform MDPE events. No third party equipment was utilized. The events at the Site were conducted using the AcuVac I-6 System (System) with a Roots RAI-33 blower used as a vacuum pump and a Roots RAI-22 positive displacement blower. The following table lists equipment and instrumentation employed during Event #1, and the data element captured by each.

Equipment and Instrumentation Employed by AcuVac	
Measurement Equipment	**Data Element**
Extraction Well Induced Vacuum and Flow	
Dwyer Magnehelic Gauges	Extraction Well Vacuum
Dwyer Averaging Pitot Tubes / Magnehelic Gauges	Extractions Well Vapor Flow
Observation Wells	
Dwyer Digital Manometer	Vacuum / Pressure Influence
Extraction Well Vapor Monitoring	
V-1 vacuum box	Extraction Well Non-Diluted Vapor Sample Collection
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
QRae Mini II O_2 Monitor	Extraction Well Vapor Oxygen Content
LNAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to LNAPL and Depth to Groundwater
Liquid Recovery	
Totalizer Flow Meter	Liquid Flow and Total Volume
Grundfos Red-Flo 2 Total Fluids Pump	In-Well Pumping
Grundfos Variable Frequency Drive	Pump Speed and Other Diagnostics
Groundwater Depression / Upwelling	
In-Situ Level Troll 700 Data Logger	Liquid Column in Extraction and Observation Wells
In-Situ Vented Cable with Chamber	Equalize Well Vacuum/Pressure
In-Situ Rugged Reader Data Logger Interface	Capture Readings from Data Logger Trolls
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

The vacuum extraction portion of the System consists of a vacuum pump driven by an internal combustion engine (IC engine). The vacuum pump was connected to the extraction well, and the vacuum created on the extraction well caused light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC engine where they were burned as part of the normal combustion process. Propane was used as auxiliary fuel to help power the engine if the well vapors did not provide the required energy.

The IC engine provided the power necessary to achieve and maintain high induced vacuums and/or high well vapor flows required to maximize the vacuum radius of influence for pilot tests and short term event remediation.

Emissions from the engine were passed through three catalytic converters to maximize destruction of removed hydrocarbon vapors. The engine's fuel-to-air ratio was adjusted to maintain efficient combustion. Because the engine is the power source for the equipment, the System stops when the engine stops. This prevents an uncontrolled release of hydrocarbons. Since the System is held entirely under vacuum, any leaks in the seals or connections are leaked into the System and not emitted into the atmosphere. The engine is automatically shut down by vacuum loss, low oil pressure, over speed, or overheating.

Groundwater extraction was provided by an in-well Grundfos Redi-Flo 2 total fluids pump that discharged through a totalizer/flow meter. The discharge line from this meter was then connected to a stand-by tank. The electrical power for the groundwater pump was supplied from a 120v Honda generator. The groundwater flow rate was adjusted to maintain a target level. An interface meter was used to collect depth to groundwater and depth to LNAPL measurements. Grab samples of recovered liquid were taken periodically in a graduated cylinder to determine the average percentage of LNAPL being recovered.

The design of the AcuVac System enabled independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team controlled the induced hydraulic gradient to increase exposure of the formation to soil vapor extraction (SVE). The ability to separate the vapor and liquid flows within the extraction well improved the LNAPL recovery rates and enabled the AcuVac team to record data specific to each media.

RECOVERY SUMMARY FOR MDPE EVENT #1

The Recovery Summary table below lists the groundwater and LNAPL recovery data for Event #1.

Recovery Summary	
	Event #1
	MW-1
Event Hours	72.0
GW Recovery	3,302
NAPL Recovery	
Liquid	0
Vapor	10.4
Total	10.4
Gallons/Hour	**0.14**

SUMMARY OF MDPE EVENT #1- WELL MW-1

- The total event time was 72.0 hours. The Event was conducted on July 20 through 23, 2017. This was the first event completed from well MW-1, and therefore, there was no comparative data from this well.
- The total liquid volume recovered was 3,302 gallons (gals) with no measureable liquid LNAPL recovered.
- Based on the HORIBA® data, total vapor LNAPL burned as IC engine fuel was 10.4 gals, for a total liquid and vapor LNAPL recovery of 10.4 gals, or 0.14 gals per hour.

- Average HORIBA® analytical data from the influent vapor samples for Event #1 is outlined in the table below:

Influent Vapor Data Well MW-1		
Data Element		**Event #1**
TPH- Maximum	ppmv	7,250
TPH- Average	ppmv	3,194
TPH- Minimum	ppmv	1,054
TPH- Initial	ppmv	7,250
TPH- Ending	ppmv	1,192
CO_2	%	2.12
CO	%	0
O_2	%	18.1
H_2S	ppm	0

- The Event #1 extraction well induced vacuum and well vapor flow are shown in the table below.

Well Vacuum and Well Vapor Flow Well MW-1		
Data Element		**Event #1**
Well Vacuum- Maximum	"H_2O	40.00
Well Vacuum- Average	"H_2O	40.00
Well Vacuum- Minimum	"H_2O	40.00
Well Vapor Flow- Maximum	scfm	20.93
Well Vapor Flow- Average	scfm	20.93
Well Vapor Flow- Minimum	scfm	20.93

- The groundwater pump inlet was set at 32.0 ft BTOC in well MW-1. The average groundwater pump rate during the course of Event #1 was 0.82 gpm, and the maximum groundwater pump rate was 1.38 gpm.
- The average groundwater depression, based on the positioning of the groundwater pump in well MW-1, was 6.46 ft below the hydro-equivalent static level.
- LNAPL with a measured thickness of 0.07 ft was recorded in well MW-1 prior to the start of Event #1, and no measureable LNAPL was recorded at the conclusion of the Event #1.

The total LNAPL removed, including liquid and vapor, during the 72.0 hour Event #1, Well MW-1, was 10.4 gals.

ADDITIONAL INFORMATION

- The TPH vapor concentrations were on a steadily decreasing trend during the course of Event #1. The initial reading was 7,250 ppmv, the average was 3,194 ppmv, and the final reading was 1,192 ppmv.

- The average TPH concentration during the first 24 hour period was 4,708 ppmv. The average TPH concentration during the second 24 hour period was 2,532 ppmv. The average TPH concentration during the third 24 hour period was 1,808 ppmv.
- The maximum TPH concentration reading of 7,250 ppmv occurred at event hour 1.0 after the start of Event #1. The minimum TPH vapor concentrations reading was recorded at event hour 35.0 after the start of Event #1.
- Well MW-1 produced a steady amount of liquid volume during the course of Event #1. However, no quantifiable liquid LNAPL was recovered from well MW-1.
- All LNAPL volume recovered, 10.4 gals, was burned as IC engine fuel.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO_2.

The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Recorded Data
- Photographs of the MDPE System, Well MW-1.

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide this service.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
Vice President, Operations

Summary Well Data
Table #1

Event		1
WELL NO.		**MW-1**
Total Event Hours		72.0
TD	ft BGS	34.0
Well Screen	ft BGS	24.0 – 34.0
Well Size	in	2.0
Well Data		
DTGW - Static - Start Event	ft BTOC	25.59
DTLNAPL - Static - Start Event	ft BTOC	25.52
LNAPL	ft BTOC	0.07
Hydro-Equivalent- Beginning	ft BTOC	25.54
DTGW - End Event	ft BTOC	30.40
DTLNAPL - End Event	ft BTOC	-
LNAPL	ft BTOC	-
Hydro-Equivalent- Ending	ft BTOC	30.40
Extraction Data		
Maximum Extraction Well Vacuum	"H_2O	40.00
Average Extraction Well Vacuum	"H_2O	40.00
Minimum Extraction Well Vacuum	"H_2O	40.00
Maximum Extraction Well Vapor Flow	scfm	20.93
Average Extraction Well Vapor Flow	scfm	20.93
Minimum Extraction Well Vapor Flow	scfm	20.93
Average GW / LNAPL Pump Rate	gpm	0.82
Maximum GW / LNAPL Pump Rate	gpm	1.38
Influent Data		
Maximum TPH	ppmv	7,250
Average TPH	ppmv	3,194
Maximum TPH	ppmv	1,054
Initial TPH	ppmv	7,520
Final TPH	ppmv	1,192
Average CO_2	%	2.12
Average CO	%	0
Average O_2	%	18.1
Average H_2S	ppm	0

Summary Recovery Data
Table #2

Event		1
WELL NO.		**MW-1**
Recovery Data- Current Event		
Total Liquid Volume Recovered	gals	3,302
Total Liquid LNAPL Recovered	gals	-
Total Liquid LNAPL Recovered / Total Liquid	%	-
Total Liquid LNAPL Recovered / Total LNAPL	%	-
Total Vapor LNAPL Recovered	gals	10.4
Total Vapor LNAPL Recovered / Total LNAPL	%	100.00
Total Vapor and Liquid LNAPL Recovered	gals	10.4
Average LNAPL Recovery	gals/hr	0.14
Total LNAPL Recovered	lbs	73
Total Volume of Well Vapors	cu. ft	90,418
Recovery Data- Cumulative		
Total Liquid Volume Recovered	gals	3,032
Total Liquid LNAPL Recovered	gals	-
Total Vapor LNAPL Recovered	gals	10.4
Total Vapor and Liquid LNAPL Recovered	gals	10.4
Average LNAPL Recovery	gals/hr	0.14
Total LNAPL Recovered	lbs	73
Total Volume of Well Vapors	cu. ft	90,418

AcuVac Remediation

OPERATING DATA – EVENT # 1 PAGE # 1 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1		Date	7/20/17					
		Time	0700	0730	0800	0830	0900	0930
		Hr Meter	7952.5	7953.0	7953.5	7954.0	7954.5	7955.0
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	12	12	12	12	12	12
	Gas Flow Fuel/Propane	cfh	125	130	130	130	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40	40	40	40
	Extraction Well Flow	scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp.	°F	70	70	70	70	70	70
	Air Temp	°F	-	-	-	-	-	-
	Barometric Pressure	"Hg	-	-	-	-	-	-
VAPOR / INFLUENT	TPH	ppmv	7250	-	6760	-	6490	-
	CO_2	%	9.26	-	7.12	-	5.78	-
	CO	%	0	-	0	-	0	-
	O_2	%	9.0	-	9.2	-	12.0	-
	H_2S	ppm	0	-	0	-	0	-
NOTES	TPH VAPOR CONCENTRATIONS ON A DECREASING TREND. CO2 ON A DECREASING TREND REDUCING NEED FOR PROPANE. WELL VAC AND WVF STEADY AT 40" H_2O AND 20.93 SCFM, RESPECTIVELY. GW PUMP RATE IS BEING ADJUSTED TO MAINTAIN A CONSTANT GW DEPRESSION IN THE 5.0 FT RANGE. THE DATA LOGGER IS POSITIONED 1.0 FT ABOVE THE GW PUMP INLET.							
RECOVERY	TOTALIZER		2775.12	2816.46	2855.61	2886.84	2921.45	2846.42
	Pump Rate	gals/min	1.38	1.31	1.04	1.15	.83	1.05
	Total Volume	gals	-	41.34	80.49	111.72	146.33	171.30
	NAPL	% Vol	-	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head 6.09	ft	2.15	.45	.56	.24	-.03	.93
	GW Depression	ft	-3.94	-5.60	-5.53	5.85	6.12	5.16
	Extraction Well	DTNAPL	25.52					
	Extraction Well	DTGW	25.59					

LNAPL .07

AcuVac Remediation

OPERATING NOTES - EVENT # 1 PAGE # 2 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM Project Managers: Faucher / George / Hendley / Morris

NOTES

7/18/17	0900 Hrs	MOBILIZED TO GCU #124E FROM THE JOHNSTON FEDERAL #4 & #6A SITES. PERFORMED SITE ASSESSMENT RELATING TO PLACEMENT OF ACUVAC SYSTEM, LIQUID COLLECTION TANK AND PROPANE TANK. GAUGED ALL WELLS. POSITIONED THE REDI-FLO2 IN-WELL PUMP INLET AT APPROXIMATELY 2.0 FT ABOVE WELL BOTTOM OR 32.0 FT BTOC. PLACED A DATA LOGGER IN WELL MW-3 AT APPROXIMATELY 1.0 FT ABOVE BOTTOM.
7/18/17	1000 HRS	DEPARTED SITE
7/19/17	1245 HRS	RETURNED TO SITE TO PLACE PROPANE TANK. POSITIONED TANK APPROXIMATELY 25FT FROM THE ACUVAC SYSTEM. CONNECTED THE GAS LINE, CHECKED FOR LEAKS. ALL LEAKS RESOLVED. DEPARTED SITE.
7/20/17	0630 HRS	ARRIVED ON-SITE. MOBILIZED REMAINING ACUVAC EQUIPMENT. CONNECTED VAC HOSE TO ACUVAC SYSTEM. CONNECTED LIQUID DISCHARGE LINE TO TOTALIZER FLOW METER AND THEN TO STAND BY COLLECTION TANK. STARTED DATA LOGGER LOG IN WELL MW-3.
7/20/17	0700	EVENT STARTED. IMMEDIATELY APPARANT THAT THE TPH CONCENTRATIONS IN THE WELL VAPORS ARE LOW AND CO2 IS HIGH.
	0715	INITIAL WELL VAPOR SAMPLE TAKEN. TPH CONCENTRATIONS IN THE 7000 PPMV RANGE AND CO2 IN THE 5 % RANGE.

AcuVac Remediation

OPERATING DATA – EVENT # 1 PAGE # 3 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1		Date	7/20/17					
		Time	1000	1100	1200	1300	1400	1500
		Hr Meter	7956.0	7957.0	7958.0	7959.0	7960.0	7961.0
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	160	160	160	160	160	160
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	12	12	12	12	12	12
	Gas Flow Fuel/Propane	cfh	125	125	125	125	125	125
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40	40	40	40
	Extraction Well Flow	scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp.	°F	70	70	70	70	70	70
	Air Temp	°F	-	-	-	-	-	-
	Barometric Pressure	"Hg	-	-	-	-	-	-
VAPOR / INFLUENT	TPH	ppmv	6370	5590	5190	4990	4770	4550
	CO_2	%	4.68	3.98	3.36	3.02	2.82	2.68
	CO	%	0	0	0	0	0	0
	O_2	%	13.9	14.7	15.6	16.6	16.4	16.7
	H_2S	ppm	0	0	0	0	0	0
NOTES	WELL VAC AND WVF STEADY DURING PERIOD AT 40"H_2O AND 20.93SCFM, RESPECTIVELY. TPH CONCENTRATIONS ON A STEADILY DECREASING TREND OF O_2 ON A STEADILY INCREASING TREND. CO_2 ON A STEADILY DECREASING TREND.							
RECOVERY	TOTALIZER		2578.03	3040.28	3056.32	3146.92	3158.60	3252.25
	Pump Rate	gals/min	1.04	.93	.84	.86	.89	.84
	Total Volume	gals	202.91	265.16	321.20	371.80	423.48	477.13
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head 6.09	ft	.09	.68	.79	.57	.86	.34
	GW Depression	ft	-6.0	-5.41	-5.3	5.52	5.23	5.75
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 1 | PAGE # 4 | ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM | **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	7/20/17					
		Time	1600	1700	1900	2000	2200	2400
		Hr Meter	7962.0	7963.0	7964.0	7966.0	7968.0	7970.0
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	160	160	160	150	150	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	12	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	125	145	145	130	135	135
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40	40	40	40
	Extraction Well Flow	scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp.	°F	70	70	70	70	70	70
	Air Temp	°F	–	–	–	–	–	–
	Barometric Pressure	"Hg	–	–	–	–	–	–
VAPOR / INFLUENT	TPH	ppmv	4530	4320	4100	4120	3400	3220
	CO_2	%	2.64	2.46	2.16	2.34	2.26	1.72
	CO	%	0	0	0	0	0	0
	O_2	%	17.4	17.5	17.5	17.7	18.1	17.8
	H_2S	ppm	0	0	0	0	0	0
NOTES	AT 0500 INCREASED PROPANE FLOW TO COMPENSATE FOR DECREASING TPH CONCENTRATIONS. NO AMBIENT AIR BEING SUPPLIED TO ICENGINE. ALL O_2 PROVIDED BY WELL MW-1.							
RECOVERY	TOTALIZER		3302.79	3353.79	3390.16	3480.89	3574.02	3664.03
	Pump Rate	gals/min	.85	.61	.76	.78	.75	.74
	Total Volume	gals	527.67	578.67	615.04	705.77	798.90	888.91
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	–	–	–	–	–	–
EW	Data Logger Head	6.09 ft	.65	.73	.87	0.92	1.16	0.87
	GW Depression	ft	5.44	5.36	5.22	5.17	4.93	5.22
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 1 | PAGE # 5 | ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM | **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	7/21/17					
		Time	0200	0400	0600	0800	1000	1200
		Hr Meter	7572.0	7574.0	7576.0	7578.0	7580.0	7582.0
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	140	140	135	135	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	130	130	130	130	130	150
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40	40	40	40
	Extraction Well Flow	scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp.	°F	70	70	70	70	70	70
	Air Temp	°F	–	–	–	–	–	–
	Barometric Pressure	"Hg	–	–	–	–	–	–
VAPOR / INFLUENT	TPH	ppmv	3260	2810	3020	2910	3030	3160
	CO_2	%	1.80	1.98	1.86	1.34	1.34	1.42
	CO	%	0	.01	0	0	0	0
	O_2	%	18.1	20.0	18.2	18.9	19.2	19.6
	H_2S	ppm	0	0	0	0	0	0
RECOVERY			3752.90	3836.50	3922.11	4002.04	4082.29	4176.38
	Pump Rate	gals/min	.70	.71	.67	.67	.78	.93
	Total Volume	gals	977.78	1061.38	1146.99	1226.92	1307.17	1401.26
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	–	–	–	–	–	–
EW	Data Logger Head	ft	0.83	0.79	0.46	1.18	1.44	.74
	GW Depression	ft	5.26	5.30	5.66	4.91	4.65	5.35
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

NOTES

WELL VAC AND WELL VAPOR FLOW STEADY DURING PERIOD

TPH VAPOR CONCENTRATIONS ON A MOSTLY DECREASING TREND DURING PERIOD.

LIQUID RECOVERY STEADY DURING PERIOD. NO MEASURABLE LIQUID PHASE PRESENT.

AcuVac Remediation

OPERATING DATA – EVENT # 1 PAGE # 6 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	7/21/17					
		Time	1400	1600	1800	2000	2200	2400
		Hr Meter	7984.0	7986.0	7988.0	7990.0	7992.0	7994.0
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	160	140	140	140	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	170	170	170	170	170	170
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40	40	40	40
	Extraction Well Flow	scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp.	°F	70	70	70	70	70	70
	Air Temp	°F	-	-	-	-	-	-
	Barometric Pressure	"Hg	-	-	-	-	-	-
VAPOR / INFLUENT	TPH	ppmv	3090	2770	2670	1958	2240	2070
	CO_2	%	1.42	1.16	1.28	1.60	1,33	1.34
	CO	%	0	0	0	0	0	0
	O_2	%	19.1	19.9	19.6	19.8	19.5	19.6
	H_2S	ppm	0	0	0	0	0	0
RECOVERY	TOTALIZER		4288.18	4351.95	4423.08	4528.48	4623.30	4713.32
	Pump Rate	gals/min	.53	.59	.88	.79	.75	.75
	Total Volume	gals	1513.06	1576.83	1647.96	1753.36	1848.18	1938.20
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head 6.09	ft	.31	.31	.31	.35	.37	.39
	GW Depression	ft	5.78	5.78	5.78	5.74	5.72	5.70
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

NOTES

AT APPROX 1530 HRS LIQUID LNAPL WAS VISIBLE IN THE SIGHT GLASS IN THE LIQUID DISCHARGE LINE. THE AMOUNT WAS NOT SUFFICIENT TO MEASURE.

- At 1800 stopped pump + vac + unit for scheduled maintenance. Re-Started at 1820.
- At 2200 Liquid NAPL visible in the sight glass in discharge line.
- TPH continue ↓ trend during event.

AcuVac Remediation

OPERATING DATA – EVENT # 1 PAGE # 7 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

	Date	7/22/17					
	Time	0200	0400	0600	0800	1000	1200
	Hr Meter	7996.0	7998.0	8000.0	8002.0	8004.0	8006.0
ENGINE / BLOWER	Engine Speed RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure psi	50	50	50	50	50	50
	Water Temp °F	140	140	140	140	140	140
	Alternator Volts	14	14	14	14	14	14
	Intake Vacuum "Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane cfh	170	170	170	170	190	190
ATMOSPHERE VACUUM / AIR	Extraction Well Vac. "H_2O	40	40	40	40	40	40
	Extraction Well Flow scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp. °F	70	70	70	70	70	70
	Air Temp °F	–	–	–	–	–	–
	Barometric Pressure "Hg	–	–	–	–	–	–
VAPOR / INFLUENT	TPH ppmv	2270	2250	1970	1926	1054	1846
	CO_2 %	1.44	1.08	1.32	.90	1.18	.98
	CO %	0	0	0	0	0	0
	O_2 %	19.6	19.3	19.5	19.7	19.9	20.1
	H_2S ppm	0	0	0	0	0	0
NOTES	0200 More liquid NAPL seen in sight glass in discharge line.						
RECOVERY	ON/OFF	4803.05	4890.16	4975.56	5061.66	5141.10	5233.69
	Pump Rate gals/min	.73	.71	.72	.66	.77	.64
	Total Volume gals	2027.93	2115.04	2200.44	2286.54	2365.98	2458.57
	NAPL % Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL Gals	–	–	–	–	–	–
EW	Data Logger Head ft	.33	.79	.33	.32	.34	.36
	GW Depression ft	5.76	5.30	5.76	5.77	5.75	5.73
	Extraction Well DTNAPL						
	Extraction Well DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 1 PAGE # 8 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1		Date	7/22/17					
		Time	1400	1600	1800	2000	2200	2400
		Hr Meter	8008.0	8010.0	8012.0	8014.0	8016.0	8018.0
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	160	160	160	140	140	140
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	190	190	190	190	190	190
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40	40	40	40
	Extraction Well Flow	scfm	20.93	20.93	20.93	20.93	20.93	20.93
	Influent Vapor Temp.	°F	70	70	70	70	70	70
	Air Temp	°F	-	-	-	-	-	-
	Barometric Pressure	"Hg	-	-	-	-	-	-
VAPOR / INFLUENT	TPH	ppmv	1728	1844	1798	1658	1640	1588
	CO_2	%	.70	.62	.90	1.04	1.04	.88
	CO	%	0	0	0	0	0	0
	O_2	%	20.2	20.2	20.2	19.6	19.8	19.7
	H_2S	ppm	0	0	0	0	0	0
NOTES	2400 TPH continues to have downward trend							
RECOVERY	TOTALIZER	GAL	5310.18	5396.29	5473.04	5577.21	5675.41	5769.82
	Pump Rate	gals/min	.72	.64	.87	.82	.79	.76
	Total Volume	gals	2535.06	2621.17	2697.92	2802.09	2900.29	2994.70
	NAPL	% Vol	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN	SHEEN
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head 6.09	ft	.34	.34	.34	.33	.33	.33
	GW Depression	ft	5.75	5.75	5.75	5.76	5.76	5.76
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 1 **PAGE # 9** **ACUVAC MDP SYSTEM**

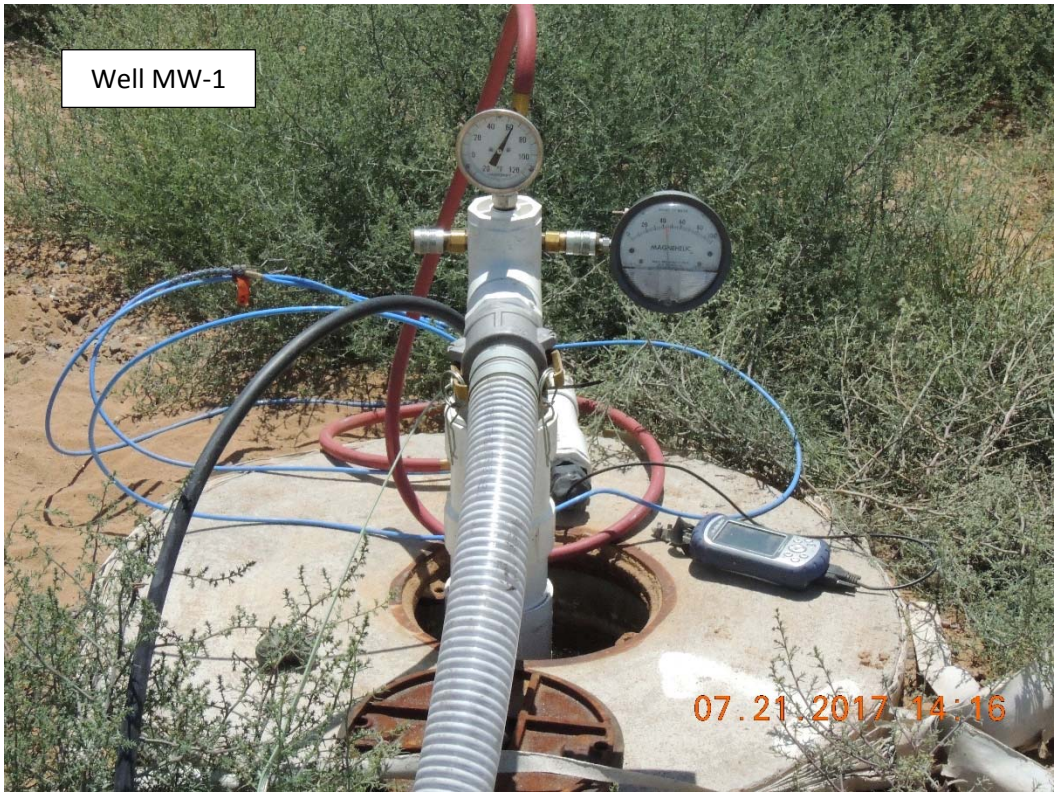
Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

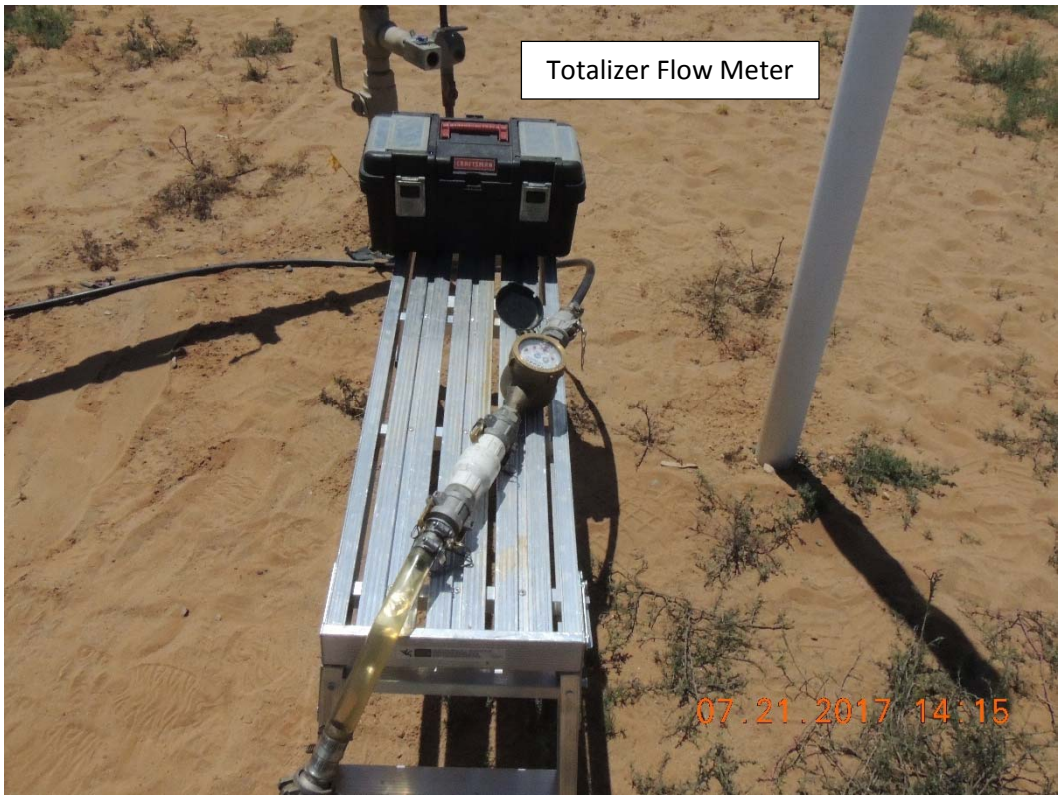
Well # MW-1

	Date		7/23/17					
	Time		0200	0400	0600			
	Hr Meter		8020.0	8022.0	8025.0			
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800			
	Oil Pressure	psi	50	50	50			
	Water Temp	°F	140	140	140			
	Alternator	Volts	14	14	14			
	Intake Vacuum	"Hg	18	18	18			
	Gas Flow Fuel/Propane	cfh	190	190	190			
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	40	40	40			
	Extraction Well Flow	scfm	20.93	20.93	20.93			
	Influent Vapor Temp.	°F	70	70	70			
	Air Temp	°F	—	—	—			
	Barometric Pressure	"Hg	—	—	—			
VAPOR / INFLUENT	TPH	ppmv	1314	1420	1192			
	CO_2	%	.76	1.04	—			
	CO	%	0	0	0			
	O_2	%	20.0	19.8	19.7			
	H_2S	ppm	0	0	0			
NOTES								
RECOVERY	GW Pump	ON/OFF	5861.00	5951.70	6076.91			
	Pump Rate	gals/min	.75	.69	—			
	Total Volume	gals	3085.88	3176.58	3301.79			
	NAPL	% Vol	SHEEN	SHEEN	SHEEN			
	NAPL	Gals	—	—	—			
EW	Data Logger Head	ft	.33	.34	.34			
	GW Depression	ft	5.76	5.75	5.75			
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

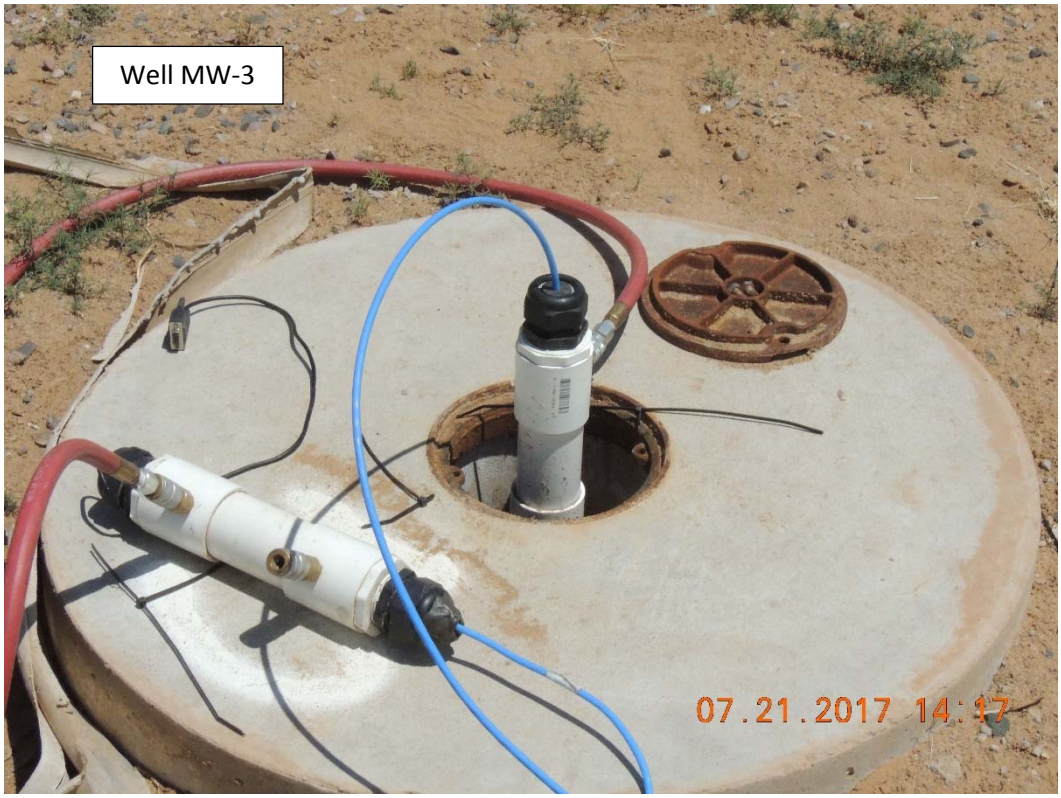
GALLEGOS CANYON UNIT #124E
SAN JUAN COUNTY, NM

GALLEGOS CANYON UNIT #124E
SAN JUAN COUNTY, NM





GALLEGOS CANYON UNIT #124E
SAN JUAN COUNTY, NM



AcuVac Remediation, LLC
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September 30, 2017

Mr. Stephen Varsa
Supervising Hydrogeologist
Stantec Consulting Services, Inc.
11153 Aurora Avenue
Des Moines, IA 50322

Dear Stephen:

Re: Gallegos Canyon Unit #124E, San Juan County, NM (Event #2)

At your request, AcuVac Remediation, LLC (AcuVac) performed two 24.0-hour Mobile Dual Phase Extraction (MDPE) events; Event #2A on well MW-1 on September 21 and 22, and Event #2B on well MW-1 on September 26 and 27, at the above referenced site (Site). Following is the Report and a copy of the Operating Data collected during Event #2. Additionally, the attached Table #1 contains the Summary Well Data, and Table #2 contains the Summary Recovery Data.

The purpose of the MDPE events was to enhance recovery of Phase Separated Hydrocarbons (PSH) present at the Site through the removal of petroleum hydrocarbons in both liquid and vapor phases. PSH is referred to as petroleum hydrocarbons and Light Non-Aqueous Phase Liquids (LNAPL). The source of the PSH is a historical release of natural gas condensate.

OBJECTIVES

The objectives of the MDPE events were to:

- Maximize liquid and vapor phase petroleum hydrocarbon removal from groundwater and soils in the subsurface formations within the influence of the extraction well.
- Expose the capillary fringe area and below to the extraction well induced vacuums.
- Increase the vapor phase and liquid LNAPL specific yields with high induced vacuums.
- Create an induced hydraulic gradient to gain hydraulic control of the area surrounding the extraction well during the event periods.
- Select and monitor the groundwater depression and pump rates to accomplish the above objectives.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform MDPE events. No third party equipment was utilized. The events at the Site were conducted using the AcuVac I-6 System (System) with a Roots RAI-33 blower used as a vacuum pump and a Roots RAI-22 positive displacement blower. The following table lists equipment and instrumentation employed during Event #2, and the data element captured by each.

Equipment and Instrumentation Employed by AcuVac	
Measurement Equipment	**Data Element**
Extraction Well Induced Vacuum and Flow	
Dwyer Magnehelic Gauges	Extraction Well Vacuum
Dwyer Averaging Pitot Tubes / Magnehelic Gauges	Extractions Well Vapor Flow
Observation Wells	
Dwyer Digital Manometer	Vacuum / Pressure Influence
Extraction Well Vapor Monitoring	
V-1 vacuum box	Extraction Well Non-Diluted Vapor Sample Collection
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
QRae Mini II O_2 Monitor	Extraction Well Vapor Oxygen Content
LNAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to LNAPL and Depth to Groundwater
Liquid Recovery	
Totalizer Flow Meter	Liquid Flow and Total Volume
Grundfos Red-Flo 2 Total Fluids Pump	In-Well Pumping
Grundfos Variable Frequency Drive	Pump Speed and Other Diagnostics
Groundwater Depression / Upwelling	
In-Situ Level Troll 700 Data Logger	Liquid Column in Extraction and Observation Wells
In-Situ Vented Cable with Chamber	Equalize Well Vacuum/Pressure
In-Situ Rugged Reader Data Logger Interface	Capture Readings from Data Logger Trolls
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

The vacuum extraction portion of the System consists of a vacuum pump driven by an internal combustion engine (IC engine). The vacuum pump was connected to the extraction well, and the vacuum created on the extraction well caused light hydrocarbons in the soil and on the groundwater to volatilize and flow through a moisture knockout tank to the vacuum pump and the IC engine where they were burned as part of the normal combustion process. Propane was used as auxiliary fuel to help power the engine if the well vapors did not provide the required energy.

The IC engine provided the power necessary to achieve and maintain high induced vacuums and/or high well vapor flows required to maximize the vacuum radius of influence for pilot tests and short term event remediation.

Emissions from the engine were passed through three catalytic converters to maximize destruction of removed hydrocarbon vapors. The engine's fuel-to-air ratio was adjusted to maintain efficient combustion. Because the engine is the power source for the equipment, the System stops when the engine stops. This prevents an uncontrolled release of hydrocarbons. Since the System is held entirely under vacuum, any leaks in the seals or connections are leaked into the System and not emitted into the atmosphere. The engine is automatically shut down by vacuum loss, low oil pressure, over speed, or overheating.

Groundwater extraction was provided by an in-well Grundfos Redi-Flo 2 total fluids pump that discharged through a totalizer/flow meter. The discharge line from this meter was then connected to a stand-by tank. The electrical power for the groundwater pump was supplied from a 120v Honda generator. The groundwater flow rate was adjusted to maintain a target level. An interface meter was used to collect depth to groundwater and depth to

LNAPL measurements. Grab samples of recovered liquid were taken periodically in a graduated cylinder to determine the average percentage of LANPL being recovered.

The design of the AcuVac System enabled independent control of both the induced well vacuum and the groundwater pumping functions such that the AcuVac team controlled the induced hydraulic gradient to increase exposure of the formation to soil vapor extraction (SVE). The ability to separate the vapor and liquid flows within the extraction well improved the LNAPL recovery rates and enabled the AcuVac team to record data specific to each media.

RECOVERY SUMMARY FOR MDPE EVENT #2

The Recovery Summary table below lists the groundwater and LNAPL recovery data for Event #2, and compares the results with the previous Event #1.

Recovery Summary				
	Event #2A	Event #2B	Total	
	MW-1	MW-1	Event #2	Event #1
Event Hours	24.0	24.0	48.0	72.0
GW Recovery	1,160	1,597	2,757	3,302
NAPL Recovery				
Liquid	0	0	0	0
Vapor	1.7	1.9	3.6	10.4
Total	1.7	1.9	3.6	10.4
Gallons/Hour	**0.07**	**0.08**	**0.07**	**0.14**

SUMMARY OF MDPE EVENT #2A- WELL MW-1

- Event #2A was conducted on September 21 and 22, 2017. The total time for Event #2A was 24.0 hours. The data is compared to Event #1 conducted on July 20 through 23, 2017 which had total event time of 72.0 hours.
- The total liquid volume recovered was 1,160 gals with no measureable liquid LNAPL recovered.
- Based on the HORIBA® analytical data, the total vapor LNAPL burned as IC engine fuel was 1.7 gals for a total liquid and vapor LNAPL recovery of 1.7 gals or 0.07 gals per hour.
- The volume of liquid and vapor LNPAL recovered during Event #2A is compared with Event #1 in the table below.

LNAPL Recovery Well MW-1					
		Event #2A		Event #1	
		Amount	Percent	Amount	Percent
Event Hours		24.0	-	72	-
GW Recovery	gals	1,160	-	3,302	-
NAPL Recovery					
Liquid	gals	0	0	0	0
Vapor	gals	1.7	100.00	10.4	100.00
Total	gals	1.7	100.00	10.4	100.00
Gallons/Hour		**0.07**		**0.14**	

- Average HORIBA® analytical data from the influent vapor samples for Event #2A is compared with Event #1 in the table below:

Influent Vapor Data Well MW-1			
Data Element		**Event #2A**	**Event #1**
TPH- Maximum	ppmv	2,110	7,250
TPH- Average	ppmv	1,636	3,194
TPH- Minimum	ppmv	1,228	1,054
TPH- Initial	ppmv	1,854	7,250
TPH- Final	ppmv	1,316	1,192
CO_2	%	2.08	2.12
CO	%	0	0
O_2	%	18.1	18.1
H_2S	ppm	0	0

- The Event #2A extraction well induced vacuum and well vapor flow are compared with Event #1 in the table below.

Well Vacuum and Well Vapor Flow Well MW-1			
Data Element		**Event #2A**	**Event #1**
Well Vacuum- Max	"H_2O	45.00	40.00
Well Vacuum- Avg	"H_2O	45.00	40.00
Well Vacuum- Min	"H_2O	45.00	40.00
Well Vapor Flow- Max	scfm	20.74	20.93
Well Vapor Flow- Avg	scfm	20.42	20.93
Well Vapor Flow- Min	scfm	19.91	20.93

- The groundwater pump inlet was set at 32.0 ft below top of casing (BTOC) in well MW-1. The average groundwater pump rate during the course of Event #2A was 0.86 gpm, and the maximum groundwater pump rate was 1.59 gpm. The total liquid volume recovered was 1,160 gals.
- LNAPL with a measured thickness of 0.04 ft was recorded in well MW-1 prior to the start of Event #2A, and no measureable LNAPL was recorded at the conclusion of the Event #2A.

The total LNAPL removed, including liquid and vapor, during the 24.0 hour Event #2A, well MW-1 was 1.7 gals.

ADDITIONAL INFORMATION

- No measurable liquid LNAPL was visible in the sight glass during the course of the event. The collection tank was observed at the conclusion of the event, and no measurable liquid LNAPL was present.
- All LNAPL recovery was the result of the TPH in the recovered well vapors burned as engine fuel.
- The TPH concentrations were on a mostly decreasing trend during Event #2A.
- The maximum TPH concentration reading of 2,110 ppmv occurred at event hour 5.0. The minimum TPH concentration reading of 1,228 ppmv occurred at event hour 19.0.

SUMMARY OF MDPE EVENT #2B- WELL MW-1

- The total time for Event #2B was 24.0 hours. Event #2B was conducted on September 26 and 27, 2017. The data is compared to Event #2A conducted on September 21 and 22, 2017 which had total event time of 24.0 hours.
- The total liquid volume recovered was 1,597 gals with no measureable liquid LNAPL recovered.
- Based on the HORIBA® analytical data, total vapor LNAPL burned as IC engine fuel was 1.9 gals, for a total liquid and vapor LNAPL recovery of 1.9 gals, or 0.08 gals per hour.
- The volume of liquid and vapor LNPAL recovered during Event #2B is compared with Event #2A in the table below.

LNAPL Recovery Well MW-1					
		Event #2B		Event #2A	
		Amount	Percent	Amount	Percent
Event Hours		24.0	-	24.0	-
GW Recovery	gals	1,597	-	1,160	-
NAPL Recovery					
Liquid	gals	0	0	0	0
Vapor	gals	1.9	100.00	1.7	100.00
Total	gals	1.9	100.00	1.7	100.00
Gallons/Hour		**0.08**		**0.07**	

- Average HORIBA® analytical data from the influent vapor samples for Event #2B is compared with Event #2A in the table below:

Influent Vapor Data Well MW-1			
Data Element		**Event #2B**	**Event #2A**
TPH- Maximum	ppmv	2,470	2,110
TPH- Average	ppmv	1,183	1,636
TPH- Minimum	ppmv	564	1,228
TPH- Initial	ppmv	2,470	1,854
TPH- Final	ppmv	770	1,316
CO_2	%	0.92	2.08
CO	%	0	0
O_2	%	18.8	18.1
H_2S	ppm	0	0

- The Event #2B extraction well induced vacuum and well vapor flow are compared with Event #2A in the table below.

Well Vacuum and Well Vapor Flow Well MW-1			
		Event #2B	Event #2A
Data Element		09/2017	09/2017
Well Vacuum- Max	"H_2O	90.00	45.00
Well Vacuum- Avg	"H_2O	73.56	45.00
Well Vacuum- Min	"H_2O	34.00	45.00
Well Vapor Flow- Max	scfm	35.32	20.74
Well Vapor Flow- Avg	scfm	30.53	20.42
Well Vapor Flow- Min	scfm	22.13	19.91

- The groundwater pump inlet was set at 32.0 ft BTOC. The average groundwater pump rate during the course of Event #2B was 1.06 gpm, and the maximum groundwater pump rate was 1.21 gpm. The total liquid volume recovered was 1,597 gals.
- LNAPL with a measured thickness of 0.04 ft was recorded in well MW-1 prior to the start of Event #2B, and no measureable LNAPL was recorded at the conclusion of the Event #2B.

The total LNAPL removed, including liquid and vapor, during the 24.0 hour Event #2B, well MW-1 was 1.9 gals.

ADDITIONAL INFORMATION

- No measurable liquid LNAPL was recovered. The quantifiable LNAPL recovery was the result of the TPH in recovered well vapors being burned as engine fuel.
- The TPH concentrations were on a mostly decreasing trend during Event #2B.
- The maximum TPH concentration reading of 2,470 ppmv occurred at event hour 1.0. The minimum TPH concentration reading of 564 ppmv occurred at event hour 21.0.

METHOD OF CALIBRATION AND CALCULATIONS

The HORIBA® Analytical instrument is calibrated with Hexane, CO and CO_2. The formula used to calculate the emission rate is:

$$ER = HC\ (ppmv) \times MW\ (Hexane) \times Flow\ Rate\ (scfm) \times 1.58E^{-7} \frac{(min)(lb\ mole)}{(hr)(ppmv)(ft^3)} = lbs/hr$$

INFORMATION INCLUDED WITH REPORT

- Table #1 Summary Well Data
- Table #2 Summary Recovery Data
- Recorded Data
- Photographs of the MDPE System and extraction wells MW-1.

After you have reviewed the report and if you have any questions, please contact me. We appreciate you selecting AcuVac to provide this service.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
Vice President, Operations

Summary Well Data
Table #1

Event		2A	2B
WELL NO.		**MW-1**	**MW-1**
Total Event Hours		24.0	24.0
Total Depth	ft BGS	34.0	34.0
Well Screen	ft BGS	24.0 – 34.0	24.0 – 34.0
Well Size	in	2.0	2.0
Well Data			
DTGW - Static - Start Event	ft BTOC	25.42	25.49
DTLNAPL - Static - Start Event	ft BTOC	25.38	25.45
LNAPL	ft BTOC	0.04	0.04
Hydro-Equivalent- Beginning	ft BTOC	25.39	25.46
DTGW - End Event	ft BTOC	30.00	34.35
DTLNAPL - End Event	ft BTOC	-	-
LNAPL	ft BTOC	-	-
Hydro-Equivalent- Ending	ft BTOC	30.00	34.35
Extraction Data			
Maximum Extraction Well Vacuum	"H_2O	45.00	90.00
Average Extraction Well Vacuum	"H_2O	45.00	73.56
Minimum Extraction Well Vacuum	"H_2O	45.00	34.00
Maximum Extraction Well Vapor Flow	scfm	20.74	35.42
Average Extraction Well Vapor Flow	scfm	20.42	30.53
Minimum Extraction Well Vapor Flow	scfm	19.91	22.13
Maximum GW / LNAPL Pump Rate	gpm	1.59	1.21
Average GW / LNAPL Pump Rate	gpm	0.86	1.06
Influent Data			
Maximum TPH	ppmv	2,110	2,470
Average TPH	ppmv	1,636	1,183
Minimum TPH	ppmv	1,228	564
Initial TPH	ppmv	1,854	2,470
Final TPH	ppmv	1,316	770
Average CO_2	%	2.08	0.92
Average CO	%	0	0
Average O_2	%	18.1	18.8
Average H_2S	ppm	0	0

Summary Recovery Data
Table #2

Event		2A	2B
WELL NO.		**MW-1**	**MW-1**
Recovery Data- Current Event			
Total Liquid Volume Recovered	gals	1,160	1,597
Total Liquid LNAPL Recovered	gals	0	0
Total Liquid LNAPL Recovered / Total Liquid	%	0	0
Total Liquid LNAPL Recovered / Total LNAPL	%	0	0
Total Vapor LNAPL Recovered	gals	1.7	1.9
Total Vapor LNAPL Recovered / Total LNAPL	%	100.00	100.00
Total Vapor and Liquid LNAPL Recovered	gals	1.7	1.9
Average LNAPL Recovery	gals/hr	0.07	0.08
Total LNAPL Recovered	lbs	12	13
Total Volume of Well Vapors	cu. ft	29,405	43,963
Recovery Data- Cumulative			
Total Liquid Volume Recovered	gals	4,462	6,059
Total Liquid LNAPL Recovered	gals	0	0
Total Vapor LNAPL Recovered	gals	12.1	14.0
Total Vapor and Liquid LNAPL Recovered	gals	12.1	14.0
Average LNAPL Recovery	gals/hr	0.13	0.12
Total LNAPL Recovered	lbs	85	98
Total Volume of Well Vapors	cu. ft	119,822	163,786

AcuVac Remediation

OPERATING DATA – EVENT # 7A **PAGE # 1** **ACUVAC MDP SYSTEM**

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	9/21/17					
		Time	0700	0730	0800	0830	0900	0930
		Hr Meter	8069.5	8070.0	8070.5	8071.0	8071.5	8072.0
ENGINE / BLOWER	Engine Speed	RPM	1900	1900	1900	1900	1900	1900
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	14	14	18	18	18	18
	Gas Flow Fuel/Propane	cfh	160	160	150	150	150	150
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	45	45	45	45	45	45
	Extraction Well Flow	scfm	19.91	19.91	19.91	19.91	19.91	19.91
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temp	°F	54	56	58	59	61	63
	Barometric Pressure	"Hg	29.90	29.90	29.90	29.90	29.90	29.90
VAPOR / INFLUENT	TPH	ppmv	-	-	1854	-	-	-
	CO_2	%	-	-	6.98	-	-	-
	CO	%	-	-	0	-	-	-
	O_2	%	-	-	9.9	-	-	-
	H_2S	ppm	-	-	0	-	-	-

NOTES

0700 EVENT STARTED. INITIAL WELL VAC SET AT 45"H_2O RESULTING IN A WVF OF 19.91 SCFM. AT 0800 WELL VAPOR SAMPLE OBTAINED. TPH VAPOR CONCENTRATIONS HIGHER THAN FINAL READING FOR EV#1 1854 PPMV V 1192 PPMV. GW RECOVERY RATES CONSISTENT WITH THE START OF EV#1.

RECOVERY	GW Pump	ON/OFF	4553.20	4553.20	4552.25	4627.64	4653.72	4685.57
	Pump Rate	gals/min	-	1.30	1.18	.87	1.06	1.59
	Total Volume	gals	-	-	39.05	74.44	100.52	132.37
	NAPL	% Vol	-	-	-	-	-	-
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head	ft	-	7.40	.27	.27	.26	.26
	GW Depression	ft	-	-	-7.0	-7.0	-7.0	-7.0
	Extraction Well	DTNAPL	25.38					
	Extraction Well	DTGW	25.42					

.04

AcuVac Remediation

OPERATING NOTES - EVENT # 2A PAGE # 2 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM Project Managers: Faucher / George / Hendley / Morris

NOTES

9/20/17 1600 HRS MOBILIZED ACUVAC SYSTEM TO SITE. POSITIONED THE ACUVAC SYSTEM NEAR WELL MW-1. DETACHED UNIT FROM TRUCK. LAID OUT THE PROPANE HOSES TO MAKE SURE STANDBY PROPANE TANK CONNECTION COULD BE MADE.

SECURED UNIT, DEPARTED SITE.

9/21/17 0620 HRS. ARRIVED ON SITE HELD TAILGATE SAFETY MEETING. GAUGED WELL MW-1 DTWABL 25.38, DTGW 25.42, .04 FT NAPL. POSITIONED IN-WELL PUMP 1.5 FT ABOVE WELL BOTTOM. CONNECTED PUMP TO FLOW METER AND THEN STANDBY COLLECTION TANK.

CONNECTED PROPANE HOSES FROM ACUVAC UNIT TO STANDBY TANK. CHECKED FOR LEAKS ALL OK.

CONNECTED VACUUM HOSE FROM ACUVAC UNIT TO WELL MANIFOLD.

PERFORMED ALL SAFETY CHECKS - ALL OK.

0700 EVENT STARTED.

AcuVac Remediation

OPERATING DATA – EVENT # 2A PAGE # 3 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1		Date	9/21/17					
		Time	1000	1200	1400	1600	1800	2000
		Hr Meter	8072.5	8074.5	8076.5	8078.5	8080.5	8082.5
ENGINE / BLOWER	Engine Speed	RPM	1900	1900	1900	1900	1900	1900
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	140	140	150	150	150
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	150	150	150	150	150	115
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	45	45	45	45	45	45
	Extraction Well Flow	scfm	19.91	20.74	20.74	20.74	20.74	20.74
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temp	°F	72	77	84	84	82	80
	Barometric Pressure	"Hg	29.80	29.80	29.80	29.80	29.80	29.74
VAPOR / INFLUENT	TPH	ppmv	2110	2040	1934	1984	1730	1574
	CO_2	%	3.12	1.64	1.96	1.74	1.46	1.74
	CO	%	0	0	0	0	0	0
	O_2	%	13.4	17.7	19.2	19.3	19.1	19.6
	H_2S	ppm	0	0	0	0	0	0
NOTES	TPH trending ↓ from 2000 → 1000. GW RECOVERY MOSTLY STEADY DURING PERIOD. NO MEASURABLE NAPL VISIBLE IN SIGHT GLASS. WELL VAC ~~STEADY~~ AT 45" H_2O DURING PERIOD. WVF ↑ TO 20.74 SCFM AT 1200 HRS							
RECOVERY	TOTALIZER	GAL	4733.27	4808.54	4910.50	5013.41	5113.75	5211.12
	Pump Rate	gals/min	.63	.85	.86	.84	.81	.80
	Total Volume	gals	180.07	255.34	357.30	460.21	560.55	657.92
	NAPL	% Vol	-	-	-	-	-	-
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head	ft	.27	.27	.26	.26	.27	.27
	GW Depression	ft	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

OPERATING DATA – EVENT # 2A PAGE # 4 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	9/21/17	9/21/17	9/22/17			
		Time	2200	2400	0200	0400	0600	0700
		Hr Meter	8084.5	8086.5	8088.5	8090.5	8092.5	8093.5
ENGINE / BLOWER	Engine Speed	RPM	1900	1900	1900	1900	1900	1900
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	115	115	115	115	115	115
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	45	45	45	45	45	45
	Extraction Well Flow	scfm	20.74	20.74	20.74	20.74	20.74	20.74
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temp	°F	70	62	59	58	60	60
	Barometric Pressure	"Hg	29.70	29.70	29.70	29.70	29.70	29.70
VAPOR / INFLUENT	TPH	ppmv	1258	1476	1228	1272	1492	1316
	CO_2	%	1.46	1.34	1.60	1.16	1.42	1.36
	CO	%	0	0	0	0	0	0
	O_2	%	19.6	19.6	19.2	19.5	19.6	19.5
	H_2S	ppm	0	0	0	0	0	0

NOTES

WELL VAC AND WVF STEADY DURING PERIOD AT 45 "H_2O AND 20.74 SCFM, RESPECTIVELY.

TPH CONCENTRATIONS IN THE WELL VAPORS RECORDED IN A NARROW RANGE, BUT DID NOT DECREASE.

GW RECOVERY MOSTLY STEADY DURING THE PERIOD. NO MEASURABLE NAPL PRESENT IN GW ALTHOUGH THERE WAS A SLIGHT SHEEN ON LIQUID IN THE COLLECTION TANK. 0700 EVENT CONCLUDED.

RECOVERY								
	TOTALIZER	GAL	5306.98	5420.12	5490.27	5581.17	5668.14	5714.33
	Pump Rate	gals/min	.78	.75	.76	.64	.94	-
	Total Volume	gals	753.78	846.92	937.07	1027.97	1104.94	1161.19
	NAPL	% Vol	-	-	-	-	-	-
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head	ft	.27	.27	.27	.27	.27	.27
	GW Depression	ft	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0
	Extraction Well	DTNAPL						-
	Extraction Well	DTGW						30.00

AcuVac Remediation

OPERATING DATA – EVENT # 23 PAGE # 1 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	9/26/17					
		Time	0630	0700	0730	0800	0830	0900
		Hr Meter	8118.5	8119.0	8119.5	8120.0	8120.5	8121.0
ENGINE / BLOWER	Engine Speed	RPM	1900	1900	1900	1900	1900	1900
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	120	120	120	120	120	120
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	18	18	18	18	18	18
	Gas Flow Fuel/Propane	cfh	140	140	140	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	34	34	54	54	54	54
	Extraction Well Flow	scfm	22.13	22.13	22.21	22.21	22.21	22.21
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temp	°F	34	35	36	37	41	46
	Barometric Pressure	"Hg	30.00	30.00	30.00	30.00	30.00	30.00
VAPOR / INFLUENT	TPH	ppmv	-	-	2470	-	-	-
	CO_2	%	-	-	1.88	-	-	-
	CO	%	-	-	0	-	-	-
	O_2	%	-	-	18.3	-	-	-
	H_2S	ppm	-	-	0	-	-	-

NOTES

MOBILIZED ACUVAC SYSTEM TO SITE AS 1800 HRS ON 9/25/17.. ARRIVED ON SITE AT 0610 HRS ON 9/26/17 PERFORMED ALL SAFETY CHECKS EVENT STARTED AT 0630 HRS. INITIAL WELL VAC 30"H_2O, WVF 17.88SCFM. AT 0730 WELL VAC ↑ 54"H_2O, WVF 19.74SCFM TPH CONCENTRATIONS IN INITIAL WELL VAPOR SAMPLE HIGHER THAN MAX TPH SAMPLE FOR EV #2A. GW PUMPING STARTED AT 0645HRS. AT APPROX 0800 HRS A SHEEN APPEARED IN THE SITE GLASS BUT NO MEASURABLE NAPL WAS PRESENT

RECOVERY	GW Pump 0645	ON/OFF	5714.35	5732	5762	5796	5829	5858
	Pump Rate	gals/min	.77	.83	1.13	1.10	.97	1.07
	Total Volume	gals	-	23	48	82	115	144
	NAPL	% Vol	-	-	-	-	-	-
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head	ft	5.71	.30	1.28	.92	.32	.30
	GW Depression	ft	-	-7.0	-7.0	-7.0	-7.0	-7.0
	Extraction Well	DTNAPL	25.45					
	Extraction Well	DTGW	25.49					

.04

AcuVac Remediation

OPERATING DATA – EVENT # 23 PAGE #2 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

Well # MW-1

		Date	9/26/17					
		Time	0930	1130	1330	1530	1730	1930
		Hr Meter	8121.5	8123.5	8125.5	8127.5	8129.5	8131.5
ENGINE / BLOWER	Engine Speed	RPM	1900	1900	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	140	140	140	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	16	16	16	16	16	12
	Gas Flow Fuel/Propane	cfh	125	125	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	70	80	80	90	90	90
	Extraction Well Flow	scfm	27.74	34.98	34.98	35.42	35.42	35.42
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temp	°F	55	64	70	73	72	61
	Barometric Pressure	"Hg	30.00	30.00	29.90	29.80	29.80	29.87
VAPOR / INFLUENT	TPH	ppmv	1848	1564	1314	1406	1260	920
	CO_2	%	1.34	1.14	.86	.84	.82	.66
	CO	%	0	0	0	0	0	0
	O_2	%	18.2	18.4	18.6	18.7	19.1	19.1
	H_2S	ppm	0	0	0	0	0	0

NOTES

AT 1130 HRS WELL VAC ↑ TO 80" H_2O, WVF ↑ 34.98 SCFM. TPH VAPORS ↓ TO 1564 PPMV. AT 1530 HRS WELL VAC ↑ 90" H_2O, WVF ↑ 35.42 SCFM. TPH VAPORS ↑ TO 1406 PPMV. GW PUMP RATE AND GW DEPRESSION MOSTLY STEADY DURING PERIOD. TPH VAPORS ON A MOSTLY DECREASING TREND DURING THIS PERIOD AS THE WELL VAC WAS INCREASED.

RECOVERY	GW Pump	ON/OFF	5890	6023	6161	6304	6449	6591
	Pump Rate	gals/min	1.11	1.15	1.19	1.21	1.18	1.14
	Total Volume	gals	176	309	447	590	735	877
	NAPL	% Vol	-	-	-	-	-	-
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head	ft	.31	1.43	.34	.36	.35	.37
	GW Depression	ft	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0
	Extraction Well	DTNAPL						
	Extraction Well	DTGW						

AcuVac Remediation

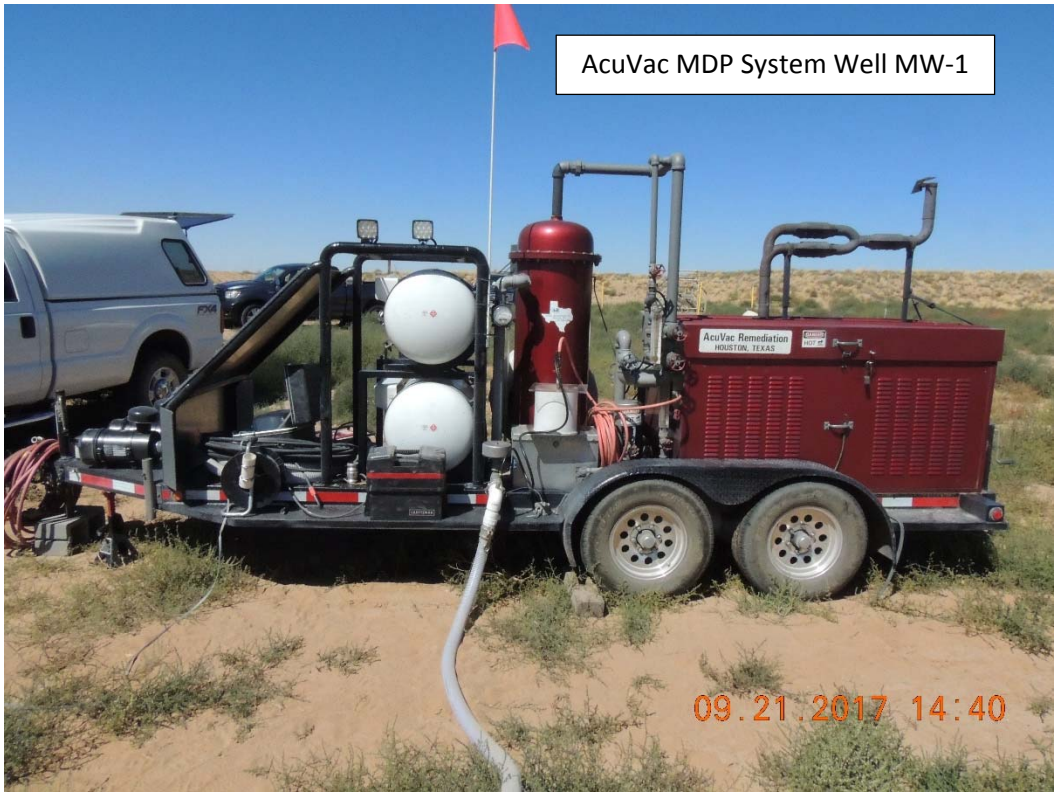
OPERATING DATA – EVENT # 23 PAGE # 3 ACUVAC MDP SYSTEM

Location: GCU, San Juan County, NM **Project Managers: Faucher / George /Hendley / Morris**

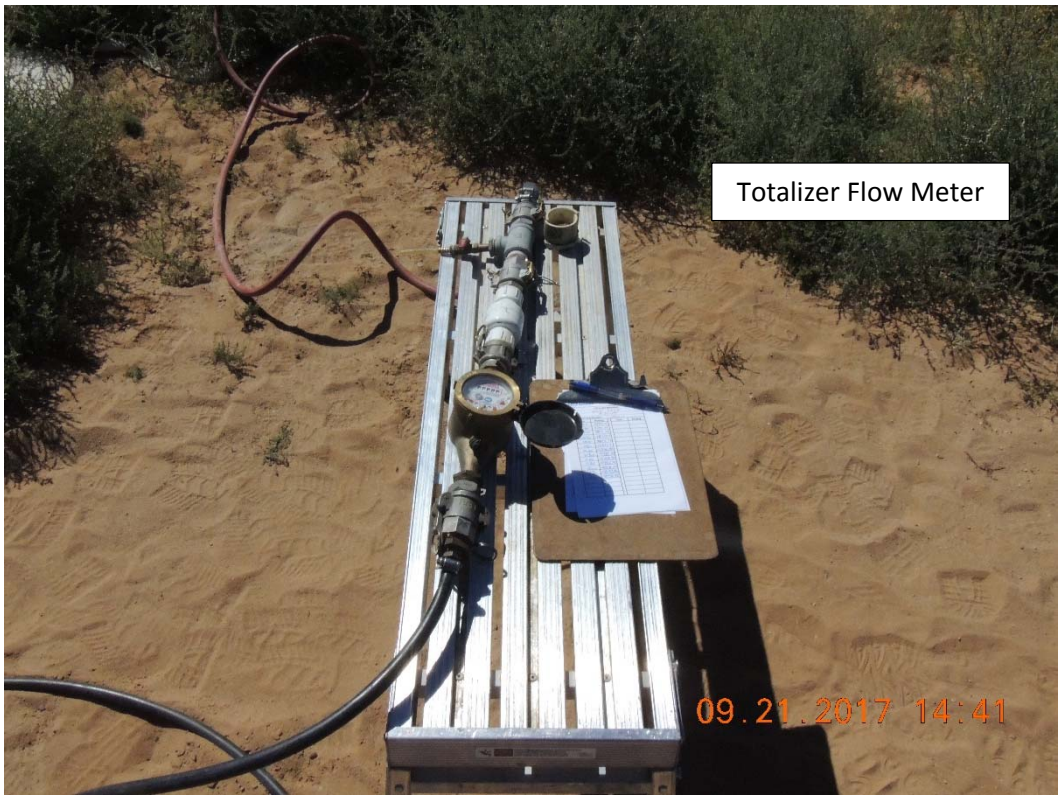
Well # MW-1

		Date	9/26/17		9/27/17			
		Time	2130	2330	0130	0330	0550	0630
		Hr Meter	8133.5	8135.5	8137.5	8139.5	8141.5	8143.5
ENGINE / BLOWER	Engine Speed	RPM	1800	1800	1800	1800	1800	1800
	Oil Pressure	psi	50	50	50	50	50	50
	Water Temp	°F	130	130	130	130	130	130
	Alternator	Volts	14	14	14	14	14	14
	Intake Vacuum	"Hg	12	12	12	12	12	12
	Gas Flow Fuel/Propane	cfh	120	120	120	120	120	120
ATMOSPHERE VACUUM / AIR	Extraction Well Vac.	"H_2O	90	90	90	90	90	90
	Extraction Well Flow	scfm	35.42	35.42	35.42	35.42	35.42	35.42
	Influent Vapor Temp.	°F	60	60	60	60	60	60
	Air Temp	°F	58	53	50	~~50~~ 48	48	48
	Barometric Pressure	"Hg	29.93	29.90	29.92	29.90	29.90	29.90
VAPOR / INFLUENT	TPH	ppmv	816	682	578	564	770	—
	CO_2	%	.80	.78	.68	.74	.54	—
	CO	%	0	0	0	0	0	—
	O_2	%	19.0	19.1	19.2	19.2	19.1	—
	H_2S	ppm	0	0	0	0	0	—
NOTES	WELL VAC AND WVF STEADY DURING PERIOD. TPH VAPORS ON A MOSTLY DECREASING TREND DURING THE PERIOD. GW PUMP RATE MOSTLY STEADY DURING PERIOD. TOTAL LIQUID VOLUME RECOVERED 1,597 GALS WITH NO MEASURABLE NAPL PRESENT IN THE COLLECTION TANK AT THE END OF THE EVENT. AT 0630 EVENT CONCLUDED.							
RECOVERY	GW Pump	ON/OFF	6728	6867	7005	7132	7267	7311
	Pump Rate	gals/min	1.16	1.15	1.07	1.13	.07	-
	Total Volume	gals	1014	1153	1291	1419	1554	1597
	NAPL	% Vol	-	-	-	-	-	-
	NAPL	Gals	-	-	-	-	-	-
EW	Data Logger Head	ft	.38	.37	.37	.38	.37	-
	GW Depression	ft	-7.0	-7.0	-7.0	-7.0	-7.0	-
	Extraction Well	DTNAPL						-
	Extraction Well	DTGW						30.00

GALLEGOS CANYON UNIT #124E
SAN JUAN COUNTY, NM



GALLEGOS CANYON UNIT #124E
SAN JUAN COUNTY, NM



GALLEGOS CANYON UNIT #124E
SAN JUAN COUNTY, NM

APPENDIX D

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: 400-139222-1
Client Project/Site: ElPaso CGP Company, LLC - GCU #124E

For:
Stantec Consulting Services Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner

Madonna Myers

Authorized for release by:
6/22/2017 10:30:26 AM
Madonna Myers, Project Manager II
(615)796-1870
madonna.myers@testamericainc.com

Designee for

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

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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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Job ID: 400-139222-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-139222-1

Comments
No additional comments.

Receipt
The samples were received on 6/13/2017 8:53 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º 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: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: MW-3 — Lab Sample ID: 400-139222-1

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 400-139222-2

No Detections.

Client Sample ID: MW-5 — Lab Sample ID: 400-139222-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	1.0		1.0		ug/L	1		8021B	Total/NA
Ethylbenzene	6.5		1.0		ug/L	1		8021B	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 400-139222-4

No Detections.

Client Sample ID: TRIP BLANK — Lab Sample ID: 400-139222-5

No Detections.

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-139222-1	MW-3	Water	06/10/17 10:00	06/13/17 08:53
400-139222-2	MW-4	Water	06/10/17 09:40	06/13/17 08:53
400-139222-3	MW-5	Water	06/10/17 09:50	06/13/17 08:53
400-139222-4	MW-6	Water	06/10/17 09:35	06/13/17 08:53
400-139222-5	TRIP BLANK	Water	06/10/17 09:30	06/13/17 08:53

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: MW-3
Date Collected: 06/10/17 10:00
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-1
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			06/17/17 03:46	1
Ethylbenzene	<1.0		1.0		ug/L			06/17/17 03:46	1
Toluene	<5.0		5.0		ug/L			06/17/17 03:46	1
Xylenes, Total	<5.0		5.0		ug/L			06/17/17 03:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (pid)	*97*		*78 - 124*		*06/17/17 03:46*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: MW-4
Date Collected: 06/10/17 09:40
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-2
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			06/17/17 04:21	1
Ethylbenzene	<1.0		1.0		ug/L			06/17/17 04:21	1
Toluene	<5.0		5.0		ug/L			06/17/17 04:21	1
Xylenes, Total	<5.0		5.0		ug/L			06/17/17 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (pid)	*94*		*78 - 124*		*06/17/17 04:21*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: MW-5
Date Collected: 06/10/17 09:50
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-3
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			06/17/17 04:56	1
Ethylbenzene	**6.5**		1.0		ug/L			06/17/17 04:56	1
Toluene	<5.0		5.0		ug/L			06/17/17 04:56	1
Xylenes, Total	<5.0		5.0		ug/L			06/17/17 04:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (pid)	*100*		*78 - 124*		*06/17/17 04:56*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: MW-6
Date Collected: 06/10/17 09:35
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-4
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			06/17/17 07:16	1
Ethylbenzene	<1.0		1.0		ug/L			06/17/17 07:16	1
Toluene	<5.0		5.0		ug/L			06/17/17 07:16	1
Xylenes, Total	<5.0		5.0		ug/L			06/17/17 07:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (pid)	*98*		*78 - 124*		*06/17/17 07:16*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: TRIP BLANK
Date Collected: 06/10/17 09:30
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-5
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			06/17/17 01:26	1
Ethylbenzene	<1.0		1.0		ug/L			06/17/17 01:26	1
Toluene	<5.0		5.0		ug/L			06/17/17 01:26	1
Xylenes, Total	<5.0		5.0		ug/L			06/17/17 01:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (pid)	*100*		*78 - 124*		*06/17/17 01:26*	*1*

QC Association Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

GC VOA

Analysis Batch: 357255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139222-1	MW-3	Total/NA	Water	8021B	
400-139222-2	MW-4	Total/NA	Water	8021B	
400-139222-3	MW-5	Total/NA	Water	8021B	
400-139222-4	MW-6	Total/NA	Water	8021B	
400-139222-5	TRIP BLANK	Total/NA	Water	8021B	
MB 400-357255/5	Method Blank	Total/NA	Water	8021B	
LCS 400-357255/1004	Lab Control Sample	Total/NA	Water	8021B	
400-139101-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
400-139101-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 400-357255/5
Matrix: Water
Analysis Batch: 357255

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			06/16/17 17:14	1
Ethylbenzene	<1.0		1.0		ug/L			06/16/17 17:14	1
Toluene	<5.0		5.0		ug/L			06/16/17 17:14	1
Xylenes, Total	<5.0		5.0		ug/L			06/16/17 17:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (pid)	*99*		*78 - 124*		*06/16/17 17:14*	*1*

Lab Sample ID: LCS 400-357255/1004
Matrix: Water
Analysis Batch: 357255

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	48.5		ug/L		97	85 - 115		
Ethylbenzene			50.0	50.5		ug/L		101	85 - 115		
Toluene			50.0	50.1		ug/L		100	85 - 115		
Xylenes, Total			150	151		ug/L		101	85 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (pid)	*98*		*78 - 124*

Lab Sample ID: 400-139101-A-1 MS
Matrix: Water
Analysis Batch: 357255

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	59.3		ug/L		119	44 - 150		
Ethylbenzene	1.6		50.0	59.4		ug/L		116	70 - 142		
Toluene	<5.0		50.0	63.5		ug/L		127	69 - 136		
Xylenes, Total	25		150	203		ug/L		119	68 - 142		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (pid)	*98*		*78 - 124*

Lab Sample ID: 400-139101-A-1 MSD
Matrix: Water
Analysis Batch: 357255

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	59.9		ug/L		120	44 - 150	1	16
Ethylbenzene	1.6		50.0	60.9		ug/L		119	70 - 142	2	16
Toluene	<5.0		50.0	64.0		ug/L		128	69 - 136	1	16
Xylenes, Total	25		150	206		ug/L		121	68 - 142	1	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (pid)	*102*		*78 - 124*

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Client Sample ID: MW-3
Date Collected: 06/10/17 10:00
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-1
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	357255	06/17/17 03:46	CMW	TAL PEN
	Instrument ID: CH_JOAN									

Client Sample ID: MW-4
Date Collected: 06/10/17 09:40
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-2
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	357255	06/17/17 04:21	CMW	TAL PEN
	Instrument ID: CH_JOAN									

Client Sample ID: MW-5
Date Collected: 06/10/17 09:50
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-3
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	357255	06/17/17 04:56	CMW	TAL PEN
	Instrument ID: CH_JOAN									

Client Sample ID: MW-6
Date Collected: 06/10/17 09:35
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-4
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	357255	06/17/17 07:16	CMW	TAL PEN
	Instrument ID: CH_JOAN									

Client Sample ID: TRIP BLANK
Date Collected: 06/10/17 09:30
Date Received: 06/13/17 08:53

Lab Sample ID: 400-139222-5
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	357255	06/17/17 01:26	CMW	TAL PEN
	Instrument ID: CH_JOAN									

Laboratory References:

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

Accreditation/Certification Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
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	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	06-30-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17
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	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-17

Method Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company, LLC - GCU #124E

TestAmerica Job ID: 400-139222-1

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

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: S. Gardner & J. Garvey	Lab PM: Webb, Carol M	Carrier Tracking No(s):	COC No: 400-65858-26933.1
Client Contact: Ms. Sarah Gardner	Phone: 303 291 2239	E-Mail: carol.webb@testamericainc.com		Page: Page 1 of 1
Company: Stantec Consulting Services Inc				Job #:

Address: 1560 Broadway Suite 1800	Due Date Requested:
City: Denver	TAT Requested (days): Standard
State, Zip: CO, 80202	PO #: Purchase Order Requested
Phone: 303-291-2239(Tel)	WO #:
Email: sarah.gardner@mwhglobal.com	Project #: 40005479
Project Name: Gallegos Canyon Unit #124E	SSOW#:
Site: GCU #124E	

Analysis Requested

400-139222 COC

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8021B - BTEX 8021	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-3	6/10/2017	1000	G	W	N	N	2	2	
MW-4	6/10/2017	940	G	W	N	N	2	2	
MW-5	6/10/2017	950	G	W	N	N	2	2	
MW-6	6/10/2017	935	G	W	N	N	2	2	
TRIP BLANK	6/10/2017	930	—	W	N	N	2	2	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Sarah Gardner	6/12/2017 800	Stantec	[signature]	6-13-17 0853	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.3 IR-2

Page 17 of 18

6/22/2017

Login Sample Receipt Checklist

Client: Stantec Consulting Services Inc

Job Number: 400-139222-1

Login Number: 139222

List Source: TestAmerica Pensacola

List Number: 1

Creator: Franklin, Justin H

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.	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	1.3°C IR-2
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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 400-145978-1
Client Project/Site: El Paso CGP Company-GC Unit 124E

For:
Stantec Consulting Services Inc
1560 Broadway
Suite 1800
Denver, Colorado 80202

Attn: Ms. Sarah Gardner

Madonna Myers

Authorized for release by:
11/20/2017 12:18:27 PM
Madonna Myers, Project Manager II
(615)796-1870
madonna.myers@testamericainc.com

Designee for

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

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

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

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

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Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Job ID: 400-145978-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-145978-1

Comments
No additional comments.

Receipt
The samples were received on 11/14/2017 9:01 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º C.

Receipt Exceptions

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): MW-3 (400-145978-6)

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Per client instructions, method 8260 was used in place of method 8021.

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.

Detection Summary

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 400-145978-1

No Detections.

Client Sample ID: MW-7 — Lab Sample ID: 400-145978-2

No Detections.

Client Sample ID: MW-4 — Lab Sample ID: 400-145978-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	4.0		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-5 — Lab Sample ID: 400-145978-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	2.1		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	14		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 400-145978-5

No Detections.

Client Sample ID: MW-3 — Lab Sample ID: 400-145978-6

No Detections.

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-145978-1	TRIP BLANK	Water	11/11/17 15:40	11/14/17 09:01
400-145978-2	MW-7	Water	11/11/17 16:24	11/14/17 09:01
400-145978-3	MW-4	Water	11/11/17 16:05	11/14/17 09:01
400-145978-4	MW-5	Water	11/11/17 16:18	11/14/17 09:01
400-145978-5	MW-6	Water	11/11/17 16:11	11/14/17 09:01
400-145978-6	MW-3	Water	11/11/17 15:58	11/14/17 09:01

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: TRIP BLANK
Date Collected: 11/11/17 15:40
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			11/17/17 21:34	1
Toluene	<1.0		1.0		ug/L			11/17/17 21:34	1
Ethylbenzene	<1.0		1.0		ug/L			11/17/17 21:34	1
Xylenes, Total	<10		10		ug/L			11/17/17 21:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*81 - 121*		*11/17/17 21:34*	*1*
4-Bromofluorobenzene	*95*		*78 - 118*		*11/17/17 21:34*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*11/17/17 21:34*	*1*

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: MW-7
Date Collected: 11/11/17 16:24
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			11/18/17 00:00	1
Toluene	<1.0		1.0		ug/L			11/18/17 00:00	1
Ethylbenzene	<1.0		1.0		ug/L			11/18/17 00:00	1
Xylenes, Total	<10		10		ug/L			11/18/17 00:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*81 - 121*		*11/18/17 00:00*	*1*
4-Bromofluorobenzene	*95*		*78 - 118*		*11/18/17 00:00*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*11/18/17 00:00*	*1*

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: MW-4
Date Collected: 11/11/17 16:05
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			11/18/17 00:29	1
Toluene	<1.0		1.0		ug/L			11/18/17 00:29	1
Ethylbenzene	**4.0**		1.0		ug/L			11/18/17 00:29	1
Xylenes, Total	<10		10		ug/L			11/18/17 00:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*106*		*81 - 121*		*11/18/17 00:29*	*1*
4-Bromofluorobenzene	*93*		*78 - 118*		*11/18/17 00:29*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*11/18/17 00:29*	*1*

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: MW-5
Date Collected: 11/11/17 16:18
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.1**		1.0		ug/L			11/18/17 00:58	1
Toluene	<1.0		1.0		ug/L			11/18/17 00:58	1
Ethylbenzene	**14**		1.0		ug/L			11/18/17 00:58	1
Xylenes, Total	<10		10		ug/L			11/18/17 00:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*81 - 121*		*11/18/17 00:58*	*1*
4-Bromofluorobenzene	*98*		*78 - 118*		*11/18/17 00:58*	*1*
Toluene-d8 (Surr)	*89*		*80 - 120*		*11/18/17 00:58*	*1*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: MW-6
Date Collected: 11/11/17 16:11
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			11/18/17 01:28	1
Toluene	<1.0		1.0		ug/L			11/18/17 01:28	1
Ethylbenzene	<1.0		1.0		ug/L			11/18/17 01:28	1
Xylenes, Total	<10		10		ug/L			11/18/17 01:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*81 - 121*		*11/18/17 01:28*	*1*
4-Bromofluorobenzene	*92*		*78 - 118*		*11/18/17 01:28*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*11/18/17 01:28*	*1*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: MW-3
Date Collected: 11/11/17 15:58
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			11/18/17 01:57	1
Toluene	<1.0		1.0		ug/L			11/18/17 01:57	1
Ethylbenzene	<1.0		1.0		ug/L			11/18/17 01:57	1
Xylenes, Total	<10		10		ug/L			11/18/17 01:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*81 - 121*		*11/18/17 01:57*	*1*
4-Bromofluorobenzene	*92*		*78 - 118*		*11/18/17 01:57*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/18/17 01:57*	*1*

QC Association Summary

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

GC/MS VOA

Analysis Batch: 376424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145978-1	TRIP BLANK	Total/NA	Water	8260C	
400-145978-2	MW-7	Total/NA	Water	8260C	
400-145978-3	MW-4	Total/NA	Water	8260C	
400-145978-4	MW-5	Total/NA	Water	8260C	
400-145978-5	MW-6	Total/NA	Water	8260C	
400-145978-6	MW-3	Total/NA	Water	8260C	
MB 400-376424/4	Method Blank	Total/NA	Water	8260C	
LCS 400-376424/1002	Lab Control Sample	Total/NA	Water	8260C	
400-145959-A-2 MS	Matrix Spike	Total/NA	Water	8260C	
400-145959-A-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 400-376424/4
Matrix: Water
Analysis Batch: 376424

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			11/17/17 18:39	1
Toluene	<1.0		1.0		ug/L			11/17/17 18:39	1
Ethylbenzene	<1.0		1.0		ug/L			11/17/17 18:39	1
Xylenes, Total	<10		10		ug/L			11/17/17 18:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*109*		*81 - 121*		*11/17/17 18:39*	*1*
4-Bromofluorobenzene	*96*		*78 - 118*		*11/17/17 18:39*	*1*
Toluene-d8 (Surr)	*90*		*80 - 120*		*11/17/17 18:39*	*1*

Lab Sample ID: LCS 400-376424/1002
Matrix: Water
Analysis Batch: 376424

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	54.4		ug/L		109	70 - 130		
Toluene			50.0	51.5		ug/L		103	70 - 130		
Ethylbenzene			50.0	52.6		ug/L		105	70 - 130		
Xylenes, Total			100	104		ug/L		104	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*101*		*81 - 121*
4-Bromofluorobenzene	*91*		*78 - 118*
Toluene-d8 (Surr)	*93*		*80 - 120*

Lab Sample ID: 400-145959-A-2 MS
Matrix: Water
Analysis Batch: 376424

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	51.8		ug/L		104	56 - 142		
Toluene	<1.0		50.0	46.8		ug/L		94	65 - 130		
Ethylbenzene	<1.0		50.0	46.8		ug/L		94	58 - 131		
Xylenes, Total	<10		100	94.1		ug/L		94	59 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane	*100*		*81 - 121*
4-Bromofluorobenzene	*95*		*78 - 118*
Toluene-d8 (Surr)	*94*		*80 - 120*

Lab Sample ID: 400-145959-A-2 MSD
Matrix: Water
Analysis Batch: 376424

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	53.0		ug/L		106	56 - 142	2	30
Toluene	<1.0		50.0	49.1		ug/L		98	65 - 130	5	30

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

Lab Sample ID: 400-145959-A-2 MSD
Matrix: Water
Analysis Batch: 376424

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
Ethylbenzene	<1.0		50.0	49.8		ug/L		100	58 - 131	6	30
Xylenes, Total	<10		100	98.9		ug/L		99	59 - 130	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane	*99*		*81 - 121*
4-Bromofluorobenzene	*96*		*78 - 118*
Toluene-d8 (Surr)	*92*		*80 - 120*

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Client Sample ID: TRIP BLANK
Date Collected: 11/11/17 15:40
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-1
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	8260C		1	5 mL	5 mL	376424	11/17/17 21:34	CAR	TAL PEN
	Instrument ID: Einstein									

Client Sample ID: MW-7
Date Collected: 11/11/17 16:24
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-2
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	8260C		1	5 mL	5 mL	376424	11/18/17 00:00	CAR	TAL PEN
	Instrument ID: Einstein									

Client Sample ID: MW-4
Date Collected: 11/11/17 16:05
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-3
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	8260C		1	5 mL	5 mL	376424	11/18/17 00:29	CAR	TAL PEN
	Instrument ID: Einstein									

Client Sample ID: MW-5
Date Collected: 11/11/17 16:18
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-4
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	8260C		1	5 mL	5 mL	376424	11/18/17 00:58	CAR	TAL PEN
	Instrument ID: Einstein									

Client Sample ID: MW-6
Date Collected: 11/11/17 16:11
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-5
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	8260C		1	5 mL	5 mL	376424	11/18/17 01:28	CAR	TAL PEN
	Instrument ID: Einstein									

Client Sample ID: MW-3
Date Collected: 11/11/17 15:58
Date Received: 11/14/17 09:01

Lab Sample ID: 400-145978-6
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	8260C		1	5 mL	5 mL	376424	11/18/17 01:57	CAR	TAL PEN
	Instrument ID: Einstein									

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Laboratory References:

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

Accreditation/Certification Summary

Client: Stantec Consulting Services Inc
TestAmerica Job ID: 400-145978-1
Project/Site: El Paso CGP Company-GC Unit 124E

Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	12-31-17
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

Method Summary

Client: Stantec Consulting Services Inc
Project/Site: El Paso CGP Company-GC Unit 124E

TestAmerica Job ID: 400-145978-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by 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

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Daniel Babcock	Lab PM: Webb, Carol M	Carrier Tracking No(s):	COC No: 400-69056-27990.1
Client Contact: Ms. Sarah Gardner	Phone:	E-Mail: carol.webb@testamericainc.com		Page: Page 1 of 1
Company: Stantec Consulting Services Inc		Analysis Requested		Job #: 203720781
Address: 1560 Broadway Suite 1800	Due Date Requested: Normal			Preservation Codes:
City: Denver	TAT Requested (days): 10 Day Std			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, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80202				
Phone: 303-291-2239(Tel)	PO #: Purchase Order Requested			Other:
Email: sarah.gardner@mwhglobal.com	WO #: ARF W-ERS-STN-05-17-17-SLS-04			
Project Name: Gallegos Canyon Unit #124E Nov 2017	Project #: 40005479 Gallegos Canyon Unit #124E			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	8021B - BTEX 8021	Special Instructions/Note:
Trip Blank	11/11/17	1540	—	—	2	Per ARF
MW-7	11/11/17	1624	G	W	2	
MW-4	"	1605	"	"	2	
MW-5	"	1618	"	"	2	
MW-6	"	1611	"	"	2	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Daniel Babcock	11/13/17 1100	Stantec		11/14/17 0901	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.0°C IR17

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Stantec Consulting Services Inc

Job Number: 400-145978-1

Login Number: 145978
List Number: 1
Creator: Perez, Trina M

List Source: TestAmerica Pensacola

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.	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	0.0°C IR-7
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.	False	Refer to Job Narrative for details.
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	