2018 ANNUAL GROUNDWATER REPORT

STATE GAS COM N#1
NMOCD Case#: 3RP-239-0
Meter Code: 71669
T31N, R12W, Sec16, Unit H

SITE DETAILS

Site Location: Latitude: 36.901094 N, Longitude: -108.096457 W.
Land Type: State
Operator: Hilcorp Energy

SITE BACKGROUND

Environmental Remediation activities at State Gas Com N#1 (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 (NMOCD) in correspondence dated November 30, 1995; and the NMOCD approval conditions were adopted into El Paso CGP Company, LLC's (EPCGP's) program methods. Currently, the Site is operated by Hilcorp Energy, who purchased from XTO Energy in December 2018, and is active. Pipelines owned by Enterprise Products, Inc. are located near the Site, and an aboveground condensate tank owned by Enterprise Products, Inc. is located approximately 70 to 80 feet southwest of well MW-1.

The Site is located on State/Fee land. An initial site assessment was completed in March 1994, and an excavation to approximately 12 feet below ground surface (bgs) was completed in May 1994, removing approximately 80 cubic yards (cy) of soil. Various site investigations have occurred since 1994. Monitoring wells were installed in 1995 (MW-1 through MW-4), 2000 (MW-5), 2006 (MW-7 through MW-9), and 2014 (SB-1 and MW-10 through MW-19). Air sparge (AS) test wells (TW-1 through TW-3) were installed in October-November 2017. Free product recovery has been periodically conducted since 1997. Free product was not observed at the Site in 2017 but was observed at the Site in 2018. Aquifer testing, as well as air sparge and soil vapor extraction (SVE) feasibility tests, were conducted in 2018. Currently, groundwater sampling is conducted on a semi-annual basis.

AIR SPARGE AND SOIL VAPOR EXTRACTION FEASIBILITY TESTING

Pursuant to the June 2017 Work Plan, AS and SVE feasibility tests were conducted on-site. Stantec Consulting Services Inc. (Stantec) provided field work notification via electronic mail (email) to the NMOCD on April 26, 2018, in accordance with the Remediation Plan, prior to initiating the feasibility tests. A copy is provided in Appendix A. AS tests were conducted from May 1 to May 2, 2018 and SVE tests were conducted from May 2 to May 3, 2018. AcuVac Remediation, LLC, of Houston, Texas (AcuVac) was the selected contractor for the feasibility tests.

AcuVac conducted AS tests at air sparge test wells TW-1, TW-2, and TW-3. The AS test locations were selected to evaluate areas where different lithologies and saturated zone soil textures had been logged; the purpose of the AS feasibility tests was to evaluate effectiveness of AS for use as a remedial technology. The intent of AS remedial method is to reduce concentrations of volatile organic compounds (VOCs) within the saturated zone through oxygenation and volatilization.

The tests were conducted using AcuVac's SVE/AS I-6 System. The air sparge portion of the AcuVac system is an engine driven air compressor, which directed air through an oil/moisture separator and then a knockout tank. The air then flowed through three aftercoolers (heat exchangers) and then a metering system, prior to injection into the AS test well. During each test, air flow was applied to the test well up to a maximum pressure and was not adjusted manually for the duration of the test. Pressure data and groundwater elevation data was recorded from a primary monitoring well and from the test well. Additional monitoring wells were also used to observe pressure/vacuum influence at various distances from the test well. Based on the data collected during the feasibility tests, AS testing of TW-1 and TW-2 indicate AS is feasible with a radius of influence ranging from 10 to 19 feet, respectively, and marginally feasible at TW-3 with a radius of influence of about 9 feet. Overall, AS testing indicated a limited radius of influence (approximately 10 feet).

SVE feasibility tests were conducted by AcuVac from May 2 to May 3, 2018. The intent of SVE is to reduce concentrations of VOCs within the vadose zone through extraction and volatilization. The SVE feasibility testing was conducted using the AcuVac I-6 System; the vacuum extraction portion of the AcuVac system consists of a vacuum pump powered by an internal combustion engine (ICE). The vacuum pump was connected to the extraction well via hose and induced a vacuum on the well. Any recovered vapors from the SVE blower were combusted using AcuVac's ICE system.

SVE quick step tests were conducted to evaluate pressures, flow rate, and hydrocarbon response from selected extraction wells. Monitoring wells MW-10, MW-4, MW-3, and MW-11 were used as extraction wells for the SVE tests. Monitoring well MW-1 was initially identified for extraction feasibility testing, but the well lacked a sufficient length of well screen above groundwater to effectively test. The duration of each SVE quick step test was about 1.25 to 1.75 hours. On May 2, 2018, the first SVE test was performed on MW-10. The subsequent SVE tests were performed on May 3, 2018 at MW-4, MW-3, and MW-11, in order of listing. During the test, various vacuum pressure rates were induced at the test well. Flow rate, water level, hydrocarbon concentration data, carbon dioxide, oxygen, carbon monoxide, and hydrogen sulfide data were collected to evaluate performance. Free product was not observed in the monitoring wells prior to the SVE tests nor at the conclusion. Based on data collected during the feasibility SVE quick step test, SVE is a viable form of remediation at the Site. The hydrocarbon vapors alone were not sufficient to power the AcuVac system. Additional supplemental fuel would be required for operation of an SVE system. Power is available 0.5 miles to the south but would have to cross beneath high tension lines to run to the Site. Alternative power options for operation of a full-scale remedial system are being evaluated.

AcuVac's reports summarizing the AS and SVE feasibility testing activities at the Site are presented as Appendices B and C, respectively. No wastes were generated during the feasibility testing activities that required off-site disposal.

AQUIFER TESTING

Pursuant to the Work Plan submitted June 28, 2017, aquifer slug testing was completed in the site monitoring wells and air sparge test wells (TW-1, TW-2, and TW-3) to better understand the variability in hydraulic conductivity across the Site. Pursuant to the Remediation Plan, Stantec provided field work notifications via email to the NMOCD regarding this work on March 28, 2018 and October 23, 2018. Copies of the 2018 NMOCD notifications are provided in Appendix A. The data collected associated with the March 28, 2018 notification was found to not be useful for estimating hydraulic conductivity, and therefore replacement data was collected later in the year.

Aquifer slug testing was conducted by performing slug-out using a bailer and monitoring water recovery in each well with a water level probe. Following completion of recovery monitoring, the data was entered in AQTESOLV version 4.5 software to evaluate the results. The estimated hydraulic conductivity values are presented in Table 1 in Appendix D and on Figure 1 of Appendix D. The graphical outputs from AQTESOLV are provided in Appendix D.

The estimated hydraulic conductivity results for the monitoring wells vary by three orders of magnitude across the Site. Except for MW-2 and MW-9, the hydraulic conductivity values generally correspond to the saturated screen lithology logged at each location. The higher than expected hydraulic conductivities in the clayey soils logged at MW-2 and MW-9 suggest more permeable soils may have been present but not logged. The test well hydraulic conductivity estimates were approximately 1 to 2 orders of magnitude lower that the nearby monitoring wells. Combined with the observation of the siltstone units in the bottom of the test well locations, which were generally logged as "dry", the groundwater present at these locations may be perched above the siltstone.

GROUNDWATER SAMPLING ACTIVITIES

Pursuant to the Remediation Plan, Stantec provided field work notifications via email to the NMOCD on May 9, 2018, and October 23, 2018, prior to initiating groundwater sampling activities at the Site. Copies of the 2018 NMOCD notifications are provided in Appendix A. Groundwater monitoring and sampling was completed on May 18, and October 25, 2018. During each sampling event, water levels were gauged from monitoring wells MW-1 through MW-6, MW-9 through MW-19, TW-1, TW-2, and TW-3. Groundwater samples were collected from monitoring wells MW-1, MW-3, MW-6, MW-9, MW-13, MW-14, MW-15, MW-16, MW-18, and MW-19 in May 2018 and in October 2018. Wells TW-1, TW-2, TW-3 were installed for AS feasibility testing, and were not sampled.

Groundwater samples were collected from selected monitoring wells using HydraSleeve™ (HydraSleeve) no-purge passive groundwater sampling devices. The HydraSleeves were set during the previous sampling event. In order to collect a sample from the screened interval, the HydraSleeves were placed approximately 0.5 feet above the termination depth of the monitoring wells using a suspension tether and stainless-steel weights.

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 BTEX. One laboratory supplied trip blank was also collected during each groundwater sampling event. As requested by the NMOCD on March 20, 2018, EPCGP began collecting blind field duplicates of groundwater samples, as clarified in a March 21, 2018 email message to NMOCD. The groundwater samples, field duplicate and trip blank were analyzed for BTEX constituents using United States Environmental Protection Agency (EPA) Method 8260. The unused sample water was combined in a waste container and taken to Basin Disposal, Inc. (Basin) for disposal. Waste disposal documentation is included as Appendix E.

FREE PRODUCT RECOVERY

Historically, free product has been measured in monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-10 and MW-11. Free product was observed in 2018 in monitoring well MW-4. Free product was measured at 0.2 feet in MW-4 on May 18, 2018 and 0.01 foot in MW-4 on October 25, 2018.

Approximately <0.01 gallons and 0.01 gallons of free product were manually recovered from MW-4 in May and October 2018, respectively.

SUMMARY TABLES

Historic groundwater analytical results and well gauging data are summarized in Tables 1 and 2, respectively. When free product was present, static water level elevations were corrected for measurable thicknesses of free product (specific gravity of 0.75). Monthly free product recovery data is summarized in Table 3 and includes data collected from 2016 through 2018.

SITE MAPS

Groundwater analytical results (Figures 1 and 3) and groundwater elevation contour maps (Figures 2 and 4) summarize results of the 2018 groundwater sampling and gauging events.

ANALYTICAL LAB REPORTS

The groundwater analytical lab reports are included as Appendix F.

GROUND WATER RESULTS

- The groundwater flow direction is generally to the south-southeast at the Site (see Figures 2 and 4).
- Free product was present in MW-4 for the May 2018 and October 2018 semi-annual sampling events; therefore, a groundwater sample was not collected during either event from this location.
- Groundwater samples collected in 2018 from MW-1, MW-3, MW-6, MW-13, MW-16, and MW-18, exceeded the New Mexico Water Quality Control Commission (NMWQCC) standard (10 micrograms per liter [µg/L]) for benzene in groundwater. Benzene was not detected in the remaining groundwater samples collected from site monitoring wells in 2018.
- Groundwater samples collected in 2018 from MW-1, W-4, and MW-6 exceeded the NMWQCC standard (750 µg/L) for toluene in groundwater. Toluene was either not detected or detected below the NMWQCC standard in the remaining groundwater samples collected from site monitoring wells in 2018.
- Groundwater samples collected in 2018 were either not detected or detected below the NMWQCC standard (750 µg/L) for ethylbenzene in groundwater samples collected from site monitoring wells.
- Groundwater samples collected in 2018 from MW-1, MW-3, and MW-6 exceeded the NMWQCC standard (620 µg/L) for total xylenes in groundwater. Total xylenes were either not detected or detected below the NMWQCC standard in groundwater samples collected from site monitoring wells in 2018.
- A field duplicate was collected from MW-18 for the May 2018 semi-annual monitoring event. The benzene and ethylbenzene results in the duplicate sample collected from MW-18 during the Spring 2018 semi-annual monitoring event were lower (by over one-half) in comparison to the primary sample result. The reason for the difference during this sampling

event is unknown, as no issues were noted based on a review of the sample notes and laboratory report. Furthermore, site conditions that might bias a sample result, including the presence of LNAPL in the retrieved HydraSleeve, or a submerged well screen, were not present.

- A field duplicate was collected from MW-13 for the October 2018 semi-annual monitoring event. No significant differences were noted between the primary and the duplicate for MW-13.
- Detectable concentrations of BTEX constituents were not reported in the trip blanks collected and analyzed as part of the 2018 groundwater monitoring events.

PLANNED FUTURE ACTIVITIES

As agreed during the February 6, 2019, meeting with NMOCD, EPCGP, and Stantec, semi-annual groundwater monitoring will continue for 2019. Groundwater samples will be collected from monitoring wells not containing free product. A field duplicate and trip blank will also be collected during each groundwater sampling event. The groundwater samples, field duplicate and trip blank will be analyzed for BTEX constituents using EPA Method 8260. As discussed during the February 6, 2019 meeting, additional groundwater delineation in the down-gradient direction is not warranted. Additional assessment is to be completed prior to development of a remedial design, including delineation north and west of the former EPCGP pit. A work plan to complete these assessment activities will be submitted under separate cover.

The activities completed in 2019 and their results will be summarized in the 2019 Annual report for the Site, submitted in early 2020.

TABLES

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

State Gas Com N#1					
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-1	10/17/95	14200	15600	1090	11000
MW-1	12/03/96	17200	15200	673	6670
MW-1	03/07/97	16900	16600	904	8420
MW-1	09/15/05	17300	10700	1560	19600
MW-1	09/27/06	15100	9990	1150	10700
MW-1	09/18/07	13800	10100	2260	21200
MW-1	09/08/08	11700	7560	815	7740
MW-1	08/26/09	12600	8470	973	8670
MW-1	09/29/10	10300	9470	1320	12500
MW-1	09/29/11	12300	7800	907	7750
MW-1	06/07/13	13000	7200	580	6700
MW-1	09/12/13	13000	5300	460	6600
MW-1	12/13/13	10000	6900	610	6400
MW-1	04/05/14	10000	5300	360	2000
MW-1	10/21/14	14000	4900	520	6400
MW-1	05/27/15	12000	9400	890	7400
MW-1	11/22/15	13000	6800	700	6500
MW-1	04/15/16	14000	5200	730	7400
MW-1	10/11/16	13000	3000	680	6500
MW-1	06/06/17	12000	3000	790	6500
MW-1	11/10/17	11000	2800	750	6400
MW-1	05/18/18	10000	4500	630	6000
MW-1	10/25/18	7700	3200	570	4900
MW-2	12/07/95	8540	18900	6230	9240
MW-2	12/03/96	21700	5000	967	8310
MW-2	03/07/97	22100	5680	992	8360
MW-2	09/15/05	13700	2770	762	8610
MW-2	09/27/06	13800	2150	880	8130
MW-2	09/18/07	10100	1730	1200	12700
MW-2	09/08/08	9120	1610	552	6380
MW-2	09/29/10	15600	1570	779	7730
MW-2	09/29/11	12900	1270	838	6940
MW-2	06/07/13	15000	1600	630	7000
MW-2	09/12/13	14000	1500	550	6300
MW-2	12/13/13	11000	7200	620	6500
MW-2	04/05/14	680	440	37 J	400
MW-2	10/21/14	15000	1500	620	6700
MW-2	05/27/15	14000	1700	650	7200
MW-2	11/22/15	17000	1900	680	7200

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Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
NMWQCC Standards:		10	750	750	620
MW-3	12/07/95	18000	3760	1050	7070
MW-3	12/03/96	17700	7310	983	7200
MW-3	03/07/97	17700	7780	1020	7550
MW-3	09/08/08	70.3	1.5	3.3	19.1
MW-3	08/26/09	20100	434	936	4690
MW-3	09/29/10	23600	219 J	771	3480
MW-3	09/29/11	18500	163	906	4520
MW-3	06/07/13	24000	J100	540	2700
MW-3	09/12/13	22000	97 J	590	2700
MW-3	12/13/13	19000	85 J	620	2900
MW-3	04/05/14	24000	<380	570 J	2400
MW-3	10/21/14	27000	98 J	770	2900
MW-3	05/27/15	25000	230 J	950	5900
MW-3	11/22/15	54000	<5000	17000	66000
MW-3	06/06/17	22000	<1300	1100	8500
MW-3	11/10/17	14000	310	800	7000
MW-3	05/18/18	20000	250	620	4900
MW-3	10/25/18	20000	230	670	4500
MW-4	12/07/95	20300	19600	1040	8880
MW-4	12/03/96	23600	19600	1000	8600
MW-4	03/07/97	24800	20100	1040	9080
MW-4	09/10/01	17000	14000	610	6700
MW-4	09/04/02	17800	13900	750	10870
MW-4	09/14/03	24000	30800	4670	73200
MW-4	09/16/04	26300	18500	1870	15200
MW-4	09/15/05	18600	16900	1120	12800
MW-4	09/27/06	19800	14200	978	12500
MW-4	09/18/07	21100	15400	1560	17000
MW-4	09/08/08	17000	12700	598	11700
MW-4	08/26/09	17000	14400	934	11000
MW-4	09/29/10	19400	13100	789	9500
MW-4	09/29/11	18700	12500	1020	11400
MW-4	06/07/13	21000	13000	290	8400
MW-4	09/12/13	18000	11000	450	7300
MW-4	12/13/13	17000	11000	620	8100
MW-4	04/05/14	12000	57 J	350	1600
MW-4	10/21/14	21000	13000	520	8400
MW-4	05/27/15	21000	13000	700	9200
MW-4	11/22/15	21000	13000	670	8800

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NMWQCC Standards:		10	750	750	620
MW-4	04/15/16	23000	14000	960	11000
MW-4	10/11/16	22000	13000	730	8800
MW-4	06/06/17	26000	16000	500	12000
MW-4	11/10/17	20000	13000	630	9200
MW-5	08/30/00	27000	570	930	8600
MW-5	09/10/01	16000	100	720	4600
MW-5	09/04/02	21100	190	1310	5560
MW-5	09/14/03	23100	157	2480	11300
MW-5	09/16/04	29400	<25	1320	1690
MW-5	09/15/05	22800	14	1160	1620
MW-5	09/27/06	26000	<100	1440	1800
MW-5	09/18/07	26300	<100	914	1590
MW-5	09/08/08	21600	<100	522	1580
MW-5	08/26/09	19800	63.2 J	1280	2470
MW-5	09/29/10	24600	<200	1330	4390
MW-5	09/29/11	20600	8.9 J	1000	3370
MW-5	06/07/13	16000	<60	1000	5400
MW-6	12/20/01	5000	11000	420	4600
MW-6	09/29/10	6950	14700	978	8990
MW-6	09/29/11	5590	10200	991	8670
MW-6	06/07/13	3400	4700	370	4900
MW-6	09/12/13	4500	7700	640	6300
MW-6	12/13/13	3600	5600	610	6000
MW-6	04/05/14	19000	13000	720	9100
MW-6	10/21/14	2900	3300	380	5400
MW-6	05/27/15	4000	7000	630	6200
MW-6	11/22/15	6100	11000	950	8200
MW-6	04/15/16	5700	11000	870	7600
MW-6	10/11/16	5200	7800	860	6600
MW-6	06/06/17	5700	9000	910	7300
MW-6	11/10/17	4500	7800	750	6500
MW-6	05/18/18	4200	5800	420	3600
MW-6	10/25/18	3900	5300	580	4800
MW-7	04/15/08	<2	<2	<2	<6
MW-7	08/26/09	11200	4930	916	5760
MW-7	09/29/10	13900	8690	982	7130
MW-7	09/29/11	9280	3550	725	4270

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NMWQCC Standards:		10	750	750	620
MW-7	06/07/13	Well Destroyed			
MW-9	04/15/08	<2	<2	<2	<6
MW-9	09/08/08	0.95 J	<1	<1	1.3 J
MW-9	08/26/09	1.2	0.69 J	0.35J	2.7
MW-9	09/29/10	0.79 J	17 J	<2	2.9 J
MW-9	09/29/11	0.89 J	0.87 J	<1	<2
MW-9	06/07/13	<0.14	<0.30	<0.20	<0.23
MW-9	09/12/13	<0.14	<0.30	<0.20	<0.23
MW-9	12/13/13	<0.20	<0.38	<0.20	<0.65
MW-9	04/05/14	51	89	8	67
MW-9	10/21/14	<0.38	<0.70	<0.50	<1.6
MW-9	05/27/15	<1.0	<5.0	<1.0	<5.0
MW-9	11/22/15	<1.0	<5.0	<1.0	<5.0
MW-9	04/15/16	<1.0	<5.0	<1.0	<5.0
MW-9	10/11/16	<1.0	<5.0	<1.0	<5.0
MW-9	06/06/17	<1.0	<5.0	<1.0	<5.0
MW-9	11/10/17	<1.0	<1.0	<1.0	<10
MW-9	05/18/18	<1.0	<1.0	<1.0	<10
MW-9	10/25/18	<1.0	<1.0	<1.0	<10
MW-12	05/27/15	0.86 J	<5.0	<1.0	<5.0
MW-12	11/22/15	42	<5.0	11	9.5
MW-13	05/27/15	190	17	35	100
MW-13	11/22/15	260	9.6	33	38
MW-13	04/15/16	130	6.2	19	<5.0
MW-13	10/11/16	110	<10	14	11
MW-13	11/10/17	21	1.6	12	<10
MW-13	05/18/18	23	1	5.8	<10
MW-13	10/25/18	25	<1.0	1.9	<10
DUP-01(MW-13)*	10/25/18	24	<1.0	1.9	<10
MW-14	05/27/15	<1.0	<5.0	<1.0	<5.0
MW-14	11/22/15	<1.0	<5.0	<1.0	<5.0
MW-14	10/11/16	<1.0	<5.0	<1.0	<5.0
MW-14	11/10/17	<1.0	<1.0	<1.0	<10
MW-14	05/18/18	<1.0	<1.0	<1.0	<10
MW-15	05/27/15	<1.0	<5.0	<1.0	<5.0

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NMWQCC Standards:		10	750	750	620
MW-15	11/22/15	<1.0	<5.0	<1.0	<5.0
MW-15	10/11/16	<1.0	<5.0	<1.0	<5.0
MW-15	06/06/17	<1.0	<5.0	<1.0	<5.0
MW-15	11/10/17	<1.0	<1.0	<1.0	<10
MW-15	05/18/18	<1.0	<1.0	<1.0	<10
MW-15	10/25/18	<1.0	<1.0	<1.0	<10
MW-16	05/27/15	1.9	<5.0	<1.0	17
MW-16	11/22/15	190	9.9	4.1	96
MW-16	04/15/16	480	17	83	390
MW-16	10/11/16	82	14	16	140
MW-16	06/06/17	26	<5.0	4.3	13
MW-16	11/10/17	11	<1.0	<1.0	<10
MW-16	05/18/18	30	2.1	<1.0	23
MW-16	10/25/18	380	16	12	99
MW-17	05/27/15	88	<5.0	6.8	15
MW-17	11/22/15	9.9	<5.0	15	<5.0
MW-18	05/27/15	120	12	30	27
MW-18	11/22/15	470	<10	100	11
MW-18	04/15/16	110	<10	16	13
MW-18	10/11/16	840	<25	200	<25
MW-18	06/06/17	100	<5.0	43	17
MW-18	11/10/17	60	<1.0	37	<10
MW-18	05/18/18	21	1.3	5.3	<10
DP-01(MW-18)*	05/18/18	10	<1.0	2.5	<10
MW-18	10/25/18	70	<1.0	11	<10
MW-19	05/27/15	12000	<100	410	200
MW-19	11/22/15	12000	<250	470	<250
MW-19	04/15/16	8400	<50	360	<50
MW-19	10/11/16	11000	<250	470	<250
MW-19	06/06/17	9000	<250	230	<250
MW-19	11/10/17	16	<1.0	17	<10
MW-19	05/18/18	6.3	<1.0	14	<10

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Location	**Date**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethylbenzene (µg/L)**	**Total Xylenes (µg/L)**
NMWQCC Standards:		10	750	750	620
MW-19	10/25/18	3.7	<1.0	6.3	<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).

*Field Duplicate results presented immediately below primary sample result

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	10/17/95	6122.33	76.08	NR		6046.25
MW-1	12/03/96	6122.33	77.02	76.09	0.93	6046.00
MW-1	03/07/97	6122.33	77.20	76.12	1.08	6045.94
MW-1	01/16/01	6122.33	77.96	77.95	0.01	6044.37
MW-1	01/24/01	6122.33	78.28	78.27	0.01	6044.05
MW-1	01/31/01	6122.33	78.16	78.15	0.01	6044.17
MW-1	02/19/01	6122.33	78.19	78.18	0.01	6044.14
MW-1	03/05/01	6122.33	78.34	NR		6043.99
MW-1	06/05/01	6122.33	77.71	NR		6044.62
MW-1	06/15/01	6122.33	77.83	NR		6044.50
MW-1	07/13/01	6122.33	76.52	76.51	0.01	6045.81
MW-1	07/20/01	6122.33	76.47	76.46	0.01	6045.86
MW-1	08/01/01	6122.33	77.22	NR		6045.11
MW-1	08/08/01	6122.33	76.37	NR		6045.96
MW-1	08/16/01	6122.33	76.35	NR		6045.98
MW-1	08/20/01	6122.33	76.28	NR		6046.05
MW-1	09/05/01	6122.33	76.20	NR		6046.13
MW-1	09/19/01	6122.33	76.14	NR		6046.19
MW-1	09/26/01	6122.33	76.09	NR		6046.24
MW-1	10/03/01	6122.33	76.06	NR		6046.27
MW-1	10/11/01	6122.33	76.04	NR		6046.29
MW-1	01/23/02	6122.33	76.08	76.07	0.01	6046.25
MW-1	05/17/02	6122.33	76.17	NR		6046.16
MW-1	06/07/02	6122.33	76.21	NR		6046.12
MW-1	09/04/02	6122.33	76.21	76.20	0.01	6046.12
MW-1	12/17/02	6122.33	76.63	NR		6045.70
MW-1	06/26/03	6122.33	75.76	ND		6046.57
MW-1	09/14/03	6122.33	75.79	75.77	0.02	6046.55
MW-1	12/09/03	6122.33	75.62	ND		6046.71
MW-1	03/15/04	6122.33	75.22	ND		6047.11
MW-1	06/17/04	6122.33	74.84	ND		6047.49
MW-1	09/16/04	6122.33	74.43	ND		6047.90
MW-1	12/20/04	6122.33	74.21	ND		6048.12
MW-1	03/17/05	6122.33	74.23	ND		6048.10
MW-1	06/17/05	6122.33	74.15	ND		6048.18
MW-1	09/15/05	6122.33	74.09	ND		6048.24
MW-1	12/22/05	6122.33	74.02	ND		6048.31
MW-1	03/27/06	6122.33	74.17	ND		6048.16
MW-1	06/19/06	6122.33	74.34	ND		6047.99
MW-1	09/27/06	6122.33	74.65	ND		6047.68
MW-1	12/20/06	6122.33	74.81	ND		6047.52
MW-1	03/28/07	6122.33	75.07	ND		6047.26
MW-1	06/14/07	6122.33	75.09	ND		6047.24
MW-1	09/18/07	6122.33	74.92	ND		6047.41
MW-1	12/17/07	6122.33	74.79	ND		6047.54
MW-1	03/05/08	6122.33	74.63	ND		6047.70
MW-1	06/12/08	6122.33	74.52	ND		6047.81
MW-1	09/08/08	6122.33	74.55	ND		6047.78
MW-1	12/03/08	6122.33	74.62	ND		6047.71
MW-1	03/10/09	6122.33	74.56	ND		6047.77
MW-1	06/03/09	6122.33	74.59	ND		6047.74

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-1	08/26/09	6122.33	74.76	ND		6047.57
MW-1	11/05/09	6122.33	74.66	ND		6047.67
MW-1	02/11/10	6122.33	74.77	ND		6047.56
MW-1	05/21/10	6122.33	75.10	ND		6047.23
MW-1	09/29/10	6122.33	75.45	75.43	0.02	6046.89
MW-1	11/02/10	6122.33	75.82	ND		6046.51
MW-1	02/02/11	6122.33	75.24	ND		6047.09
MW-1	05/04/11	6122.33	74.55	ND		6047.78
MW-1	09/29/11	6122.33	73.57	ND		6048.76
MW-1	11/11/11	6122.33	73.46	ND		6048.87
MW-1	02/16/12	6122.33	73.38	ND		6048.95
MW-1	05/08/12	6122.33	73.53	ND		6048.80
MW-1	06/07/13	6122.33	74.82	ND		6047.51
MW-1	09/12/13	6122.33	75.00	ND		6047.33
MW-1	12/13/13	6122.33	74.95	ND		6047.38
MW-1	04/05/14	6122.33	74.99	ND		6047.34
MW-1	10/21/14	6122.33	74.77	ND		6047.56
MW-1	05/27/15	6122.33	74.57	ND		6047.76
MW-1	11/22/15	6122.33	77.17	ND		6045.16
MW-1	04/15/16	6122.33	73.37	ND		6048.96
MW-1	10/11/16	6122.33	70.08	ND		6052.25
MW-1	06/06/17	6122.33	71.77	ND		6050.56
MW-1	11/10/17	6122.33	71.11	ND		6051.22
MW-1	03/30/18	6122.33	71.16	ND		6051.17
MW-1	05/18/18	6122.33	70.63	ND		6051.70
MW-1	10/25/18	6122.33	71.12	ND		6051.21
MW-2	12/07/95	6120.93	75.50	NR		6045.43
MW-2	12/03/96	6120.93	76.66	75.45	1.21	6045.17
MW-2	03/07/97	6120.93	76.88	75.51	1.37	6045.07
MW-2	01/16/01	6120.93	78.26	77.43	0.83	6043.29
MW-2	01/24/01	6120.93	79.06	78.72	0.34	6042.12
MW-2	01/30/01	6120.93	78.45	78.44	0.01	6042.48
MW-2	04/02/01	6120.93	78.36	NR		6042.57
MW-2	06/05/01	6120.93	76.46	NR		6044.47
MW-2	06/15/01	6120.93	76.54	NR		6044.39
MW-2	07/13/01	6120.93	76.56	NR		6044.37
MW-2	07/20/01	6120.93	76.48	NR		6044.45
MW-2	08/01/01	6120.93	76.51	NR		6044.42
MW-2	08/08/01	6120.93	76.50	NR		6044.43
MW-2	08/16/01	6120.93	76.46	NR		6044.47
MW-2	08/20/01	6120.93	76.43	NR		6044.50
MW-2	09/05/01	6120.93	76.38	NR		6044.55
MW-2	09/19/01	6120.93	76.34	NR		6044.59
MW-2	09/26/01	6120.93	76.35	NR		6044.58
MW-2	10/03/01	6120.93	76.31	NR		6044.62
MW-2	10/11/01	6120.93	76.29	NR		6044.64
MW-2	01/23/02	6120.93	76.08	76.07	0.01	6044.85
MW-2	05/17/02	6120.93	76.17	NR		6044.76
MW-2	06/07/02	6120.93	76.21	NR		6044.72
MW-2	09/04/02	6120.93	76.21	76.20	0.01	6044.72

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-2	12/17/02	6120.93	76.63	NR		6044.30
MW-2	03/20/03	6120.93	76.32	76.28	0.04	6044.64
MW-2	06/26/03	6120.93	76.22	76.19	0.03	6044.73
MW-2	09/14/03	6120.93	76.35	76.31	0.04	6044.61
MW-2	12/09/03	6120.93	76.22	76.15	0.07	6044.76
MW-2	03/15/04	6120.93	76.14	76.07	0.07	6044.84
MW-2	06/17/04	6120.93	75.98	75.93	0.05	6044.98
MW-2	09/16/04	6120.93	76.66	75.72	0.94	6044.97
MW-2	12/20/04	6120.93	75.50	75.46	0.04	6045.46
MW-2	03/17/05	6120.93	75.37	ND		6045.56
MW-2	06/17/05	6120.93	75.72	ND		6045.21
MW-2	09/15/05	6120.93	75.38	ND		6045.55
MW-2	12/22/05	6120.93	75.41	ND		6045.52
MW-2	03/27/06	6120.93	75.42	ND		6045.51
MW-2	06/19/06	6120.93	75.56	ND		6045.37
MW-2	09/27/06	6120.93	75.85	ND		6045.08
MW-2	12/20/06	6120.93	75.92	ND		6045.01
MW-2	03/28/07	6120.93	76.12	ND		6044.81
MW-2	06/14/07	6120.93	76.29	ND		6044.64
MW-2	09/18/07	6120.93	76.24	ND		6044.69
MW-2	12/17/07	6120.93	76.22	ND		6044.71
MW-2	03/05/08	6120.93	76.13	ND		6044.80
MW-2	06/12/08	6120.93	76.12	ND		6044.81
MW-2	09/08/08	6120.93	76.10	ND		6044.83
MW-2	12/03/08	6120.93	76.15	ND		6044.78
MW-2	03/10/09	6120.93	76.13	ND		6044.80
MW-2	06/03/09	6120.93	76.35	76.24	0.11	6044.66
MW-2	08/26/09	6120.93	76.43	76.36	0.07	6044.55
MW-2	11/05/09	6120.93	76.58	ND		6044.35
MW-2	02/11/10	6120.93	76.52	ND		6044.41
MW-2	05/21/10	6120.93	76.70	ND		6044.23
MW-2	09/29/10	6120.93	76.88	ND		6044.05
MW-2	11/02/10	6120.93	76.98	ND		6043.95
MW-2	02/02/11	6120.93	76.83	ND		6044.10
MW-2	05/04/11	6120.93	76.69	ND		6044.24
MW-2	09/29/11	6120.93	76.18	ND		6044.75
MW-2	11/11/11	6120.93	76.13	ND		6044.80
MW-2	02/16/12	6120.93	75.92	ND		6045.01
MW-2	05/08/12	6120.93	75.98	ND		6044.95
MW-2	06/07/13	6120.93	76.88	ND		6044.05
MW-2	09/12/13	6120.93	77.07	ND		6043.86
MW-2	12/13/13	6120.93	77.08	ND		6043.85
MW-2	04/05/14	6120.93	77.08	ND		6043.85
MW-2	10/21/14	6120.93	77.18	ND		6043.75
MW-2	05/27/15	6120.93	77.05	ND		6043.88
MW-2	11/22/15	6120.93	76.90	ND		6044.03
MW-2	04/15/16	6120.93	76.54	ND		6044.39
MW-2	10/11/16	6120.93	76.00	ND		6044.93
MW-2	06/06/17	6120.93	75.42	ND		6045.51
MW-2	11/10/17	6120.93	74.97	ND		6045.96
MW-2	03/30/18	6120.93	74.86	ND		6046.07

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-2	05/18/18	6120.93	74.49	ND		6046.44
MW-2	10/25/18	6120.93	74.86	ND		6046.07
MW-3	12/07/95	6120.42	75.03	NR		6045.39
MW-3	12/03/96	6120.42	76.10	75.26	0.84	6044.95
MW-3	03/07/97	6120.42	75.42	75.19	0.23	6045.17
MW-3	10/03/00	6120.42	77.12	76.97	0.15	6043.41
MW-3	12/20/00	6120.42	77.00	NR		6043.42
MW-3	01/10/01	6120.42	76.90	NR		6043.52
MW-3	02/19/01	6120.42	77.08	77.06	0.02	6043.35
MW-3	03/05/01	6120.42	77.20	77.17	0.03	6043.24
MW-3	04/02/01	6120.42	77.11	77.09	0.02	6043.32
MW-3	06/05/01	6120.42	77.11	NR		6043.31
MW-3	06/15/01	6120.42	76.50	76.44	0.06	6043.96
MW-3	07/13/01	6120.42	77.17	77.14	0.03	6043.27
MW-3	07/20/01	6120.42	77.14	77.13	0.01	6043.28
MW-3	08/01/01	6120.42	76.47	76.38	0.09	6044.01
MW-3	08/08/01	6120.42	77.15	NR		6043.27
MW-3	08/16/01	6120.42	77.15	NR		6043.27
MW-3	08/20/01	6120.42	77.13	NR		6043.29
MW-3	09/05/01	6120.42	77.08	NR		6043.34
MW-3	09/19/01	6120.42	77.11	NR		6043.31
MW-3	09/26/01	6120.42	77.10	NR		6043.32
MW-3	10/03/01	6120.42	77.08	NR		6043.34
MW-3	10/11/01	6120.42	77.09	NR		6043.33
MW-3	11/21/01	6120.42	77.18	77.15	0.03	6043.26
MW-3	12/13/01	6120.42	77.12	77.10	0.02	6043.31
MW-3	12/21/01	6120.42	76.88	NR		6043.54
MW-3	12/28/01	6120.42	75.99	75.97	0.02	6044.44
MW-3	01/04/02	6120.42	77.03	NR	0.00	6043.39
MW-3	01/07/02	6120.42	77.15	77.14	0.01	6043.27
MW-3	01/23/02	6120.42	76.94	76.93	0.01	6043.48
MW-3	01/31/02	6120.42	77.01	77.00	0.01	6043.41
MW-3	02/07/02	6120.42	77.17	77.16	0.01	6043.25
MW-3	02/14/02	6120.42	77.03	77.02	0.01	6043.39
MW-3	02/20/02	6120.42	77.12	77.11	0.01	6043.30
MW-3	03/06/02	6120.42	76.97	NR		6043.45
MW-3	03/11/02	6120.42	76.94	NR		6043.48
MW-3	03/21/02	6120.42	77.15	NR		6043.27
MW-3	03/28/02	6120.42	77.04	NR		6043.38
MW-3	04/03/02	6120.42	75.99	75.95	0.04	6044.46
MW-3	04/12/02	6120.42	77.15	NR		6043.27
MW-3	04/19/02	6120.42	77.09	NR		6043.33
MW-3	04/25/02	6120.42	77.08	NR		6043.34
MW-3	05/03/02	6120.42	77.18	NR		6043.24
MW-3	05/10/02	6120.42	77.12	NR		6043.30
MW-3	05/17/02	6120.42	77.10	NR		6043.32
MW-3	06/07/02	6120.42	76.07	76.03	0.04	6044.38
MW-3	09/04/02	6120.42	76.33	NR		6044.09
MW-3	12/17/02	6120.42	75.85	75.81	0.04	6044.60
MW-3	03/20/03	6120.42	76.32	76.28	0.04	6044.13

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-3	06/26/03	6120.42	76.22	76.19	0.03	6044.22
MW-3	09/14/03	6120.42	76.36	76.31	0.05	6044.09
MW-3	12/09/03	6120.42	76.22	76.15	0.07	6044.25
MW-3	03/15/04	6120.42	76.13	76.07	0.06	6044.33
MW-3	06/17/04	6120.42	76.02	75.98	0.04	6044.43
MW-3	09/16/04	6120.42	75.75	75.72	0.03	6044.69
MW-3	12/20/04	6120.42	75.50	75.46	0.04	6044.95
MW-3	03/17/05	6120.42	75.43	75.39	0.04	6045.02
MW-3	06/17/05	6120.42	75.43	ND		6044.99
MW-3	09/15/05	6120.42	75.49	ND		6044.93
MW-3	12/22/05	6120.42	75.51	ND		6044.91
MW-3	03/27/06	6120.42	75.54	ND		6044.88
MW-3	06/19/06	6120.42	75.63	ND		6044.79
MW-3	09/27/06	6120.42	75.88	ND		6044.54
MW-3	12/20/06	6120.42	75.77	ND		6044.65
MW-3	03/28/07	6120.42	75.92	ND		6044.50
MW-3	06/14/07	6120.42	76.29	ND		6044.13
MW-3	09/18/07	6120.42	76.21	ND		6044.21
MW-3	12/17/07	6120.42	75.20	ND		6045.22
MW-3	03/05/08	6120.42	76.10	ND		6044.32
MW-3	06/12/08	6120.42	76.22	ND		6044.20
MW-3	09/08/08	6120.42	76.14	ND		6044.28
MW-3	12/03/08	6120.42	76.23	ND		6044.19
MW-3	03/10/09	6120.42	76.20	ND		6044.22
MW-3	06/03/09	6120.42	76.43	ND		6043.99
MW-3	08/26/09	6120.42	76.38	ND		6044.04
MW-3	11/05/09	6120.42	76.53	ND		6043.89
MW-3	02/11/10	6120.42	76.41	ND		6044.01
MW-3	05/21/10	6120.42	76.60	ND		6043.82
MW-3	09/29/10	6120.42	76.80	ND		6043.62
MW-3	11/02/10	6120.42	76.97	ND		6043.45
MW-3	02/02/11	6120.42	76.85	ND		6043.57
MW-3	05/04/11	6120.42	76.81	ND		6043.61
MW-3	09/29/11	6120.42	76.41	76.39	0.02	6044.02
MW-3	11/11/11	6120.42	76.49	ND		6043.93
MW-3	02/16/12	6120.42	76.33	ND		6044.09
MW-3	05/08/12	6120.42	76.35	ND		6044.07
MW-3	06/07/13	6120.42	76.91	ND		6043.51
MW-3	09/12/13	6120.42	77.10	ND		6043.32
MW-3	12/13/13	6120.42	77.09	ND		6043.33
MW-3	04/05/14	6120.42	77.07	ND		6043.35
MW-3	10/21/14	6120.42	77.24	ND		6043.18
MW-3	05/27/15	6120.42	77.12	ND		6043.30
MW-3	11/22/15	6120.42	77.08	ND		6043.34
MW-3	04/15/16	6120.42	76.73	ND		6043.69
MW-3	10/11/16	6120.42	76.61	76.36	0.25	6043.99
MW-3	06/06/17	6120.42	75.95	ND		6044.47
MW-3	11/10/17	6120.42	75.57	ND		6044.85
MW-3	03/30/18	6120.42	75.46	ND		6044.96
MW-3	05/02/18	6120.42	74.14	ND		6046.28
MW-3	05/18/18	6120.42	75.17	ND		6045.25

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-3	10/25/18	6120.42	75.55	ND		6044.87
MW-4	12/07/95	6121.10	75.81	NR		6045.29
MW-4	12/03/96	6121.10	75.80	75.48	0.32	6045.54
MW-4	03/07/97	6121.10	75.92	NR		6045.18
MW-4	06/05/01	6121.10	76.48	NR		6044.62
MW-4	07/13/01	6121.10	76.59	NR		6044.51
MW-4	08/16/01	6121.10	76.48	NR		6044.62
MW-4	09/10/01	6121.10	76.45	NR		6044.65
MW-4	12/04/01	6121.10	77.29	NR		6043.81
MW-4	01/07/02	6121.10	76.31	76.30	0.01	6044.79
MW-4	01/23/02	6121.10	75.96	75.95	0.01	6045.14
MW-4	01/31/02	6121.10	76.02	76.01	0.01	6045.08
MW-4	02/07/02	6121.10	76.22	76.21	0.01	6044.88
MW-4	02/14/02	6121.10	76.06	76.05	0.01	6045.04
MW-4	02/20/02	6121.10	76.10	76.09	0.01	6045.00
MW-4	05/17/02	6121.10	76.11	NR		6044.99
MW-4	09/04/02	6121.10	76.28	NR		6044.82
MW-4	12/17/02	6121.10	76.04	NR		6045.06
MW-4	06/26/03	6121.10	76.24	ND		6044.86
MW-4	09/14/03	6121.10	76.28	ND		6044.82
MW-4	12/09/03	6121.10	76.07	ND		6045.03
MW-4	03/15/04	6121.10	76.05	ND		6045.05
MW-4	06/17/04	6121.10	75.86	ND		6045.24
MW-4	09/16/04	6121.10	75.54	ND		6045.56
MW-4	12/20/04	6121.10	75.40	ND		6045.70
MW-4	03/17/05	6121.10	75.27	ND		6045.83
MW-4	06/17/05	6121.10	75.32	ND		6045.78
MW-4	09/15/05	6121.10	75.26	ND		6045.84
MW-4	12/22/05	6121.10	75.34	ND		6045.76
MW-4	03/27/06	6121.10	75.31	ND		6045.79
MW-4	06/19/06	6121.10	75.46	ND		6045.64
MW-4	09/27/06	6121.10	75.80	ND		6045.30
MW-4	12/20/06	6121.10	75.70	ND		6045.40
MW-4	03/28/07	6121.10	75.89	ND		6045.21
MW-4	06/14/07	6121.10	76.22	ND		6044.88
MW-4	09/18/07	6121.10	76.27	ND		6044.83
MW-4	12/17/07	6121.10	76.13	ND		6044.97
MW-4	03/05/08	6121.10	75.99	ND		6045.11
MW-4	06/12/08	6121.10	76.03	ND		6045.07
MW-4	09/08/08	6121.10	75.99	ND		6045.11
MW-4	12/03/08	6121.10	76.08	76.04	0.04	6045.05
MW-4	03/10/09	6121.10	76.23	ND		6044.87
MW-4	06/03/09	6121.10	76.30	ND		6044.80
MW-4	08/26/09	6121.10	76.62	ND		6044.48
MW-4	11/05/09	6121.10	76.47	ND		6044.63
MW-4	02/11/10	6121.10	76.32	ND		6044.78
MW-4	05/21/10	6121.10	76.58	ND		6044.52
MW-4	09/29/10	6121.10	76.85	ND		6044.25
MW-4	11/02/10	6121.10	77.07	ND		6044.03
MW-4	02/02/11	6121.10	76.80	ND		6044.30

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	Date	TOC	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	GW Elevation (ft.)
MW-4	05/04/11	6121.10	76.78	ND		6044.32
MW-4	09/29/11	6121.10	76.27	ND		6044.83
MW-4	11/11/11	6121.10	76.25	ND		6044.85
MW-4	02/16/12	6121.10	76.97	ND		6044.13
MW-4	05/08/12	6121.10	76.03	ND		6045.07
MW-4	06/07/13	6121.10	76.87	ND		6044.23
MW-4	09/12/13	6121.10	77.08	ND		6044.02
MW-4	12/13/13	6121.10	77.11	ND		6043.99
MW-4	04/05/14	6121.10	77.06	ND		6044.04
MW-4	10/21/14	6121.10	77.20	ND		6043.90
MW-4	05/27/15	6121.10	77.12	ND		6043.98
MW-4	11/22/15	6121.10	77.06	ND		6044.04
MW-4	04/15/16	6121.10	76.67	ND		6044.43
MW-4	10/11/16	6121.10	76.30	ND		6044.80
MW-4	06/06/17	6121.10	75.69	ND		6045.41
MW-4	11/10/17	6121.10	75.31	ND		6045.79
MW-4	03/30/18	6121.10	75.08	ND		6046.02
MW-4	05/02/18	6121.10	73.72	ND		6047.38
MW-4	05/18/18	6121.10	74.98	74.78	0.20	6046.27
MW-4	10/25/18	6121.10	75.08	75.07	0.01	6046.02
MW-5	08/30/00	6117.88	74.19	NR		6043.69
MW-5	06/05/01	6117.88	74.26	NR		6043.62
MW-5	07/13/01	6117.88	74.34	NR		6043.54
MW-5	08/16/01	6117.88	74.29	NR		6043.59
MW-5	09/10/01	6117.88	74.30	NR		6043.58
MW-5	05/17/02	6117.88	74.15	NR		6043.73
MW-5	09/04/02	6117.88	74.24	NR		6043.64
MW-5	12/17/02	6117.88	73.78	NR		6044.10
MW-5	06/26/03	6117.88	74.27	ND		6043.61
MW-5	09/14/03	6117.88	74.42	ND		6043.46
MW-5	12/09/03	6117.88	74.25	ND		6043.63
MW-5	03/15/04	6117.88	74.23	ND		6043.65
MW-5	06/17/04	6117.88	74.21	ND		6043.67
MW-5	09/16/04	6117.88	74.00	ND		6043.88
MW-5	12/20/04	6117.88	73.83	ND		6044.05
MW-5	03/17/05	6117.88	73.76	ND		6044.12
MW-5	06/17/05	6117.88	73.81	ND		6044.07
MW-5	09/15/05	6117.88	73.80	ND		6044.08
MW-5	12/22/05	6117.88	73.93	ND		6043.95
MW-5	03/27/06	6117.88	73.94	ND		6043.94
MW-5	06/19/06	6117.88	73.98	ND		6043.90
MW-5	09/27/06	6117.88	74.20	ND		6043.68
MW-5	12/20/06	6117.88	74.00	ND		6043.88
MW-5	03/28/07	6117.88	74.17	ND		6043.71
MW-5	06/14/07	6117.88	74.39	ND		6043.49
MW-5	09/18/07	6117.88	74.46	ND		6043.42
MW-5	12/17/07	6117.88	74.41	ND		6043.47
MW-5	03/05/08	6117.88	74.36	ND		6043.52
MW-5	06/12/08	6117.88	74.53	ND		6043.35
MW-5	09/08/08	6117.88	74.47	ND		6043.41

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-5	12/03/08	6117.88	74.54	ND		6043.34
MW-5	03/10/09	6117.88	74.53	ND		6043.35
MW-5	06/03/09	6117.88	74.67	74.65	0.02	6043.22
MW-5	08/26/09	6117.88	76.44	ND		6041.44
MW-5	11/05/09	6117.88	74.83	ND		6043.05
MW-5	02/11/10	6117.88	74.66	74.64	0.02	6043.23
MW-5	05/21/10	6117.88	75.00	74.95	0.05	6042.91
MW-5	09/29/10	6117.88	75.20	74.84	0.36	6042.95
MW-5	11/02/10	6117.88	76.67	76.32	0.35	6041.47
MW-5	02/02/11	6117.88	75.53	75.16	0.37	6042.62
MW-5	05/04/11	6117.88	77.53	77.50	0.03	6040.37
MW-5	09/29/11	6117.88	75.09	74.69	0.40	6043.09
MW-5	11/11/11	6117.88	75.18	74.90	0.28	6042.91
MW-5	02/16/12	6117.88	74.99	74.82	0.17	6043.01
MW-5	05/08/12	6117.88	74.77	ND		6043.11
MW-5	06/07/13	6117.88	75.25	75.16	0.09	6042.69
MW-5	09/12/13	6117.88	75.52	75.34	0.18	6042.49
MW-5	12/13/13	6117.88	75.52	75.30	0.22	6042.52
MW-5	04/05/14	6117.88	75.54	75.28	0.26	6042.53
MW-5	10/21/14	6117.88	75.44	75.44	0.00	6042.44
MW-5	05/27/15	6117.88	75.45	75.44	0.01	6042.43
MW-5	11/22/15	6117.88	75.47	75.46	0.01	6042.41
MW-5	04/15/16	6117.88	75.57	75.23	0.34	6042.56
MW-5	10/11/16	6117.88	75.03	74.53	0.50	6043.22
MW-5	06/06/17	6117.88	74.72	ND		6043.16
MW-5	11/10/17	6117.88	74.44	ND		6043.44
MW-5	03/30/18	6117.88	74.37	ND		6043.51
MW-5	05/18/18	6117.88	74.11	ND		6043.77
MW-5	10/25/18	6117.88	74.56	ND		6043.32
MW-6	12/20/01	6113.73	NR	NR		NR
MW-6	12/28/01	6113.73	NR	NR		NR
MW-6	03/06/02	6113.73	72.09	70.64	1.45	6042.72
MW-6	03/11/02	6113.73	71.95	71.38	0.57	6042.20
MW-6	03/21/02	6113.73	71.44	71.17	0.27	6042.49
MW-6	04/03/02	6113.73	71.06	71.04	0.02	6042.68
MW-6	05/17/02	6113.73	71.04	70.97	0.07	6042.74
MW-6	09/04/02	6113.73	71.28	71.05	0.23	6042.62
MW-6	12/17/02	6113.73	71.06	71.03	0.03	6042.69
MW-6	03/20/03	6113.73	71.43	70.90	0.53	6042.69
MW-6	06/26/03	6113.73	71.66	71.04	0.62	6042.53
MW-6	09/14/03	6113.73	72.25	71.04	1.21	6042.38
MW-6	12/09/03	6113.73	71.75	71.10	0.65	6042.46
MW-6	03/15/04	6113.73	71.74	71.11	0.63	6042.46
MW-6	06/17/04	6113.73	71.68	71.11	0.57	6042.47
MW-6	09/16/04	6113.73	71.79	71.05	0.74	6042.49
MW-6	12/20/04	6113.73	72.09	71.05	1.04	6042.42
MW-6	03/17/05	6113.73	71.79	70.96	0.83	6042.56
MW-6	06/17/05	6113.73	72.05	71.05	1.00	6042.43
MW-6	09/15/05	6113.73	72.14	71.04	1.10	6042.41
MW-6	12/22/05	6113.73	72.22	71.30	0.92	6042.20

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-6	03/27/06	6113.73	72.10	71.02	1.08	6042.44
MW-6	06/19/06	6113.73	72.33	71.34	0.99	6042.14
MW-6	07/21/06	6113.73	72.44	71.54	0.90	6041.96
MW-6	08/24/06	6113.73	72.42	71.54	0.88	6041.97
MW-6	09/27/06	6113.73	72.37	71.57	0.80	6041.96
MW-6	10/22/06	6113.73	72.35	71.53	0.82	6041.99
MW-6	11/07/06	6113.73	72.43	71.66	0.77	6041.87
MW-6	12/20/06	6113.73	72.41	71.60	0.81	6041.92
MW-6	01/16/07	6113.73	72.45	71.62	0.83	6041.90
MW-6	02/26/07	6113.73	72.41	71.65	0.76	6041.89
MW-6	03/26/07	6113.73	72.50	71.76	0.74	6041.78
MW-6	03/28/07	6113.73	72.39	ND		6041.34
MW-6	04/30/07	6113.73	72.49	71.77	0.72	6041.78
MW-6	05/24/07	6113.73	72.50	71.91	0.59	6041.67
MW-6	06/14/07	6113.73	72.42	71.83	0.59	6041.75
MW-6	07/31/07	6113.73	72.49	71.83	0.66	6041.73
MW-6	08/29/07	6113.73	72.47	71.82	0.65	6041.74
MW-6	09/18/07	6113.73	72.43	71.82	0.61	6041.75
MW-6	10/31/07	6113.73	72.40	72.12	0.28	6041.54
MW-6	11/30/07	6113.73	72.27	72.02	0.25	6041.64
MW-6	12/17/07	6113.73	72.18	72.11	0.07	6041.60
MW-6	01/23/08	6113.73	72.13	71.96	0.17	6041.72
MW-6	03/05/08	6113.73	71.95	71.94	0.01	6041.78
MW-6	04/15/08	6113.73	72.09	ND		6041.64
MW-6	05/08/08	6113.73	71.94	ND		6041.79
MW-6	06/12/08	6113.73	72.02	ND		6041.71
MW-6	07/17/08	6113.73	72.07	ND		6041.66
MW-6	08/12/08	6113.73	72.02	ND		6041.71
MW-6	09/08/08	6113.73	71.92	71.91	0.01	6041.81
MW-6	10/09/08	6113.73	71.97	ND		6041.76
MW-6	11/07/08	6113.73	71.98	ND		6041.75
MW-6	12/03/08	6113.73	72.00	ND		6041.73
MW-6	01/16/09	6113.73	72.15	ND		6041.58
MW-6	02/06/09	6113.73	72.09	ND		6041.64
MW-6	03/10/09	6113.73	71.92	ND		6041.81
MW-6	04/01/09	6113.73	71.84	ND		6041.89
MW-6	05/01/09	6113.73	72.00	ND		6041.73
MW-6	06/03/09	6113.73	72.06	ND		6041.67
MW-6	08/26/09	6113.73	73.02	ND		6040.71
MW-6	11/05/09	6113.73	72.18	ND		6041.55
MW-6	02/11/10	6113.73	72.13	ND		6041.60
MW-6	05/21/10	6113.73	72.20	ND		6041.53
MW-6	09/29/10	6113.73	72.15	ND		6041.58
MW-6	11/02/10	6113.73	73.07	ND		6040.66
MW-6	02/02/11	6113.73	72.25	ND		6041.48
MW-6	05/04/11	6113.73	72.32	ND		6041.41
MW-6	09/29/11	6113.73	72.30	ND		6041.43
MW-6	11/11/11	6113.73	72.78	ND		6040.95
MW-6	02/16/12	6113.73	72.29	ND		6041.44
MW-6	05/08/12	6113.73	72.37	ND		6041.36
MW-6	06/07/13	6113.73	72.51	ND		6041.22

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-6	09/12/13	6113.73	72.40	ND		6041.33
MW-6	12/13/13	6113.73	72.63	ND		6041.10
MW-6	04/05/14	6113.73	72.64	ND		6041.09
MW-6	10/21/14	6113.73	72.86	ND		6040.87
MW-6	05/27/15	6113.73	72.90	ND		6040.83
MW-6	11/22/15	6113.73	72.97	ND		6040.76
MW-6	04/15/16	6113.73	72.94	ND		6040.79
MW-6	10/11/16	6113.73	73.04	ND		6040.69
MW-6	06/06/17	6113.73	72.75	ND		6040.98
MW-6	11/10/17	6113.73	72.72	ND		6041.01
MW-6	03/30/18	6113.73	72.91	ND		6040.82
MW-6	05/18/18	6113.73	72.60	ND		6041.13
MW-6	10/25/18	6113.73	72.73	ND		6041.00
MW-7	12/20/06	6121.89	74.38	ND		6047.51
MW-7	03/28/07	6121.89	74.51	ND		6047.38
MW-7	06/14/07	6121.89	74.47	ND		6047.42
MW-7	09/18/07	6121.89	74.22	ND		6047.67
MW-7	12/17/07	6121.89	74.12	ND		6047.77
MW-7	03/05/08	6121.89	73.90	ND		6047.99
MW-7	04/15/08	6121.89	72.82	ND		6049.07
MW-7	06/12/08	6121.89	73.77	ND		6048.12
MW-7	09/08/08	6121.89	73.76	73.75	0.01	6048.13
MW-7	12/03/08	6121.89	73.92	ND		6047.97
MW-7	03/10/09	6121.89	73.83	ND		6048.06
MW-7	06/03/09	6121.89	73.85	ND		6048.04
MW-7	08/25/09	6121.89	NA	NA		0.00
MW-7	08/26/09	6121.89	73.63	ND		6048.26
MW-7	11/05/09	6121.89	73.92	ND		6047.97
MW-7	02/11/10	6121.89	73.91	ND		6047.98
MW-7	05/21/10	6121.89	74.28	ND		6047.61
MW-7	09/29/10	6121.89	74.57	ND		6047.32
MW-7	11/02/10	6121.89	74.76	ND		6047.13
MW-7	02/02/11	6121.89	73.95	ND		6047.94
MW-7	05/04/11	6121.89	73.00	ND		6048.89
MW-7	09/29/11	6121.89	71.93	ND		6049.96
MW-7	11/11/11	6121.89	71.90	ND		6049.99
MW-7	02/16/12	6121.89	71.85	ND		6050.04
MW-7	05/08/12	6121.89	72.94	ND		6048.95
MW-7	06/07/13	Well Destroyed				
MW-9	12/20/06	6109.56	67.56	ND		6042.00
MW-9	03/28/07	6109.56	67.72	ND		6041.84
MW-9	06/14/07	6109.56	67.97	ND		6041.59
MW-9	09/18/07	6109.56	68.10	ND		6041.46
MW-9	12/17/07	6109.56	68.07	ND		6041.49
MW-9	03/05/08	6109.56	68.04	ND		6041.52
MW-9	04/15/08	6109.56	68.03	ND		6041.53
MW-9	06/12/08	6109.56	68.27	ND		6041.29
MW-9	09/08/08	6109.56	68.25	ND		6041.31
MW-9	12/03/08	6109.56	68.26	ND		6041.30

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-9	03/10/09	6109.56	68.28	ND		6041.28
MW-9	06/03/09	6109.56	68.44	ND		6041.12
MW-9	08/26/09	6109.56	68.40	ND		6041.16
MW-9	11/05/09	6109.56	68.62	ND		6040.94
MW-9	02/11/10	6109.56	68.30	ND		6041.26
MW-9	05/21/10	6109.56	68.42	ND		6041.14
MW-9	09/29/10	6109.56	68.47	ND		6041.09
MW-9	11/02/10	6109.56	68.73	ND		6040.83
MW-9	02/02/11	6109.56	68.60	ND		6040.96
MW-9	05/04/11	6109.56	68.74	ND		6040.82
MW-9	09/29/11	6109.56	68.67	ND		6040.89
MW-9	11/11/11	6109.56	68.65	ND		6040.91
MW-9	02/16/12	6109.56	68.60	ND		6040.96
MW-9	05/08/12	6109.56	68.62	ND		6040.94
MW-9	06/07/13	6109.56	68.99	ND		6040.57
MW-9	09/12/13	6109.56	69.18	ND		6040.38
MW-9	12/13/13	6109.56	69.04	ND		6040.52
MW-9	04/05/14	6109.56	69.02	ND		6040.54
MW-9	10/21/14	6109.56	69.30	ND		6040.26
MW-9	05/27/15	6109.56	69.44	ND		6040.12
MW-9	11/22/15	6109.56	69.58	ND		6039.98
MW-9	04/15/16	6109.56	69.44	ND		6040.12
MW-9	10/11/16	6109.56	69.34	ND		6040.22
MW-9	06/06/17	6109.56	69.36	ND		6040.20
MW-9	11/10/17	6109.56	69.34	ND		6040.22
MW-9	03/30/18	6109.56	69.38	ND		6040.18
MW-9	05/18/18	6109.56	69.15	ND		6040.41
MW-9	10/25/18	6109.56	69.39	ND		6040.17
MW-10	05/27/15	6123.78	71.94	71.78	0.16	6051.96
MW-10	11/22/15	6123.78	71.29	71.11	0.18	6052.63
MW-10	04/15/16	6123.78	70.62	ND		6053.16
MW-10	10/11/16	6123.78	69.85	ND		6053.93
MW-10	06/06/17	6123.78	68.99	ND		6054.79
MW-10	11/10/17	6123.78	68.44	ND		6055.34
MW-10	03/30/18	6124.78	68.85	ND		6055.93
MW-10	05/02/18	6124.78	68.74	ND		6056.04
MW-10	05/18/18	6123.78	68.77	ND		6055.01
MW-10	10/25/18	6123.78	69.42	ND		6054.36
MW-11	05/27/15	6121.55	75.02	75.01	0.01	6046.54
MW-11	11/22/15	6121.55	74.61	74.59	0.02	6046.96
MW-11	04/15/16	6121.55	75.11	74.33	0.78	6047.03
MW-11	10/11/16	6121.55	73.79	73.66	0.13	6047.86
MW-11	06/06/17	6123.78	73.03	ND		6050.75
MW-11	11/10/17	6123.78	72.91	ND		6050.87
MW-11	03/30/18	6124.78	72.32	ND		6052.46

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-11	05/02/18	6124.78	72.35	ND		6052.43
MW-11	05/18/18	6123.78	72.10	ND		6051.68
MW-11	10/25/18	6121.55	72.55	ND		6049.00
MW-12	05/27/15	6118.17	86.28	ND		6031.89
MW-12	11/22/15	6118.17	85.20	ND		6032.97
MW-12	04/15/16	6118.17	84.49	ND		6033.68
MW-12	10/11/16	6118.17	83.46	ND		6034.71
MW-12	06/06/17	6118.17	82.13	ND		6036.04
MW-12	11/10/17	6118.17	81.34	ND		6036.83
MW-12	03/30/18	6118.17	80.55	ND		6037.62
MW-12	05/18/18	6118.17	80.30	ND		6037.87
MW-12	10/25/18	6118.17	79.40	ND		6038.77
MW-13	05/27/15	6115.52	83.66	ND		6031.86
MW-13	11/22/15	6115.52	81.40	ND		6034.12
MW-13	04/15/16	6115.52	80.14	ND		6035.38
MW-13	10/11/16	6115.52	79.19	ND		6036.33
MW-13	06/06/17	6115.52	78.03	ND		6037.49
MW-13	11/10/17	6115.52	77.66	ND		6037.86
MW-13	03/30/18	6115.52	77.55	ND		6037.97
MW-13	05/18/18	6115.52	77.72	ND		6037.80
MW-13	10/25/18	6115.52	77.49	ND		6038.03
MW-14	05/27/15	6111.92	71.41	ND		6040.51
MW-14	11/22/15	6111.92	71.45	ND		6040.47
MW-14	04/15/16	6111.92	71.26	ND		6040.66
MW-14	10/11/16	6111.92	71.22	ND		6040.70
MW-14	06/06/17	6111.92	71.04	ND		6040.88
MW-14	11/10/17	6111.92	70.90	ND		6041.02
MW-14	03/30/18	6111.92	70.93	ND		6040.99
MW-14	05/18/18	6111.92	70.66	ND		6041.26
MW-14	10/25/18	6111.92	70.95	ND		6040.97
MW-15	05/27/15	6110.93	70.42	ND		6040.51
MW-15	11/22/15	6110.93	70.56	ND		6040.37
MW-15	04/15/16	6110.93	70.41	ND		6040.52
MW-15	10/11/16	6110.93	70.38	ND		6040.55
MW-15	06/06/17	6110.93	70.36	ND		6040.57
MW-15	11/10/17	6110.93	70.31	ND		6040.62
MW-15	03/30/18	6110.93	70.35	ND		6040.58
MW-15	05/18/18	6110.93	70.13	ND		6040.80
MW-15	10/25/18	6110.93	70.34	ND		6040.59
MW-16	05/27/15	6113.78	72.66	ND		6041.12
MW-16	11/22/15	6113.78	72.79	ND		6040.99

TABLE 2 - GROUNDWATER ELEVATION RESULTS

State Gas Com N#1						
Location	**Date**	**TOC**	**Depth to Water (ft.)**	**Depth to LNAPL (ft.)**	**LNAPL Thickness (ft.)**	**GW Elevation (ft.)**
MW-16	04/15/16	6113.78	72.69	ND		6041.09
MW-16	10/11/16	6113.78	72.84	ND		6040.94
MW-16	06/06/17	6113.78	72.58	ND		6041.20
MW-16	11/10/17	6113.78	72.53	ND		6041.25
MW-16	03/30/18	6113.78	72.46	ND		6041.32
MW-16	05/18/18	6113.78	72.36	ND		6041.42
MW-16	10/25/18	6113.78	72.56	ND		6041.22
MW-17	05/27/15	6117.30	85.94	ND		6031.36
MW-17	11/22/15	6117.30	84.77	ND		6032.53
MW-17	04/15/16	6117.30	84.18	ND		6033.12
MW-17	10/11/16	6117.30	83.42	ND		6033.88
MW-17	06/06/17	6117.30	82.48	ND		6034.82
MW-17	11/10/17	6117.30	81.87	ND		6035.43
MW-17	03/30/18	6117.30	81.38	ND		6035.92
MW-17	05/18/18	6117.30	80.16	ND		6037.14
MW-17	10/25/18	6117.30	80.56	ND		6036.74
MW-18	05/27/15	6121.16	77.74	ND		6043.42
MW-18	11/22/15	6121.16	77.70	ND		6043.46
MW-18	04/15/16	6121.16	77.52	ND		6043.64
MW-18	10/11/16	6121.16	77.54	ND		6043.62
MW-18	06/06/17	6121.16	77.01	ND		6044.15
MW-18	11/10/17	6121.16	76.83	ND		6044.33
MW-18	03/30/18	6121.16	76.66	ND		6044.50
MW-18	05/18/18	6121.16	76.47	ND		6044.69
MW-18	10/25/18	6121.16	76.47	ND		6044.69
MW-19	05/27/15	6115.44	73.76	ND		6041.68
MW-19	11/22/15	6115.44	73.82	ND		6041.62
MW-19	04/15/16	6115.44	73.67	ND		6041.77
MW-19	10/11/16	6115.44	73.76	ND		6041.68
MW-19	06/06/17	6115.44	73.29	ND		6042.15
MW-19	11/10/17	6115.44	73.12	ND		6042.32
MW-19	03/30/18	6115.44	73.05	ND		6042.39
MW-19	05/18/18	6115.44	72.82	ND		6042.62
MW-19	10/25/18	6115.44	73.22	ND		6042.22

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

TABLE 3
FREE PRODUCT RECOVERY
State Gas Com N#1 - San Juan County, NM

WELL ID - MW-3	Depth to Product (Feet)	Depth to Water (Feet)	Measured Thickness (Feet)	Product Recovered (gal)	Water Recovered (gal)
Date					
04/12/16	ND	76.73	0	0	0
04/20/16	77.1	77.1	0.00	0	0
06/16/16	77.37	77.62	0.25	0.16	<0.01
07/16/16	77.55	78.1	0.55	0.23	<0.01
08/18/16	NM	NM	0.14	0.39	0.04
10/11/16	NM	76.36	0.02	0.03	0.01
11/14/16	NM	NM	0.19	0.23	0.01
12/14/16	76.35	76.47	0.12	0.08	0.01
06/06/17	ND	75.95	0	0	0
11/10/17	ND	75.57	0	0	0
05/18/18	ND	75.17	0	0	0
10/25/18	ND	75.55	0	0	0

NM= Not measured. Measured thickness was obtained by measuring the thickness within the bailer.
ND = Not detected.
* = Includes calculated recovered hydrocarbon vapors.
- = No data recorded

TABLE 3
FREE PRODUCT RECOVERY
State Gas Com N#1 - San Juan County, NM

WELL ID - MW-4	Depth to Product (Feet)	Depth to Water (Feet)	Measured Thickness (Feet)	Product Recovered (gal)	Water Recovered (gal)
Date					
04/15/16	ND	76.67	0	0	0
10/11/16	ND	76.3	0	0	0
06/06/17	ND	75.69	0	0	0
11/10/17	ND	75.31	0	0	0
05/18/18	74.78	74.98	0.20	<0.01	<0.01
10/25/18	75.07	75.08	0.01	0.01	<0.01

NM= Not measured. Measured thickness was obtained by measuring the thickness within the bailer.
ND = Not detected.
* = Includes calculated recovered hydrocarbon vapors.
- = No data recorded

TABLE 3
FREE PRODUCT RECOVERY
State Gas Com N#1 - San Juan County, NM

WELL ID - MW-5	Depth to Product (Feet)	Depth to Water (Feet)	Measured Thickness (Feet)	Product Recovered (gal)	Water Recovered (gal)
Date					
04/12/16	75.23	75.57	0.34	0.12	<0.01
05/25/16	75.24	75.34	0.1	0.01	<0.01
06/16/16	ND	75.63	0	0	0
07/16/16	75.52	75.63	0.11	<0.01	<0.01
10/11/16	NM	75.03	0	0	0
12/14/16	ND	74.95	0	0	0
06/06/17	ND	74.72	0	0	0
11/10/17	ND	74.44	0	0	0
05/18/18	ND	74.11	0	0	0
10/25/18	ND	74.56	0	0	0

NM= Not measured. Measured thickness was obtained by measuring the thickness within the bailer.
ND = Not detected.
* = Includes calculated recovered hydrocarbon vapors.
- = No data recorded

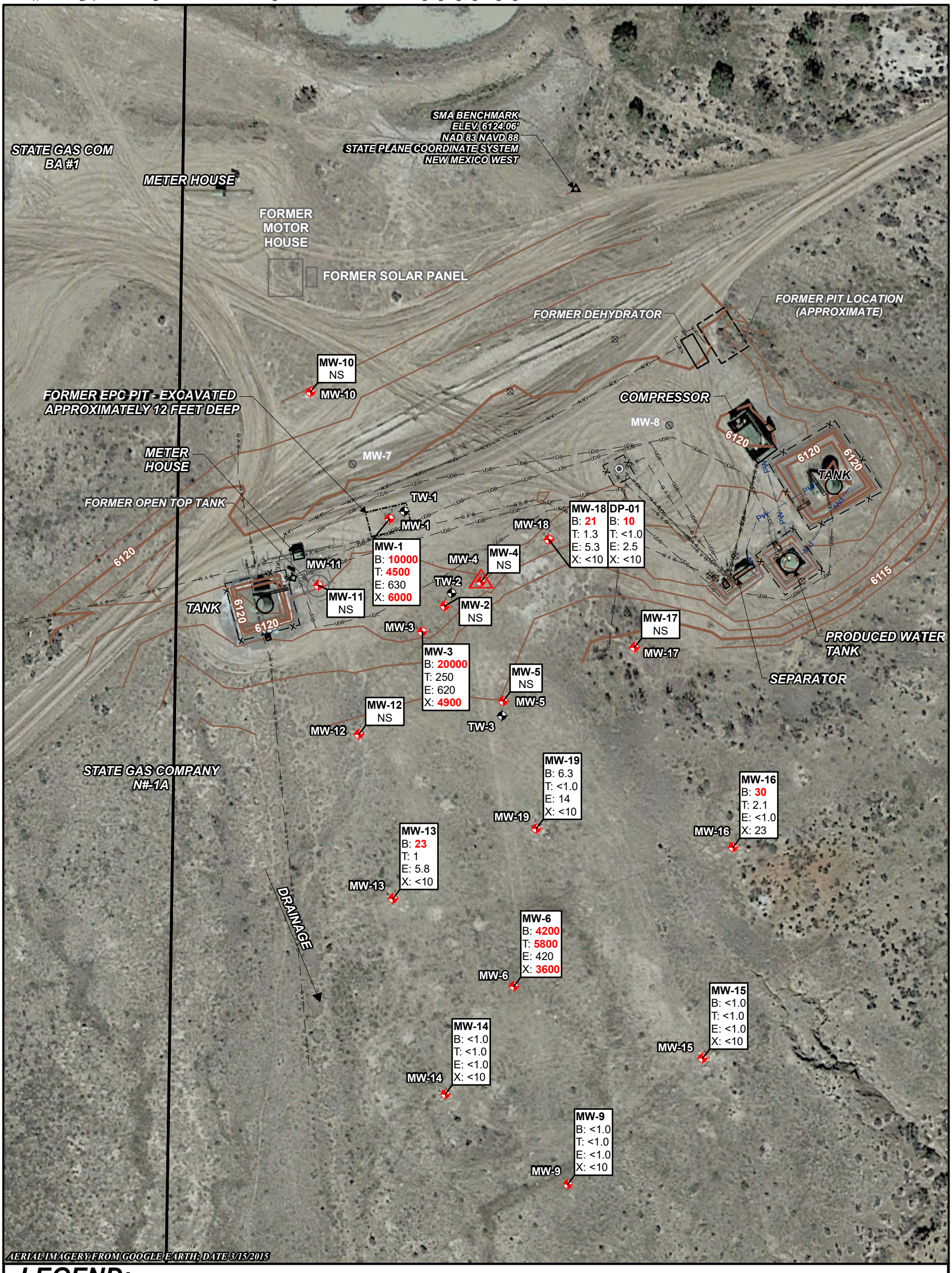
TABLE 3
FREE PRODUCT RECOVERY
State Gas Com N#1 - San Juan County, NM

WELL ID - MW-11	Depth to Product (Feet)	Depth to Water (Feet)	Measured Thickness (Feet)	Product Recovered (gal)	Water Recovered (gal)
Date					
04/12/16	74.33	75.11	0.78	0.53	<0.01
05/25/16	74.24	74.42	0.18	0.02	<0.01
06/16/16	ND	74.55	0	0	0
07/16/16	NM	NM	sheen	<0.01	<0.01
08/18/16	NM	NM	sheen	<0.01	<0.01
09/24/16	NM	NM	sheen	<0.01	<0.01
10/11/16	NM	73.79	0.13	0.06	<0.01
11/14/16	ND	74.25	0	0	0
12/14/16	ND	74.10	0	0	0
06/06/17	ND	73.03	0	0	0
11/10/17	ND	72.41	0	0	0
05/18/18	ND	72.10	0	0	0
10/25/18	ND	72.55	0	0	0

NM= Not measured. Measured thickness was obtained by measuring the thickness within the bailer.
ND = Not detected.
* = Includes calculated recovered hydrocarbon vapors.
- = No data recorded

FIGURES

\\Us0389-ppfss01\shared_projects\193710238\07_historical\SJRB GENERAL\GIS-NEW_MXDs\STATE GAS COM N#1\2018 MAPS\State_Gas_Com_N#1_GARM_1SA_2018.mxd



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

LEGEND:

- 6120 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- —X— FENCE
- —G A S— NATURAL GAS LINE
- —PW— PRODUCED WATER LINE
- —UKN— UNKNOWN LINE
- —UGC— UNDERGROUND CABLE
- —UGC— STATE LAND OFFICE WATER EASEMENT BOUNDARY
- ABANDONED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- SMA BENCHMARK
- WELLHEAD
- TEST WELL

NOTES:

DP = FIELD DUPLICATE SAMPLE

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE**/RED TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<1.0 = BELOW REPORTING 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 50 100

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	3/27/2019	SLG	SLG	SV

TITLE:

GROUNDWATER ANALYTICAL RESULTS
MAY 18, 2018

PROJECT:

STATE GAS COM N#1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: 1

U:\193710238\07_historical\SJRB GENERAL\GIS-NEW_MXDs\STATE GAS COM N#1\2018 MAPS\State_Gas_Com_N#1_GECM_1SA_2018.mxd

STATE GAS COM BA #1

METER HOUSE

SMA BENCHMARK
ELEV. 6124.06'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

FORMER MOTOR HOUSE

FORMER SOLAR PANEL

FORMER PIT LOCATION (APPROXIMATE)

FORMER DEHYDRATOR

COMPRESSOR

MW-10
6055.01

FORMER EPC PIT - EXCAVATED APPROXIMATELY 12 FEET DEEP

METER HOUSE

MW-07

FORMER OPEN TOP TANK

TW-1

MW-1
6051.70

MW-18
6044.69

MW-4
6046.27

TW-2

MW-11
6051.68

TANK

MW-2
6046.45

MW-3
6045.25

MW-17
6037.14*

PRODUCED WATER TANK

MW-5
6043.77

SEPARATOR

MW-12
6037.87*

TW-3

STATE GAS COMPANY N#-1A

MW-19
6042.62

MW-16
6041.42

MW-13
6037.80*

DRAINAGE

MW-6
6041.13

MW-15
6040.80

MW-14
6041.26

MW-9
6040.41

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

LEGEND:

- 6120 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- —X— FENCE
- —G A S— NATURAL GAS LINE
- —PW— PRODUCED WATER LINE
- —UKN— UNKNOWN LINE
- —UGC— UNDERGROUND CABLE
- STATE LAND OFFICE WATER EASEMENT BOUNDARY
- ABANDONED MONITORING WELL
- MONITORING WELL
- RIG ANCHOR
- SMA BENCHMARK
- WELLHEAD
- TEST WELL

NOTES:

6039.98 — GROUNDWATER ELEVATION (CORRECTED FOR PRODUCT THICKNESS WHEN PRESENT) FEET ABOVE MEAN SEA LEVEL

–6041– CORRECTED WATER ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL) 2 FOOT CONTOUR INTERVAL

DIRECTION OF APPARENT GROUNDWATER FLOW

* MONITORING WELLS MW-12, MW-13, AND MW-17 WERE NOT USED FOR GROUNDWATER CONTOURING DUE TO ANOMALOUS MEASUREMENTS.

N

SCALE IN FEET
0 50 100

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	1/30/2019	SLG	SLG	SV

TITLE:

GROUNDWATER ELEVATION MAP
MAY 18, 2018

PROJECT:

STATE GAS COM N#1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: **2**

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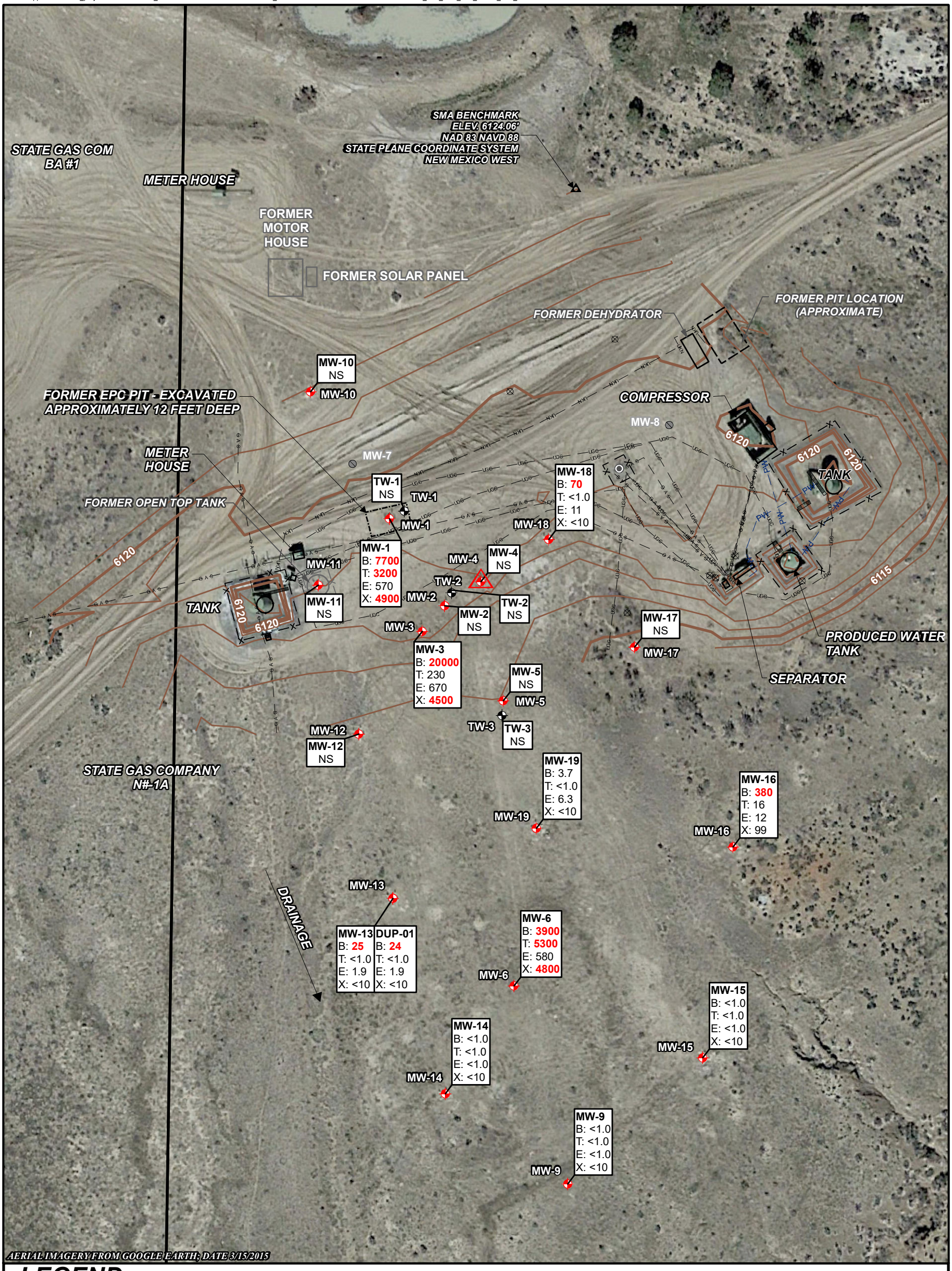

LEGEND:

- 6120 — APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- —X— FENCE
- —G A S— NATURAL GAS LINE
- —PW— PRODUCED WATER LINE
- —UKN— UNKNOWN LINE
- —UGC— UNDERGROUND CABLE
- STATE LAND OFFICE WATER EASEMENT BOUNDARY
- ABANDONED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- SMA BENCHMARK
- WELLHEAD
- TEST WELL

NOTES:

DUP = FIELD DUPLICATE SAMPLE

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE**/RED TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
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µg/L = MICROGRAMS PER LITER
<1.0 = BELOW REPORTING 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 50 100

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	3/27/2019	SLG	SLG	SV

TITLE:

GROUNDWATER ANALYTICAL RESULTS
OCTOBER 25, 2018

PROJECT:

STATE GAS COM N#1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: 3

U:\193710238\07_historical\SJRB GENERAL\GIS-NEW_MXDs\STATE GAS COM N#1\2018 MAPS\State_Gas_Com_N#1_GECM_2SA_2018.mxd

STATE GAS COM BA #1

METER HOUSE

SMA BENCHMARK
ELEV. 6124.06'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

FORMER MOTOR HOUSE

FORMER SOLAR PANEL

FORMER PIT LOCATION (APPROXIMATE)

FORMER DEHYDRATOR

COMPRESSOR

MW-10
6054.36

FORMER EPC PIT - EXCAVATED APPROXIMATELY 12 FEET DEEP

MW-08

METER HOUSE

MW-07

FORMER OPEN TOP TANK

TANK

MW-1
6051.21

MW-18
6044.69

MW-11
6049.00

MW-4
6046.02

TW-2

MW-2
6046.07

MW-3
6044.87

TANK

MW-17
6036.74*

PRODUCED WATER TANK

SEPARATOR

MW-5
6043.32

TW-3

MW-12
6038.77*

STATE GAS COMPANY N#-1A

MW-19
6042.22

MW-16
6041.22

MW-13
6038.03*

DRAINAGE

MW-6
6041.00

MW-15
6040.59

MW-14
6040.97

MW-9
6040.17

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

LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UNKNOWN LINE
- UNDERGROUND CABLE
- STATE LAND OFFICE WATER EASEMENT BOUNDARY
- ABANDONED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- SMA BENCHMARK
- WELLHEAD
- TEST WELL

NOTES:

6039.98 GROUNDWATER ELEVATION (CORRECTED FOR PRODUCT THICKNESS WHEN PRESENT) FEET ABOVE MEAN SEA LEVEL

–6041– CORRECTED WATER ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL) 2 FOOT CONTOUR INTERVAL

DIRECTION OF APPARENT GROUNDWATER FLOW

* MONITORING WELLS MW-12, MW-13, AND MW-17 WERE NOT USED FOR GROUNDWATER CONTOURING DUE TO ANOMALOUS MEASUREMENTS.

N

SCALE IN FEET
0 50 100

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	1/30/2019	SLG	SLG	SV

TITLE:

GROUNDWATER ELEVATION MAP
OCTOBER 25, 2018

PROJECT:

STATE GAS COM N#1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.: **4**

APPENDICES

APPENDIX A – NMOCD NOTIFICATIONS OF SITE ACTIVITIES

APPENDIX B – AS FEASIBLITY TEST RESULTS

APPENDIX C – SVE FEASIBLITY TEST RESULTS

APPENDIX D – AQUIFER TESTING RESULTS

APPENDIX E – WASTE DISPOSAL DOCUMENTATION

APPENDIX F – MAY 18, 2018 GROUNDWATER SAMPLING ANALYTICAL REPORT
OCTOBER 25, 2018 GROUNDWATER SAMPLING ANALYTICAL REPORT

APPENDIX A

From:	Varsa, Steve
To:	"Bayliss, Randolph, EMNRD"
Cc:	Smith, Cory, EMNRD; Fields, Vanessa, EMNRD; "Wiley, Joe"
Bcc:	Varsa, Steve
Subject:	FW: MPDE Work Plan Approval - 3RP-239 (State Gas Com N#1)
Date:	Wednesday, March 28, 2018 11:56:00 AM

Hi Randy –

This correspondence is provide NMOCD notice that Stantec plans to be on-site on March 31, and April 2, 2018, to complete aquifer slug testing activities, pursuant to above-referenced work plan.

The air sparge and soil vapor extraction pilot testing activities are expected to occur the week of April 30, 2018. Follow-up correspondence will be provided on the start date.

Thank you,
Steve

Stephen Varsa, P.G.
Senior Hydrogeologist
Stantec Environmental Services
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: Friday, October 06, 2017 7:08 PM
To: Bayliss, Randolph, EMNRD <Randolph.Bayliss@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Perrin, Charlie, EMNRD <charlie.perrin@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Wiley, Joe <Joe_Wiley@kindermorgan.com>
Subject: RE: MPDE Work Plan Approval - 3RP-239 (State Gas Com N#1)

Hi Randy –

Pursuant to the July 5, 2017 approval letter for the above-referenced project, this correspondence is to provide notification of planned air sparge test well installation activities, with well drilling to begin on October 30, 2017. Utility clearance activities are to occur on October 16 and 17, 2017. Follow-up correspondence will be provided once the start date of the planned pilot testing activities is finalized.

Please feel free to contact Joe Wiley Joe 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: 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:	Smith, Cory, EMNRD; Fields, Vanessa, EMNRD; Wiley, Joe
Bcc:	Varsa, Steve
Subject:	FW: MPDE Work Plan Approval - 3RP-239 (State Gas Com N#1)
Date:	Thursday, April 26, 2018 5:12:00 PM

Hi Randy –

This correspondence is to provide NMOCD notice that Stantec plans to be on-site May 1 through 3, 2018, to complete the air sparge and soil vapor extraction testing activities, pursuant to the subject work plan.

Thank you,
Steve

Stephen Varsa, P.G.
Senior Hydrogeologist
Stantec Environmental Services
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, March 28, 2018 11:56 AM
To: 'Bayliss, Randolph, EMNRD' <Randolph.Bayliss@state.nm.us>
Cc: Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; 'Wiley, Joe' <Joe_Wiley@kindermorgan.com>
Subject: FW: MPDE Work Plan Approval - 3RP-239 (State Gas Com N#1)

Hi Randy –

This correspondence is provide NMOCD notice that Stantec plans to be on-site on March 31, and April 2, 2018, to complete aquifer slug testing activities, pursuant to above-referenced work plan.

The air sparge and soil vapor extraction pilot testing activities are expected to occur the week of April 30, 2018. Follow-up correspondence will be provided on the start date.

Thank you,
Steve

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

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Sent: Friday, October 06, 2017 7:08 PM
To: Bayliss, Randolph, EMNRD <Randolph.Bayliss@state.nm.us>
Cc: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Perrin, Charlie, EMNRD <charlie.perrin@state.nm.us>; Smith, Cory, EMNRD <Cory.Smith@state.nm.us>; Fields, Vanessa, EMNRD <Vanessa.Fields@state.nm.us>; Wiley, Joe <Joe_Wiley@kindermorgan.com>
Subject: RE: MPDE Work Plan Approval - 3RP-239 (State Gas Com N#1)

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Thank you,
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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: Fields, Vanessa, EMNRD; Smith, Cory, EMNRD
Cc: "Bayliss, Randolph, EMNRD"; Griswold, Jim, EMNRD; "Wiley, Joe"
Bcc: Sarah Gardner (sarah.gardner@stantec.com); Varsa, Steve
Subject: El Paso CGP Company - Notice of upcoming groundwater sampling activities
Date: Wednesday, May 09, 2018 9:23:00 AM

Vanessa and Cory -

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

Site Name	NMOCD Case #	Sample Date
Canada Mesa #2	3RP-155-0	5/15/2018
Fields A#7A	3RP-170-0	5/17/2018
Fogelson 4-1	3RP-068-0	5/17/2018
Gallegos Canyon Unit #124E	3RP-407-0	5/17/2018
GCU Com A #142E	3RP-179-0	5/17/2018
James F. Bell #1E	3RP-196-0	5/19/2019
Johnston Fed #4	3RP-201-0	5/16/2018
Johnston Fed #6A	3RP-202-0	5/16/2018
K27 LDO72	3RP-204-0	5/15/2018
Knight #1	3RP-207-0	5/19/2019
Lateral L 40 Line Drip	3RP-212-0	5/18/2018
Lat O-21 Line Drip	3RP-213-0	5/16/2018
Miles Fed #1A	3RP-223-0	5/15/2018
Sandoval GC A #1A	3RP-235-0	5/16/2018
Standard Oil Com #1	3RP-238-0	5/15/2018
State Gas Com N #1	3RP-239-0	5/18/2018

Please feel free to contact Joe Wiley, Project Manager at EPCGP, or me, if you need further information.

Thank you,
Steve

Stephen Varsa, P.G.
Senior Hydrogeologist
Stantec Environmental Services
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: Fields, Vanessa, EMNRD; Smith, Cory, EMNRD
Cc: "Bayliss, Randolph, EMNRD"; Griswold, Jim, EMNRD; "Wiley, Joe"
Bcc: Varsa, Steve
Subject: El Paso CGP Company - Notice of upcoming groundwater sampling activities
Date: Tuesday, October 23, 2018 1:22:00 PM

Vanessa and Cory -

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

Site Name	NMOCD Case #	Sample Date
Canada Mesa #2	3RP-155-0	10/27/2018
Fields A#7A	3RP-170-0	10/26/2018
Fogelson 4-1	3RP-068-0	10/28/2018
Gallegos Canyon Unit #124E	3RP-407-0	10/28/2018
GCU Com A #142E	3RP-179-0	10/28/2018
James F. Bell #1E	3RP-196-0	10/29/2018
Johnston Fed #4	3RP-201-0	10/26/2018
Johnston Fed #6A	3RP-202-0	10/26/2018
K27 LDO72	3RP-204-0	10/27/2018
Knight #1	3RP-207-0	10/29/2018
Lateral L 40 Line Drip	3RP-212-0	10/31/2018
Miles Fed #1A	3RP-223-0	10/27/2018
Sandoval GC A #1A	3RP-235-0	10/28/2018
Standard Oil Com #1	3RP-238-0	10/27/2018
State Gas Com N #1	3RP-239-0	10/26/2018

Additionally, we will be at the State Gas Com N#1 site on October 30, 2018, to complete the proposed aquifer testing activities. We will be completing aquifer testing using slug-out methods, and collecting recovery measurements manually over several days.

Please feel free to contact Joe Wiley, Project Manager at EPCGP, or me, if you need further information.

Thank you,
Steve

Stephen Varsa, P.G.
Senior Hydrogeologist
Stantec Environmental Services
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

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

May 31, 2018

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

Dear Steve:

Re: State Gas Com #N1 Site, San Juan County, NM (Air Sparge Test #1)

At your request, AcuVac Remediation (AcuVac) performed three Air Sparge (AS) Tests on the wells contained in the table below on the dates indicated. Following is the Report and a copy of the Operating Data collected during the Air Sparge Tests. The contaminant is petroleum hydrocarbons.

Test Number	Well Number	Test Duration (hrs)	Date
#1A	TW-1	3.5	05/01/2018
#1B	TW-2	3.0	05/01/2018
#1C	TW-3	3.0	05/02/2018

OBJECTIVES

The Objectives of an Air Sparge Test are to:

- Evaluate the potential for removing phase separated hydrocarbons and vapor phase petroleum hydrocarbons from the groundwater and soils in the subsurface formation (smear zone) by injecting clean ambient air below the static groundwater level.
- Provide data on the mass transfer of O_2 into the groundwater compared to the maximum percentage of injected air.
- Provide data on the vapor phase Total Petroleum Hydrocarbons (TPH) concentrations from soil gas samples taken from the outer observation wells.
- Determine the AS radius of influence to remove dissolved and vapor phase petroleum hydrocarbons from the groundwater and soils.

The extraction well induced vacuum variable rate test is to define the pressure/flow characteristics of sub-surface soils around the extraction well and estimates potential conditions for an operational Air Sparge System. Starting a test with lower variable rates of vacuum and flow allows the extraction well and outer wells sufficient time to adjust and stabilize and minimizes the risk of developing preferential paths. This will also assist the development of newly installed extraction wells.

METHODS AND EQUIPMENT

The tests were conducted using AcuVac's SVE/AS I-6 System, with Roots RAI-33 and RAI-22 blowers, Midland 16.5 cfm engine driven air compressor, various instrumentation, including the HORIBA® Analyzer, QRAE III O_2 Analyzer, Solinst Interface Probes, In-situ data loggers, magnehelic gauges, Dwyer digital manometer, flow and pressure gauges, a Test 511 absolute pressure and altitude meter to determine barometric pressure, V-1 Vacuum Box to capture non-diluted well vapor samples and other special equipment.

The air sparge portion of the AcuVac system was an engine driven 16.5 cfm Midland air compressor. The compressed air was directed through an oil/moisture separator with a filter to remove any oil contaminants from the compressed air. The air was then channeled through a second moisture knockout tank before it was metered into the AS well. The compressed air flowed through flexible stainless steel tubing to aid in reducing the injected air temperature. The injected air metering system contained a pressure gauge and a flow gauge located on the air sparge manifold. The compressed air flowed through a high pressure hose to the air sparge manifold.

An alternate positive displacement blower driven by the internal combustion engine was available if higher injected air flow was required. The blower inlet was connected to an oversized fresh air filter. Air from the discharge side of the blower was directed through three after-coolers and then through a metering system which controlled the flow and pressure. After the metering control system, the air was directed to the air sparge well through a flexible hose. The engine was the power source for all equipment. During these tests, the air compressor supplied 100% of the air sparge requirements.

PROJECT SCOPE AND PROCEDURES

Air Sparge

- Record the distances from the SVE and AS wells to the outer observation wells.
- Connect the AcuVac System to the air sparge well manifold.
- Gauge and record depth to groundwater/depth to LNAPL (Light Non-Aqueous Phase Liquid) in the air sparge and selected outer observation wells.
- Install the well manifolds on the air sparge wells and seal the outer observation wells with expandable plugs with quick connects.
- Record the static well data, well size, total depth and screen intervals and connect the air sparge system to the air sparge well with a high pressure hose.
- Record all required baseline data.
- Start the air sparge test. Record the initial pressure, air flow and elapsed time to achieve breakthrough and continue to record this data for the remainder of the test.
- Increase and decrease the pressure to provide variable rates of air sparge pressure and flow over the testing period.
- Collect well gas samples from the observation wells to provide on-site HORIBA® Analyzer analytical data consisting of TPH up to 100,000 ppmv, CO_2, CO and O_2% at the selected time intervals.
- Provide assistance on all other required vapor sampling.

- Operate the System in such a manner that all well vapors are passed through the engine and catalytic converters to destruct the contaminants, and exhausted.
- Comply with all safety regulations.
- Complete the air sparge tests by providing a report consisting of operating and analytical data and projection of the air sparge radius of influence

CONDITIONS AFFECTING AIR SPARGE TESTS

- Generally, a decreasing barometric pressure results in increased well pressures (decreased vacuums) on those wells plugged and sealed at the top of casing, while an increasing barometric pressure results in increased well vacuums. There are many variables that can affect test data, but barometric pressure fluctuations have the most immediate and profound effect. This assumes that SVE short circuiting is not a factor.
- To offset the induced vacuum/pressure as a result of groundwater depression or upwelling in the outer monitoring wells, the wells are vented periodically to atmosphere and then re-plugged prior to recording data at each 0.5 hour interval. The potential for increased vacuum or pressure as a result of in/decreasing groundwater levels will help to minimize the effect on the outer observation wells. A groundwater depression surrounding an outer observation well will result in an induced vacuum not associated with the induced vacuum created in the extraction well. Likewise, groundwater mounding will create the opposite effect on well pressures.
- The HORIBA® is an analytical instrument used to record the TPH up to 100,000 ppmv, CO_2 and CO up to 25%. The Lumidor instrument measures O_2 from 0 to 20.9%.

We appreciate the opportunity to have conducted these Pilot Tests for Stantec. If you should have any questions or need to have explanations on any of the tests or test data, please contact us.

Sincerely,
ACUVAC REMEDIATION, LLC

Paul D. Faucher
VP, Operations

AS Test #1A
Well TW-1 (Sparge Well)

Pre-Test Functions

Prior to starting this test, the AS system and equipment were checked for safe and normal operation. Each magnehelic gauge was checked and calibrated to zero. The static (baseline) data was recorded for all wells. This included well vacuums/pressures, depth to groundwater and depth to LNAPL. An In-Situ data logger was installed in well MW-1 to record groundwater upwelling (see Groundwater Information Table #1A).

The AS well (TW-1) was fitted with a threaded connection to securely attach the AS manifold to safely inject high pressure air. The manifold was then connected to AcuVac AS controller via a high pressure hose. All safety checks were again performed on the system. The AS injection system was mobilized for the start of the test.

Discussion of Data

Well MW-1, which is located 10.4 ft from air sparge well TW-1, was selected to be the primary observation well. Wells MW-2 (62.2 ft), MW-3 (63.1ft) and MW-11 (68.7 ft) were monitored for pressure influence.

The initial injection pressure was 25 psi with a flowrate of 4.0 cfm. At test hour 0.25, the pressure increased to 52 psi, and the flow rate decreased to 3.0 cfm. The injection pressure remained on a decreasing trend, and the flow rate remained on an increasing trend for the remainder of the test.

The screen in well MW-1 (10.4 ft) was occluded before the start of the test, accordingly, there was little pressure influence on this well. The groundwater in well MW-1 started to upwell at test hour 0.25 and continued on an increasing trend the remainder of the test. The final injecting pressure, at test hour 3.75, was 25 psi, and the final flow rate was 6.0 cfm

The outer wells. MW-2 (62.2 ft), MW-3 (63.1 ft) and MW-11 (68.7 ft) had no measurable influence from the injection well.

CONCLUSION

Pilot Tests are conducted to provide information on short-term tests that can be projected into long-term remedial plans. These feasibility tests indicated that air sparge would not be an effective method of remediation for area surrounding well TW-1.

The summary data for AS Test #1A is presented in the table on the following pages.

AS TEST #1A

WELL TW-1

		7:30	7:40	7:45	7:50	7:55	8:00	8:05
AIR SPARGE WELL- TW-1								
Air Sparge Well Pressure	psi	OFF	25.0	52.0	40.0	38.0	36.0	34.0
Air Sparge Well Flow	cfm	OFF	4.0	3.0	3.0	3.0	3.0	6.0
Total Air Sparge Volume Injected	cf	0	20.0	15.0	15.0	15.0	15.0	60.0
GROUNDWATER UPWELLING- Well MW-1 10.4 ft								
Data Logger Position	ft	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft	8.56	8.56	9.17	10.77	11.91	11.95	12.63
Groundwater Upwelling		-	-	0.61	2.21	3.35	3.39	4.07
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-1 10.4 ft								
Depth to Groundwater- BTOC	ft	71.44	71.44	70.83	69.23	68.09	68.05	67.37
Top of Well Screen	ft	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Available/(Occluded) Well Screen	ft	(3.56)	(3.56)	(4.17)	(5.77)	(6.91)	(6.95)	(7.63)
OBSERVATION WELLS- PRESSURE\(VACUUM) INFLUENCE								
MW-1 - 10.4 ft	in H_2O	0.00	ND	ND	ND	ND	ND	ND
MW-2 - 62.2 ft	in H_2O	0.00	ND	0.00	ND	ND	ND	ND
MW-3 - 63.1 ft	in H_2O	0.00	ND	(0.03)	ND	ND	ND	ND
MW-11 - 68.7 ft	in H_2O	0.00	ND	(0.03)	ND	ND	ND	ND

AS TEST #1A

WELL TW-1

		8:15	8:20	8:30	8:45	9:15	9:30	9:45
AIR SPARGE WELL- TW-1								
Air Sparge Well Pressure	psi	40.0	40.0	38.0	36.0	32.0	32.0	32.0
Air Sparge Well Flow	cfm	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Total Air Sparge Volume Injected	cf	50.0	50.0	50.0	90.0	180.0	90.0	90.0
GROUNDWATER UPWELLING- Well MW-1 10.4 ft								
Data Logger Position	ft	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft	12.87	13.82	14.10	14.76	15.06	14.96	15.13
Groundwater Upwelling		4.31	5.26	5.54	6.20	6.50	6.40	6.57
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-1 10.4 ft								
Depth to Groundwater- BTOC	ft	67.13	66.18	65.90	65.24	64.94	65.04	64.87
Top of Well Screen	ft	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Available/(Occluded) Well Screen	ft	(7.87)	(8.82)	(9.10)	(9.76)	(10.06)	(9.96)	(10.13)
OBSERVATION WELLS- PRESSURE\(VACUUM) INFLUENCE								
MW-1 - 10.4 ft	in H_2O	1.35	ND	ND	0.81	1.64	ND	1.85
MW-2 - 62.2 ft	in H_2O	0.00	ND	ND	0.00	0.00	ND	0.00
MW-3 - 63.1 ft	in H_2O	(0.04)	ND	ND	0.04	0.05	ND	0.07
MW-11 - 68.7 ft	in H_2O	(0.03)	ND	ND	0.03	0.03	ND	0.05

AS TEST #1A

WELL TW-1

		10:00	10:15	10:30	10:45	11:00	11:15
AIR SPARGE WELL- TW-1							
Air Sparge Well Pressure	psi	28.0	28.0	27.0	27.0	26.0	25.0
Air Sparge Well Flow	cfm	5.5	6.0	6.0	6.0	6.0	6.0
Total Air Sparge Volume Injected	cf	82.5	90.0	90.0	90.0	90.0	90.0
GROUNDWATER UPWELLING- Well MW-1 10.4 ft							
Data Logger Position	ft	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft	15.22	15.32	15.36	15.34	15.33	15.29
Groundwater Upwelling		6.66	6.76	6.80	6.78	6.77	6.73
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-1 10.4 ft							
Depth to Groundwater- BTOC	ft	64.78	64.68	64.64	64.66	64.67	64.71
Top of Well Screen	ft	75.00	75.00	75.00	75.00	75.00	75.00
Available/(Occluded) Well Screen	ft	(10.22)	(10.32)	(10.36)	(10.34)	(10.33)	(10.29)
OBSERVATION WELLS- PRESSURE\(VACUUM) INFLUENCE							
MW-1 - 10.4 ft	in H_2O	ND	1.65	ND	1.80	ND	1.71
MW-2 - 62.2 ft	in H_2O	ND	0.00	ND	0.00	ND	0.00
MW-3 - 63.1 ft	in H_2O	ND	0.10	ND	0.04	ND	0.04
MW-11 - 68.7 ft	in H_2O	ND	0.08	ND	0.04	ND	0.02

AS Test - #1B
Well TW-2 (Sparge Well)

Pre-Test Functions

Prior to starting this test, the AS system and equipment were checked for safe and normal operation. Each magnehelic gauge was checked and calibrated to zero. The static (baseline) data was recorded for all wells. This included well vacuums/pressures, depth to groundwater and depth to LNAPL. An In-Situ data logger was installed in well MW-1 to record groundwater upwelling (see Groundwater Information Table #1B).

The AS well (TW-2) was fitted with a threaded connection to securely attach the AS manifold to safely inject high pressure air. The manifold was then connected to AcuVac AS controller via a high pressure hose. All safety checks were again performed on the system. The AS injection system was mobilized for the start of the test.

Discussion of Data

Well MW-2, which is located 8.9 ft from sparge well TW-2, was selected to be the primary observation well. Wells MW-4 (29.5 ft) and MW-3 (19.0 ft) were monitored for pressure influence.

The initial injection pressure was 50 psi with a flowrate of 3.0 cfm. At test hour 0.50, the pressure decreased to 32 psi, and the flow rate increased to 4.0 cfm. The injection pressure remained on a decreasing trend, and the flow rate remained on an increasing trend for the remainder of the test.

The screen in well MW-2 (8.9 ft) was occluded before the start of the test, accordingly, there was little pressure influence on this well. The groundwater in well MW-2 started to upwell at test hour 0.50 and continued on an increasing trend the remainder of the test. The final injecting pressure, at test hour 5.50, was 36 psi, and the final flow rate was 4.5 cfm

The outer wells. MW-4 (29.5 ft) and MW-3 (19.0 ft) had no measurable influence from the injection well.

CONCLUSION

Pilot Tests are conducted to provide information on short-term tests that can be projected into long-term remedial plans. These feasibility tests indicated that air sparge would not be an effective method of remediation for area surrounding well TW-2.

The summary data for AS Test #1B is presented in the table on the following pages.

AS TEST #1B

WELL TW-2

Time		11:30	11:45	12:00	12:10	12:20	12:30	12:40
Test Hour		**0.00**	**0.25**	**0.50**	**0.67**	**0.83**	**1.00**	**1.17**
AIR SPARGE WELL- TW-2								
Air Sparge Well Pressure	psi	50.0	32.0	30.0	30.0	30.0	28.0	28.0
Air Sparge Well Flow	cfm	3.0	4.0	4.5	4.5	4.5	4.5	4.5
Total Air Sparge Volume Injected	cf	-	60.0	67.5	45.0	45.0	45.0	45.0
GROUNDWATER UPWELLING- Well MW-2 - 8.9 ft								
Data Logger Position	ft	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft	5.22	5.22	5.56	5.89	6.15	6.21	6.36
Groundwater Upwelling	ft	-	0.00	0.34	0.67	0.93	0.99	1.14
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-2 - 8.9 ft								
Depth to Groundwater- BTOC	ft	74.78	74.78	74.44	74.11	73.85	73.79	73.64
Top of Well Screen	ft	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Available/(Occluded) Well Screen	ft	(0.22)	(0.22)	(0.56)	(0.89)	(1.15)	(1.21)	(1.36)
OBSERVATION WELLS- PRESSURE\VACUUM INFLUENCE								
MW-2 - 8.9 ft	in H_2O	0.14	ND	0.20	ND	ND	0.23	ND
MW-4 - 19.0	in H_2O	0.16	ND	0.22	ND	ND	0.20	ND
MW-3 - 29.5 ft	in H_2O	(0.05)	ND	0.00	ND	ND	(0.04)	ND

AS TEST #1B

WELL TW-2

Time		13:00	13:30	14:00	14:30	15:00	15:30	15:45
Event Hour		**2.00**	**2.50**	**3.00**	**3.50**	**4.00**	**4.25**	**4.50**
AIR SPARGE WELL- TW-2								
Air Sparge Well Pressure	psi	28.0	OFF	OFF	OFF	OFF	50.0	40.0
Air Sparge Well Flow	cfm	4.5	0.0	0.0	0.0	0.0	4.0	4.0
Total Air Sparge Volume Injected	cf	45.0	0.0	0.0	0.0	0.0	0.0	60.0
GROUNDWATER UPWELLING- Well MW-2 - 8.9 ft								
Data Logger Position	ft	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft	6.41	-	-	-	-	7.48	7.56
Groundwater Upwelling	ft	1.19	-	-	-	-	2.26	2.34
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-2 - 8.9 ft								
Depth to Groundwater- BTOC	ft	73.59	-	-	-	-	72.52	72.44
Top of Well Screen	ft	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Available/(Occluded) Well Screen	ft	(1.41)	-	-	-	-	(2.48)	(2.56)
OBSERVATION WELLS- PRESSURE\VACUUM INFLUENCE								
MW-2 - 8.9 ft	in H_2O	0.25	ND	ND	ND	ND	0.00	ND
MW-4 - 19.0	in H_2O	0.21	ND	ND	ND	ND	0.13	ND
MW-3 - 29.5 ft	in H_2O	(0.22)	ND	ND	ND	ND	0.08	ND

AS TEST #1B

WELL TW-2

Time		**16:00**	**16:10**	**16:20**	**16:30**	**16:40**	**16:50**	**17:00**
Test Hour		**4.50**	**4.67**	**4.83**	**5.00**	**5.17**	**5.33**	**5.50**
AIR SPARGE WELL- TW-2								
Air Sparge Well Pressure	psi	40.0	40.0	40.0	40.0	40.0	38.0	36.0
Air Sparge Well Flow	cfm	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Total Air Sparge Volume Injected	cf	60.0	45.4	45.0	45.0	45.0	67.5	67.5
GROUNDWATER UPWELLING- Well MW-2 - 8.9 ft								
Data Logger Position	ft	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft	8.21	8.26	8.38	8.58	8.80	8.83	8.98
Groundwater Upwelling	ft	2.99	3.04	3.16	3.36	3.58	3.61	3.76
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-2 - 8.9 ft								
Depth to Groundwater- BTOC	ft	71.79	71.74	71.62	71.42	71.20	71.17	71.02
Top of Well Screen	ft	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Available/(Occluded) Well Screen	ft	(3.21)	(3.26)	(3.38)	(3.58)	(3.80)	(3.83)	(3.98)
OBSERVATION WELLS- PRESSURE\VACUUM INFLUENCE								
MW-2 - 8.9 ft	in H_2O	0.44	ND	ND	0.40	ND	ND	ND
MW-4 - 19.0	in H_2O	0.33	ND	ND	0.30	ND	ND	ND
MW-3 - 29.5 ft	in H_2O	0.00	ND	ND	0.00	ND	ND	ND

Test - #AS-1C
Well TW-3 (Sparge Well)

Pre-Test Functions

Prior to starting this test, the AS system and equipment were checked for safe and normal operation. Each magnehelic gauge was checked and calibrated to zero. The static (baseline) data was recorded for all wells. This included well vacuums/pressures, depth to groundwater and depth to LNAPL. An In-Situ data logger was installed in well MW-1 to record groundwater upwelling (see Groundwater Information Table #1C).

The AS well (TW-3) was fitted with a threaded connection to securely attach the AS manifold to safely inject high pressure air. The manifold was then connected to AcuVac AS controller via a high pressure hose. All safety checks were again performed on the system. The AS injection system was mobilized for the start of the test.

Discussion of Data

Well MW-5, which is located 9.0 ft from sparge well TW-3, was selected as the only observation well.

The initial injection pressure was 50 psi with a flowrate of 4.0 cfm. At test hour 0.50, the pressure decreased to 36 psi, and the flow rate remained steady at 4.0 cfm. The injection pressure remained on a decreasing trend, and the flow rate remained on an increasing trend for the remainder of the test. The final injecting pressure, at test hour 3.50, was 28 psi, and the final flow rate was 7.0 cfm.

The groundwater in well MW-5 started to upwell at test hour 0.50, and continued on an increasing trend the remainder of the test.

CONCLUSION

Pilot Tests are conducted to provide information on short-term tests that can be projected into long-term remedial plans. These feasibility tests indicated that air sparge would not be an effective method of remediation for area surrounding well TW-3.

The summary data for AS Test #1C is presented in the table on the following pages.

AS TEST #1C

WELL TW-3

Time		**7:15**	**7:25**	**7:35**	**7:45**	**7:55**	**8:05**	**8:15**
Test Hour		**0.00**	**0.17**	**0.33**	**0.50**	**0.67**	**0.83**	**1.00**
AIR SPARGE WELL- TW-3								
Air Sparge Well Pressure	psi	50.0	48.0	38.0	36.0	35.0	34.0	34.0
Air Sparge Well Flow	cfm	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Air Sparge Volume Injected	cf	-	40.0	4.0	40.0	40.0	40.0	40.0
GROUNDWATER UPWELLING- Well MW-5 (9.0 ft)								
Data Logger Position	ft BTOC	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft BTOC	8.25	8.32	9.62	9.91	10.18	10.38	10.56
Groundwater Upwelling	ft	0.00	0.07	1.37	1.66	1.93	2.13	2.31
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-5 (9.0 ft)								
Depth to Groundwater- BTOC	ft BTOC	71.75	71.68	70.38	70.09	69.82	69.62	69.44
Top of Well Screen	ft BTOC	65.00	65.00	65.00	65.00	65.00	65.00	65.00
Available/(Occluded) Well Screen	ft	6.75	6.68	5.38	5.09	4.82	4.62	4.44
OBSERVATION WELLS- PRESSURE\VACUUM INFLUENCE								
MW-5- 9.0 ft	in H_2O	0.00	ND	ND	0.43	ND	ND	0.48

AS TEST #1C

WELL TW-3

Time		**8:25**	**8:35**	**8:45**	**8:55**	**9:05**	**9:15**	**9:25**
Test Hour		**1.17**	**1.33**	**1.50**	**1.67**	**1.83**	**2.00**	**2.17**
AIR SPARGE WELL- TW-3								
Air Sparge Well Pressure	psi	33.0	33.0	32.0	30.0	30.0	30.0	30.0
Air Sparge Well Flow	cfm	4.0	4.0	6.0	7.0	7.0	7.0	7.0
Total Air Sparge Volume Injected	cf	40.0	40.0	60.0	70.0	70.0	70.0	70.0
GROUNDWATER UPWELLING- Well MW-5 (9.0 ft)								
Data Logger Position	ft BTOC	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft BTOC	10.72	10.91	11.13	11.21	11.29	11.41	11.52
Groundwater Upwelling	ft	2.47	2.66	2.88	2.96	3.04	3.16	3.27
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-5 (9.0 ft)								
Depth to Groundwater- BTOC	ft BTOC	69.28	69.09	68.87	68.79	68.71	68.59	68.48
Top of Well Screen	ft BTOC	65.00	65.00	65.00	65.00	65.00	65.00	65.00
Available/(Occluded) Well Screen	ft	4.28	4.09	3.87	3.79	3.71	3.59	3.48
OBSERVATION WELLS- PRESSURE\VACUUM INFLUENCE								
MW-5- 9.0 ft	in H_2O	ND	ND	0.54	ND	ND	0.54	ND

AS TEST #1C

WELL TW-3

Time		**9:35**	**9:45**	**9:55**	**10:05**	**10:15**	**10:25**	**10:35**	**10:45**
Test Hour		**2.33**	**2.50**	**2.67**	**2.83**	**3.00**	**3.17**	**3.33**	**3.50**
AIR SPARGE WELL- TW-3									
Air Sparge Well Pressure	psi	30.0	30.0	30.0	28.0	28.0	28.0	28.0	28.0
Air Sparge Well Flow	cfm	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Total Air Sparge Volume Injected	cf	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
GROUNDWATER UPWELLING- Well MW-5 (9.0 ft)									
Data Logger Position	ft BTOC	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Water Column Above Data Logger	ft BTOC	11.55	11.58	11.64	11.69	11.77	12.02	12.12	12.15
Groundwater Upwelling	ft	3.30	3.33	3.39	3.44	3.52	3.77	3.87	3.90
AVAILABLE\OCCLUDED WELL SCREEN- Well MW-5 (9.0 ft)									
Depth to Groundwater- BTOC	ft BTOC	68.45	68.42	68.36	68.31	68.23	67.98	67.88	67.85
Top of Well Screen	ft BTOC	65.00	65.00	65.00	65.00	65.00	65.00	65.00	65.00
Available/(Occluded) Well Screen	ft	3.45	3.42	3.36	3.31	3.23	2.98	2.88	2.85
OBSERVATION WELLS- PRESSURE\VACUUM INFLUENCE									
MW-5- 9.0 ft	in H_2O	ND	0.57	ND	ND	0.30	ND	ND	0.28

APPENDIX C

AcuVac Remediation, LLC
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May 20, 2018

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

Dear Steve:

Re: State Gas Com #N1 Site, San Juan County, NM (SVE Quick Test #1)

At your request, AcuVac Remediation (AcuVac) performed four Soil Vapor Extraction (SVE) Quick Tests on the wells contained in Table #1, at the above referenced site (Site) on May 2 and 3, 2018. Following is the Report and a copy of the Operating Data collected during the SVE Quick Tests. The contaminant is Non-Aqueous Phase Liquid (NAPL) which includes Light Non-Aqueous Phase Liquid (LNAPL).

SVE QUICK TEST OBJECTIVES

- Determine well vacuum and vapor flow of each well.
- Provide vapor phase total petroleum hydrocarbons concentrations in the influent vapors.
- Provide background data on the soil vapor plume area.

SVE QUICK TEST DESCRIPTION

An SVE Quick Test is a short SVE Test of 0.5 to 2.0 hours conducted from existing monitoring or observation wells located on-site and off-site. The test provides data on the soil vapor plume area, which may not totally conform to the groundwater plume. Each SVE Quick Test provides well vacuum and well vapor flow data. From a soil gas sample (influent vapor), the HORIBA® Analyzer can provide total petroleum hydrocarbons in ppmv and the percent of CO_2 and CO. Additional instrumentation provides O_2 data. The depth to groundwater and depth to NAPL are also recorded. This informative data confirms whether or not the outer wells are within the vapor plume area and are functional.

METHODS AND EQUIPMENT

AcuVac owns and maintains an inventory of equipment to perform SVE Quick Tests. The tests at the Site were conducted using the AcuVac I-6 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 in these tests and the data recorded by each.

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
Well Vapor Samples	
V-1 Vacuum Box	Extraction Well Non-Diluted Vapor Samples
HORIBA® Analyzer	Extraction Well Vapor TPH Concentration
Lumidor MicroMax Pro O_2 Monitor	Extraction Well Vapor Oxygen Content
LNAPL Thickness (if present)	
Solinst Interface Probes Model 122	Depth to NAPL and Depth to Groundwater
Atmospheric Conditions	
Testo Model 511	Relative and Absolute Barometric Pressure

The vacuum extraction portion of the AcuVac System consists of a vacuum pump driven by an internal combustion (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 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.

AcuVac utilized a HORIBA® Analyzer to test the TPH concentrations contained in the extraction well vapors. A non-diluted vapor sample was obtained from the AcuVac well manifold. The non-diluted vapor sample was then processed by the HORIBA® to determine the TPH content. Well vapor samples were obtained throughout the test to calculate the TPH vapors burned as IC engine fuel. The manifold is designed to enable all of the induced well vacuum to be applied to the entire available well screen to ensure a representative vapor sample.

The AcuVac internal combustion engine is fully loaded for the maximum power necessary to achieve and maintain high induced vacuums and/or high well vapor flows required to maximize the vacuum radius of influence.

Emissions from the engine were passed through two of three catalytic converters to ensure maximum 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 all equipment, all systems stop when the engine stops, thus eliminating any uncontrolled release of hydrocarbons. Since the AcuVac System is held entirely under vacuum, any leaks in the seals or connections are leaked into the AcuVac System and not emitted into the atmosphere. The engine is automatically shut down by vacuum loss, low oil pressure, over speed, or overheating.

SVE QUICK TEST PROCEDURES

- Gauge the extraction well for depth to NAPL and depth to groundwater and record static data.
- Calculate the hydro-equivalent of the static groundwater level.
- Record all baseline data.
- Install vacuum manifold and hose.
- Connect the AcuVac System to the extraction well and then apply vacuum. Record the well vacuum and well flow, all system data (including fuel flow of propane), ambient temperature, and barometric pressure.
- Collect non-diluted influent vapor (well gas) samples to provide on-site HORIBA® Analyzer and Lumidor analytical data consisting of TPH ppmv, CO_2%, CO%, and O_2% every 15 minutes during the SVE Quick Test.
- The SVE Quick Test procedures provided variable rates of induced well vacuum and flow over the test period.

DISCUSSION OF TEST RESULTS

The SVE Quick Tests provided excellent data regarding the contaminant plume. The influent vapor TPH concentration indicated the existence of petroleum hydrocarbons in all wells. The greatest concentrations were in the area surrounding wells MW-3 and MW-4. The combination of TPH vapor concentrations and well flow were not sufficient to power the AcuVac system. Accordingly, an SVE system will most likely require supplemental fuel for operation.

INFORMATION INCLUDED WITH THIS REPORT

- Table #1A- Summary Data for SVE Test #1A Well MW-10.
- Table #1B- Summary Data for SVE Test #1B Well MW-4.
- Table #1C- Summary Data for SVE Test #1C Well MW-3.
- Table #1D- Summary Data for SVE Test #1D Well MW-11.
- Table #2- Supplemental Data

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

TABLE #1A SVE STEP TEST #1A SUMMARY DATA							
		TIME (hours)					
5/2/2018		1145	1215	1230	1245	1300	1315
Extraction Well- MW-10							
Well Vacuum	"H_2O	20	ND	25	30	40	ND
Well Vapor Flow	SCFM	4.39	ND	4.79	5.18	6.79	ND
Data Logger Head	ft	18.18	ND	17.55	18.23	17.96	ND
Well MW-10 Vapor Concentrations							
TPH	ppmv	-	-	890	702	434	-
CO_2	%	-	-	1.64	1.36	1.12	-
CO	%	-	-	0	0	0	-
O_2	%	-	-	14.4	14.6	14.4	-
H_2S	ppm	-	-	0	0	0	-

TABLE #1B SVE STEP TEST #1B SUMMARY DATA									
		TIME (hours)							
5/3/2018		1100	1115	1130	1145	1200	1215	1230	1245
Extraction Well- MW-4									
Well Vacuum	"H_2O	25	30	35	40	45	50	50	50
Well Vapor Flow	SCFM	4.79	5.61	6.42	7.21	7.99	9.17	9.17	9.17
Data Logger Head	ft	5.88	6.02	6.07	6.14	6.19	6.24	6.32	6.37
Well SVE- MW-4 Vapor Concentrations									
TPH	ppmv	-	8,580	9,760	8,990	7,830	7,880	7,570	7,890
CO_2	%	-	1.10	1.20	1.12	1.02	1.00	1.00	1.06
CO	%	-	0	0	0	0	0	0	0
O_2	%	-	14.1	13.7	14.0	13.3	13.3	12.6	13.5
H_2S	ppm	-	0	0	0	0	0	0	0

TABLE #1C SVE STEP TEST #1C SUMMARY DATA								
		TIME (hours)						
5/3/2018		1300	1315	1330	1345	1400	1415	1430
Extraction Well- MW-3								
Well Vacuum	"H_2O	25	30	35	40	45	50	50
Well Vapor Flow	SCFM	7.82	9.04	10.25	11.43	12.59	14.14	14.14
Data Logger Head	ft	5.47	5.61	5.67	5.70	5.80	5.83	5.90
Well SVE- MW-3` Vapor Concentrations								
TPH	ppmv	-	3,980	3,910	4,490	3,840	4,040	4,090
CO_2	%	-	1.12	1.16	1.32	1.2	1.22	1.24
CO	%	-	0	0	0	0	0	0
O_2	%	-	13.8	12.9	12.7	12.9	12.9	12.5
H_2S	ppm	-	0	0	0	0	0	0

TABLE #1D SVE STEP TEST #1D SUMMARY DATA							
		TIME (hours)					
5/3/2018		1445	1500	1515	1530	1545	1600
Extraction Well- MW-11							
Well Vacuum	"H_2O	25	35	45	50	50	50
Well Vapor Flow	SCFM	3.48	4.28	5.05	5.83	5.83	5.83
Data Logger Head	ft	14.30	14.01	13.97	13.74	14.01	14.13
Well SVE- MW-11 Vapor Concentrations							
TPH	ppmv	-	2,790	2,980	3,150	3,070	3,340
CO_2	%	-	0.76	0.84	0.88	0.84	0.90
CO	%	-	0	0	0	0	0
O_2	%	-	13.7	14.2	14.1	13.6	14.3
H_2S	ppm	-	0	0	0	0	0

TABLE #2
SVE QUICK TESTS
SUPPLEMENTAL DATA

Quick Test Number		#1A	#1B	#1C	#1D
Well Number		**MW- 10**	**MW- 4**	**MW- 3**	**MW- 11**
Well Data					
Test Duration	Hrs	1.50	1.75	1.50	1.25
TD	ft BTOC	88.0	84.0	81.5	88.0
Well Size	inches	2.0	4.0	4.0	2.0
Screen Interval	ft	73.0 - 88.0	69 - 84.0	66.5 - 81.5	73.0 - 88.0
Site Elevation	ft	6120.0	6120.0	6120.0	6120.0
NAPL Data					
Start of Test					
Depth to Groundwater	ft BTOC	68.74	73.72	74.14	72.35
Depth to NAPL	ft BTOC	-	-	-	-
LNAPL	ft	-	-	-	-
Hydro Equivalent	ft	68.74	73.72	74.14	72.35
End of Test					
Depth to Groundwater	ft BTOC	72.30	73.47	73.98	72.30
Depth to NAPL	ft BTOC	-	-	-	-
LNAPL	ft	-	-	-	-
Hydro Equivalent	ft	72.30	73.47	73.98	72.30
Well Vacuum and Well Flow					
Max Extraction Well Vacuum	"H_2O	40.00	50.00	50.00	50.00
Avg Extraction Well Vacuum	"H_2O	28.75	40.63	39.29	42.50
Min Extraction Well Vacuum	"H_2O	20.00	25.00	25.00	25.00
Max Extraction Well Vapor Flow	scfm	6.79	9.17	14.14	5.83
Avg Extraction Well Vapor Flow	scfm	5.28	7.44	11.34	5.05
Min Extraction Well Vapor Flow	scfm	4.39	4.79	7.82	3.48
Vapor Data					
Maximum TPH	ppmv	890	9,760	4,490	3,340
Average TPH	ppmv	675	8,357	4,058	3,066
Minimum TPH	ppmv	434	7,570	3,840	2,790
Average CO2	%	1.37	1.07	1.21	0.84
Average CO	%	0.00	0.00	0.00	0.00
Average O_2	%	14.5	13.5	13.0	14.0
Average H_2S	ppm	0.0	0.0	0.0	0.0
Groundwater Upwelling					
Data Logger Position	ft	87.00	80.50	80.00	87.00
Water Column Above Data Logger	ft	17.98	6.15	5.71	14.03
Groundwater Upwelling	ft	0.27	0.31	0.28	(0.33)
Groundwater Upwelling					
Depth to Groundwater- BTOC	ft	69.00	74.23	74.23	72.92
Top of Well Screen	ft	73.00	69.00	69.00	73.00
Available/(Occluded) Well Screen	ft	(4.00)	5.23	5.23	(0.09)

AcuVac Remediation

OPERATING DATA - TEST # SVE QT-1A PAGE 1 **ACUVAC SVE SYSTEM**

Location: State Gas Com, San Juan County, NM **Poject Managers:** Faucher / George / Hendley

Date:			5/2/18					
Well/Parameters TD 88.0 SCREEN 73.0-88 88.0 MW-10 2.0"			Time 1145 Hr Meter –	Time 1215 Hr Meter –	Time 1230 Hr Meter –	Time 1245 Hr Meter –	Time 1300 Hr Meter –	Time 1315 Hr Meter –
INFLUENT VAPORS	TPH	ppmv	–		890	702	434	
	CO_2	%	–		1.64	1.36	1.12	
	CO	%	–		0	0	0	
	O_2	%	–	STOP WORK ISSUED DUE TO LIGHTNING	14.4	14.6	14.4	
	H_2S	%	–		0	0	0	
ENGINE	Fuel/Propane	cfh	135		135	135	135	
	Engine Speed	rpm	2000		2000	2000	2000	
VACUUM/ FLOW	Well Vacuum	"H_2O	20		25	30	40	
	Well Flow	scfm	4.39		4.79	5.18	6.79	
OTHER	DATA LOGGER HEAD FT		18.18		17.55	18.23	17.96	
	UPWELLING FT <DEPRESSION>		–	STOP WORK	.63	<.05>	<.22>	
	DTLNAPL	ft	–					
	DTGW BTOC	ft	68.74					ND

OPERATING DATA AND NOTES

INITIAL AVAILABLE WELL SCREEN APPROXIMATELY 4.25 FT

STATIC DL HEAD 18.18

EVENT STARTED AT 1145 HRS. IMMEDIATELY AFTER STARTUP THE DATA LOGGER HEAD DECREASED TO 16.43 FT AND THEN STARTED TO INCREASE

AcuVac Remediation

OPERATING DATA - TEST # SVE QT-1 R PAGE 1 **ACUVAC SVE SYSTEM**

Location: State Gas Com, San Juan County, NM **Poject Managers:** Faucher / George / Hendley

Date: 5/3/18								
Well/Parameters TD - 84.0 FT BTOC SCREEN 62.0 - 84.0 DIAM 4.0" MW-4			Time 1100 Hr Meter -	Time 1115 Hr Meter -	Time 1130 Hr Meter -	Time 1145 Hr Meter -	Time 1200 Hr Meter -	Time 1215 Hr Meter -
INFLUENT VAPORS	TPH	ppmv	-	8580	9760	8990	7830	7880
	CO_2	%	-	1.10	1.20	1.12	1.02	1.00
	CO	%	-	0	0	0	0	0
	O_2	%	-	14.1	13.7	14.0	13.3	13.3
	H_2S	%	-	0	0	0	0	0
ENGINE	Fuel/Propane	cfh	90	90	75	55	40	30
	Engine Speed	rpm	2000	2000	2000	2000	2000	2000
VACUUM/ FLOW	Well Vacuum	"H_2O	25	30	35	40	45	50
	Well Flow	scfm	4.79	5.61	6.42	7.21	7.99	9.17
OTHER	DATA LOGGER HEAD	FT	5.88	6.02	6.07	6.14	6.19	6.24
	UPWELLING	FT	0	.14	.19	.26	.31	.36
	Air Temp	°F	46	46	47	48	50	52
	DTLNAPL	ft	-					
	DTGW	ft	73.72					

OPERATING DATA AND NOTES

DL SET AT 80.5 FT BTOC

INFLUENT VAPOR TEMP 48°F

AcuVac Remediation

OPERATING DATA - TEST # SVE QT- 13 PAGE 2 **ACUVAC SVE SYSTEM**

Location: State Gas Com, San Juan County, NM			**Poject Managers: Faucher / George / Hendley**						
Date: 5/3/18									
Well/Parameters TD 84.0' SCREEN 69.0-84.0 MW-4 DIAM 4.0"			Time 1230 Hr Meter -	Time 1245 Hr Meter	Time Hr Meter	Time Hr Meter	Time Hr Meter	Time Hr Meter
INFLUENT VAPORS	TPH	ppmv	7570	7890				
	CO_2	%	1.00	1.06				
	CO	%	0	0				
	O_2	%	12.6	13.5				
	H_2S	%	0	0				
ENGINE	Fuel/Propane	cfh	30	30				
	Engine Speed	rpm	2000	2000				
VACUUM/ FLOW	Well Vacuum	"H_2O	50	50				
	Well Flow	scfm	9.17	9.17				
OTHER	DATALOGGERHEAD FT		6.32	6.37				
	UPWELLING FT		.44	.49				
	Air Temp	°F	53	54				
	DTLNAPL	ft			1600			
	DTGW	ft		73.47	73.66			

OPERATING DATA AND NOTES

AcuVac Remediation

OPERATING DATA - TEST # SVE QT-1C PAGE 1 **ACUVAC SVE SYSTEM**

Location: State Gas Com, San Juan County, NM **Poject Managers:** Faucher / George / Hendley

Date: 5/3/18

Well/Parameters
TD 81.5
SCREEN 66.5 - 81.5 MW-3
DIAM 4.0"

			Time	Time	Time	Time	Time	Time
			1300	1315	1330	1345	1400	1415
			Hr Meter	Hr Meter	Hr Meter	Hr Meter	Hr Meter	Hr Meter
			-	-	-	-	-	-
INFLUENT VAPORS	TPH	ppmv	-	3980	3910	4490	3840	4040
	CO_2	%	-	1.12	1.16	1.32	1.20	1.22
	CO	%	-	0	0	0	0	0
	O_2	%	-	13.8	12.9	12.7	12.9	12.9
	H_2S	%	-	0	0	0	0	0
ENGINE	Fuel/Propane	cfh	65	60	55	50	40	40
	Engine Speed	rpm	2000	1900	1900	1900	1900	1900
VACUUM/ FLOW	Well Vacuum	"H_2O	25	30	35	40	45	50
	Well Flow	scfm	7.82	9.04	10.25	11.43	12.59	14.14
OTHER	DATA LOGGER HEAD FT		5.47	5.61	5.67	5.70	5.80	5.83
	UPWELLING FT		-	.14	.20	.23	.33	.36
	Air Temp (CLOUDY WINDY)	°F	54	54	54	54	54	54
	DTLNAPL	ft	-					
	DTGW	ft	74.14					

OPERATING DATA AND NOTES

DATA LOGGER SET AT 80.0 FT BTOC
INFLUENT VAPOR TEMP 50°F

AcuVac Remediation

OPERATING DATA - TEST # SVE QT-1C PAGE 2 **ACUVAC SVE SYSTEM**

Location: State Gas Com, San Juan County, NM		**Poject Managers: Faucher / George / Hendley**					
Date: 5/8/18							
Well/Parameters TD 84.0 SCREEN 69.0 - 84.0 MW-4 DIAM 4.0		Time 1430 Hr Meter –	Time Hr Meter	Time Hr Meter	Time Hr Meter	Time Hr Meter	Time Hr Meter
INFLUENT VAPORS	TPH ppmv	4090					
	CO_2 %	1.24					
	CO %	0					
	O_2 %	12.5					
	H_2S %	0					
ENGINE	Fuel/Propane cfh	40					
	Engine Speed rpm	1900					
VACUUM/ FLOW	Well Vacuum "H_2O	50					
	Well Flow scfm	14.14					
OTHER	DATA LOGGER HEAD FT	5.90					
	UPWELLING FT	.43					
	Air Temp °F	54					
	DTLNAPL ft	–	1600				
	DTGW ft	73.98	74.07				

OPERATING DATA AND NOTES

AcuVac Remediation

OPERATING DATA - TEST # SVE QT-1D PAGE 1 **ACUVAC SVE SYSTEM**

Location: State Gas Com, San Juan County, NM **Poject Managers:** Faucher / George / Hendley

Date: 5/3/18

Well/Parameters
TD 88.0 FT BTOC
SCREEN 73.0 - 88.0 MW-11
DIAM 2.0"

			Time	Time	Time	Time	Time	Time
			1445	1500	1515	1530	1545	1600
			Hr Meter	Hr Meter	Hr Meter	Hr Meter	Hr Meter	Hr Meter
			–	–	–	–	–	–
INFLUENT VAPORS	TPH	ppmv	–	2780	2980	3150	3070	3340
	CO_2	%	–	.76	.84	.88	.84	.90
	CO	%	–	0	0	0	0	0
	O_2	%	–	13.7	14.2	14.1	13.6	14.3
	H_2S	%	–	0	0	0	0	0
ENGINE	Fuel/Propane	cfh	105	100	95	90	90	90
	Engine Speed	rpm	2000	2000	2000	2000	2000	200
VACUUM/ FLOW	Well Vacuum	"H_2O	25	35	45	50	50	50
	Well Flow	scfm	3.48	4.28	5.05	5.83	5.83	5.83
OTHER	~~DATA LOGGER HEAD~~	Ft	14.30	14.01	13.97	13.74	14.01	14.13
	UPWELLING	Ft	0	<.29>	<.33>	<.56>	<.29>	<177
	Air Temp	°F	54	56	56	56	57	57
	DTLNAPL	ft						
	DTGW	ft	72.35					72.30

OPERATING DATA AND NOTES

DATA LOGGER POSITIONED AT 87.0 FT BTOC
INFLUENT VAPOR TEMP 48°F
IMMEDIATELY AFTER START UP DL READING @ 13.68 FT HEAD.
THIS INDICATES THAT THE VACUUM MAY HAVE BEEN FRAGMENTING
THE WATER COLUMN REDUCING THE PRESSURE ON THE DATA LOGGER.

APPENDIX D

TABLE 1
SLUG TEST RESULTS SUMMARY

State Gas Com N#1								
Location	**Date of Test**	**Well Casing Diameter**	**Depth to Water (ft below top of casing)**	**Slug-out Test K Value (feet/day)**	**Slug-out Test K Value (cm/sec)**	**Saturated Thickness (feet)**	**Saturated Screen Interval (feet bgs)**	**Lithology of Saturated Screen Interval**
MW-1	10/30/2018	2 inch	71.05	0.0916	3.23E-05	9.95	71.0 to 81.0	71 to 77 ft.: SC clayey sand, trace silt, fine to medium grain, medium dense, semi-moist 77 to 81 ft.: SM silty sand, fine to medium grain, trace coarse sand, medium dense, wet
MW-2	10/30/2018	4 inch	74.80	0.0919	3.24E-05	6.2	74.8 to 81.0	74.8 to 81.0 ft.: CL clay
MW-3	10/30/2018	4 inch	75.48	0.0716	2.52E-05	4.82	75.48 to 80.3	75.5 to 80.3 ft.: CL sandy clay, gray, soft, moist
MW-4	10/30/2018	4 inch	75.12	0.0189	6.67E-06	5.18	75.12 to 80.3	75.1 to 80.3 ft.: CL silty clay, gray, stiff, wet
MW-5	10/30/2018	2 inch	74.52	0.0230	8.11E-06	5.48	74.52 to 80.0	74.5 to 80.0 ft.: CL, clay, gray, wet
MW-6	10/30/2018	2 inch	72.89	0.443	1.56E-04	7.11	72.89 to 80.0	72.9 to 77.0 ft.: CL Clay, brown, dry, compact 77.0 to 80.0 ft.: SP Sand fine grained, and clay, gray
MW-9	10/30/2018	2 inch	69.31	0.247	8.71E-05	10.44	69.31 to 79.75	69.3 to 79.7 ft.: ML silty clay, light-gray, wet
MW-10	10/30/2018	2 inch	69.44	0.0316	1.11E-05	15.06	69.94 to 85.0	68 to 72.5 ft.: CL/ML clayey silt, brown, medium stiff, moist 72.5 to 85 ft.: ML sandy silt, dark gray to light-yellowish brown, wet at 72.5 ft, slightly moist at 77.5 ft, very hard at 80 ft. strong cementation, minor interbedded sand lens (4-inch thick) dry to moist at 74 ft, wet 82-83 ft, dry from 83-85 ft
MW-11	10/30/2018	2 inch	72.58	0.0162	5.72E-06	11.92	73.08 to 85.0	73.0 to 83 ft.: ML sandy silt, dark gray, very stiff, moderate to strong cementation, dry
MW-12	10/30/2018	2 inch	79.61	3.72	1.31E-03	4.89	80.11 to 85.0	80.1 to 85.0 ft.: SM very silty sand, medium grain, olive-brown, dry to moist, hard, moderate cementration, dry shale at 77 ft.
MW-13	10/30/2018	2 inch	77.66	0.068	2.40E-05	6.84	78.16 to 85.0	78.2 to 84.5 ft.: SP interbedded silty and poorly-graded sands, light gray, dry, very dense, moderate cementation
MW-14	10/30/2018	2 inch	70.93	0.0206	7.27E-06	13.57	71.43 to 85.0	71.4 to 75 ft.: SP/SM sand, slightly silty, olive, loose, moist 75 to 80 ft.: SM silty sand, olive to brown, moist to dry, stiff, moderate cementation 80 to 85 ft.: ML sandy silt, dark gray, dry to moist, medium to high plasticity

TABLE 1
SLUG TEST RESULTS SUMMARY

State Gas Com N#1								
Location	**Date of Test**	**Well Casing Diameter**	**Depth to Water (ft below top of casing)**	**Slug-out Test K Value (feet/day)**	**Slug-out Test K Value (cm/sec)**	**Saturated Thickness (feet)**	**Saturated Screen Interval (feet bgs)**	**Lithology of Saturated Screen Interval**
MW-15	10/30/2018	2 inch	70.24	0.0429	1.51E-05	14.26	70.74 to 85.0	70.7 to 85 ft.: ML sandy silt, brown, moist with gypsum veins; 6 inch silty sand layers at 72.5 ft. and 77.5 ft., wet
MW-16	10/30/2018	2 inch	72.62	0.0175	6.17E-06	11.88	73.12 to 85.0	73.1 to 78 ft.: ML sandy silt, olive, dry to moist 78 to 83 ft.: SM silty sand lenses, yellowigh brown, loose, moist 83 to 85 ft.: ML silt with very fine sand, grayish-brown, hard, dry to moist, medium plasticity, trace iron oxide veins
MW-17	10/30/2018	2 inch	80.85	3.74	1.32E-03	3.65	81.35 to 85.0	81.35 to 85 ft.: SM silty sand, olive, slightly coarser with depth, dry, very dense
MW-18	10/30/2018	2 inch	76.50	0.0287	1.01E-05	8	77.0 to 85.0	77 to 85 ft.: SM/ML silty to very silty sand, olive brown and gray, dry, dense
MW-19	10/30/2018	2 inch	73.30	0.00743	2.62E-06	11.7	73.8 to 85.5	73.8 to 80 ft.: SM silty sand, coarse grain, brown, wet 80 t0 85.5 ft.: CL interbeded clay lenses with silty sand, brown, wet
TW-1	2/6/2019	2 inch	72.30	0.00109	3.84E-07	Submerged Screen	80 to 85	80 to 85 ft.: SW sand, fine grain, olive to gray, moderate cementation, semi-moist, dense to very dense
TW-2	2/6/2019	2 inch	75.33	0.00163	5.75E-07	Submerged Screen	83 to 88	83 to 87 ft.: Sandstone, brown to gray 87 to 88 ft.: SC clayey sand, fine grain, gray, medium dense, moist
TW-3	7/12/2018	2 inch	74.67	0.00151	5.33E-07	Submerged Screen	84 to 89	84 to 89 ft.: Siltstone, brown

Notes:
ft = feet
K = Hydraulic Conductivity

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\STATE GAS COM N#1\2018 MAPS\State_Gas_Com_N#1_GECM_2SA_2018.mxd

STATE GAS COM BA #1

METER HOUSE

SMA BENCHMARK
ELEV. 6124.06'
NAD 83 NAVD 88
STATE PLANE COORDINATE SYSTEM
NEW MEXICO WEST

FORMER MOTOR HOUSE

FORMER SOLAR PANEL

FORMER PIT LOCATION (APPROXIMATE)

FORMER DEHYDRATOR

COMPRESSOR

MW-08

FORMER EPC PIT - EXCAVATED APPROXIMATELY 12 FEET DEEP

MW-10
1.11E-05

METER HOUSE

MW-07

TW-1
3.84E-07

FORMER OPEN TOP TANK

MW-1
3.23E-05

TW-2
5.75E-07

MW-11
5.72E-06

MW-18
1.01E-05

MW-4
6.67E-06

MW-2
3.24-E05

MW-3
2.52E-05

MW-17
1.32E-03

MW-5
8.11E-06

MW-12
1.31E-03

TW-3
5.33E-07

TANK

PRODUCED WATER TANK

SEPARATOR

STATE GAS COMPANY N#-1A

MW-19
2.62E-06

MW-16
6.17E-06

MW-13
2.40E-05

DRAINAGE

MW-6
1.56E-04

MW-15
1.51E-05

MW-14
7.27E-06

MW-9
8.71E-05

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

LEGEND:

- APPROXIMATE GROUND SURFACE CONTOUR AND ELEVATION, FEET (6120)
- FENCE
- NATURAL GAS LINE
- PRODUCED WATER LINE
- UNKNOWN LINE
- UNDERGROUND CABLE
- ABANDONED MONITORING WELL
- MONITORING WELL
- MONITORING WELL WITH MEASUREABLE FREE PRODUCT
- RIG ANCHOR
- SMA BENCHMARK
- WELLHEAD
- TEST WELL

NOTES:

6039.98 — GROUNDWATER ELEVATION (CORRECTED FOR PRODUCT THICKNESS WHEN PRESENT) FEET ABOVE MEAN SEA LEVEL

–6041– — CORRECTED WATER ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL) 2 FOOT CONTOUR INTERVAL

DIRECTION OF APPARENT GROUNDWATER FLOW

* — MONITORING WELLS MW-12, MW-13, AND MW-17 WERE NOT USED FOR GROUNDWATER CONTOURING DUE TO ANOMALOUS MEASUREMENTS.

9.84E-06 — HYDRAULIC CONDUCTIVITY VALUE (CENTIMETERS/SECOND)

N

SCALE IN FEET
0 50 100

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
	1/15/2019	SLG	SLG	SV

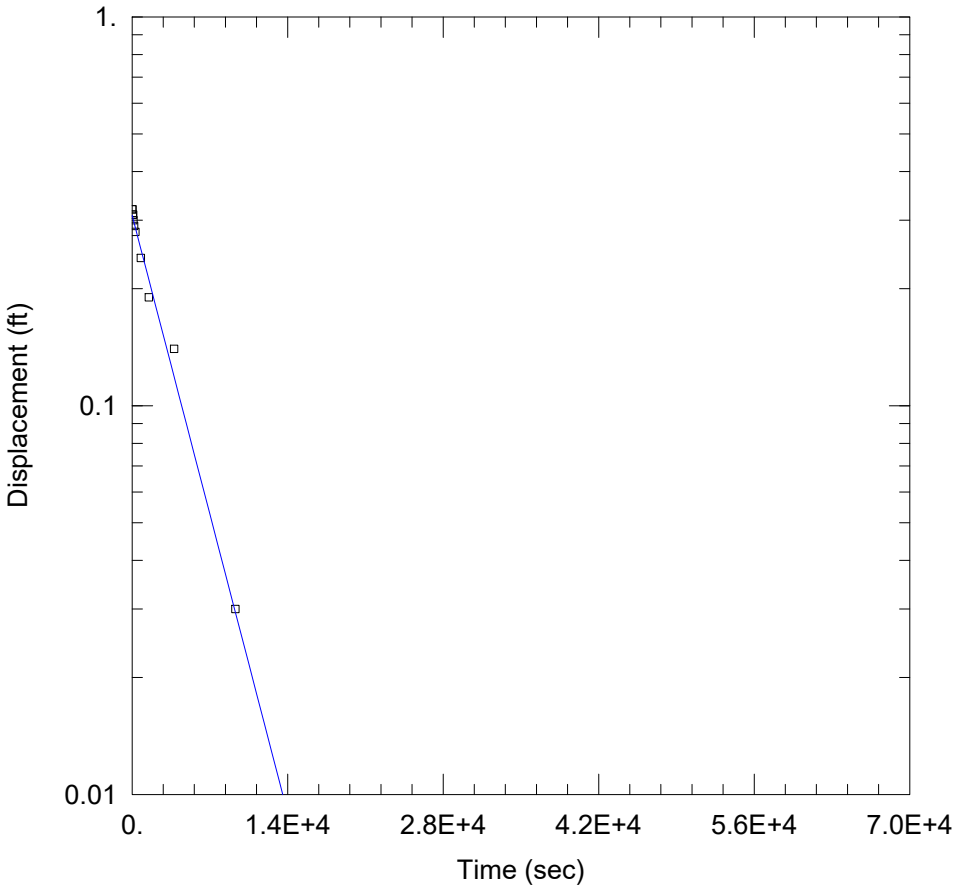
TITLE:

AQUIFER SLUG TESTING RESULTS
2018 ***AND 2019***

PROJECT:
STATE GAS COM N#1
SAN JUAN RIVER BASIN
SAN JUAN COUNTY, NEW MEXICO

Stantec

Figure No.:
1



MW-1 SLUG OUT TEST

Data Set: C:\...\MW-1 Slug Out.aqt
Date: 12/10/18 Time: 14:38:52

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-1
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 9.95 ft Anisotropy Ratio (Kz/Kr): 1.

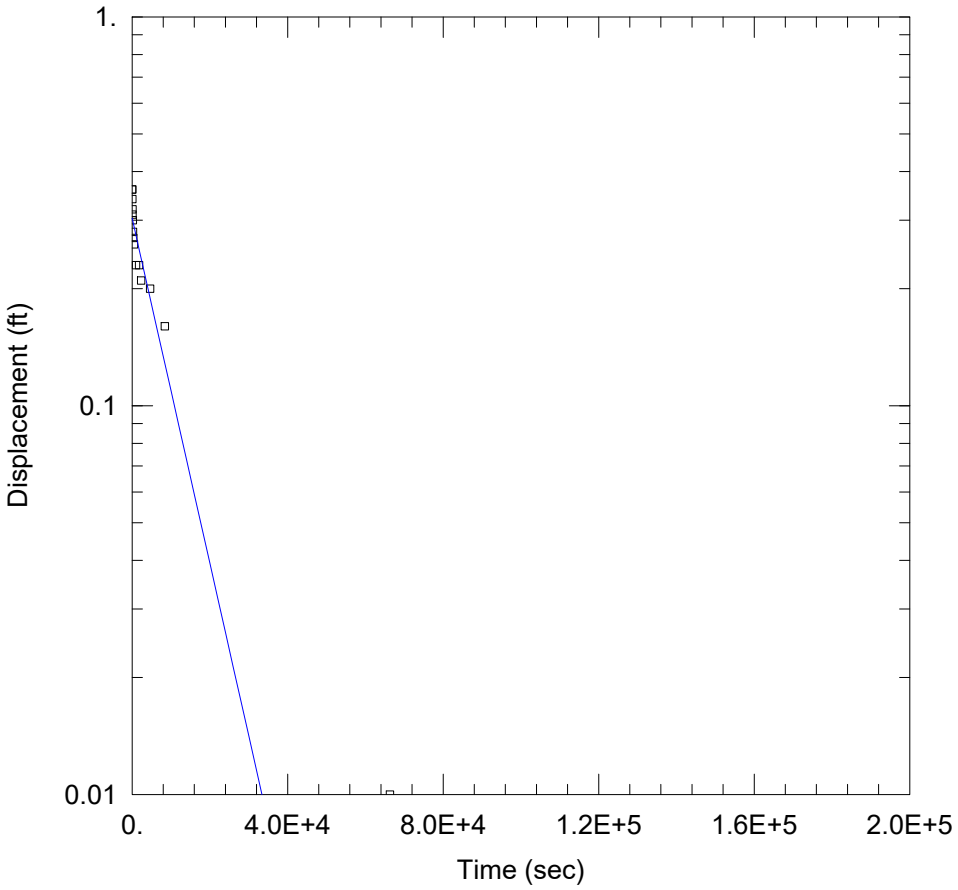
WELL DATA (MW-1)

Initial Displacement: 0.32 ft
Total Well Penetration Depth: 9.95 ft
Casing Radius: 0.083 ft
Static Water Column Height: 9.95 ft
Screen Length: 9.95 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.09156 ft/day y0 = 0.3087 ft



MW-2 SLUG OUT TEST

Data Set: C:\...\MW-2 Slug Out.aqt
Date: 12/10/18 Time: 14:54:48

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-2
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 6.2 ft Anisotropy Ratio (Kz/Kr): 1.

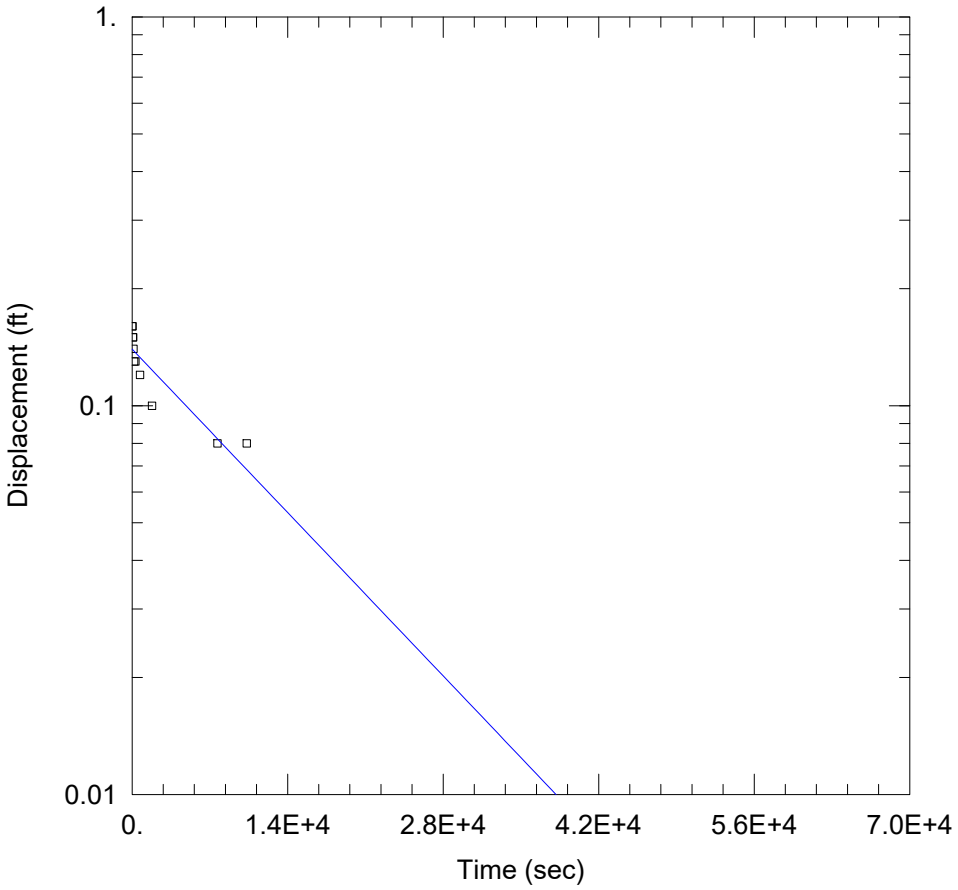
WELL DATA (MW-2)

Initial Displacement: 0.36 ft
Total Well Penetration Depth: 6.2 ft
Casing Radius: 0.17 ft
Static Water Column Height: 6.2 ft
Screen Length: 6.2 ft
Well Radius: 0.42 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.09189 ft/day y0 = 0.3034 ft



MW-3 SLUG OUT TEST

Data Set: C:\...\MW-3 Slug Out.aqt
Date: 12/10/18 Time: 14:55:44

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-3
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 4.82 ft Anisotropy Ratio (Kz/Kr): 1.

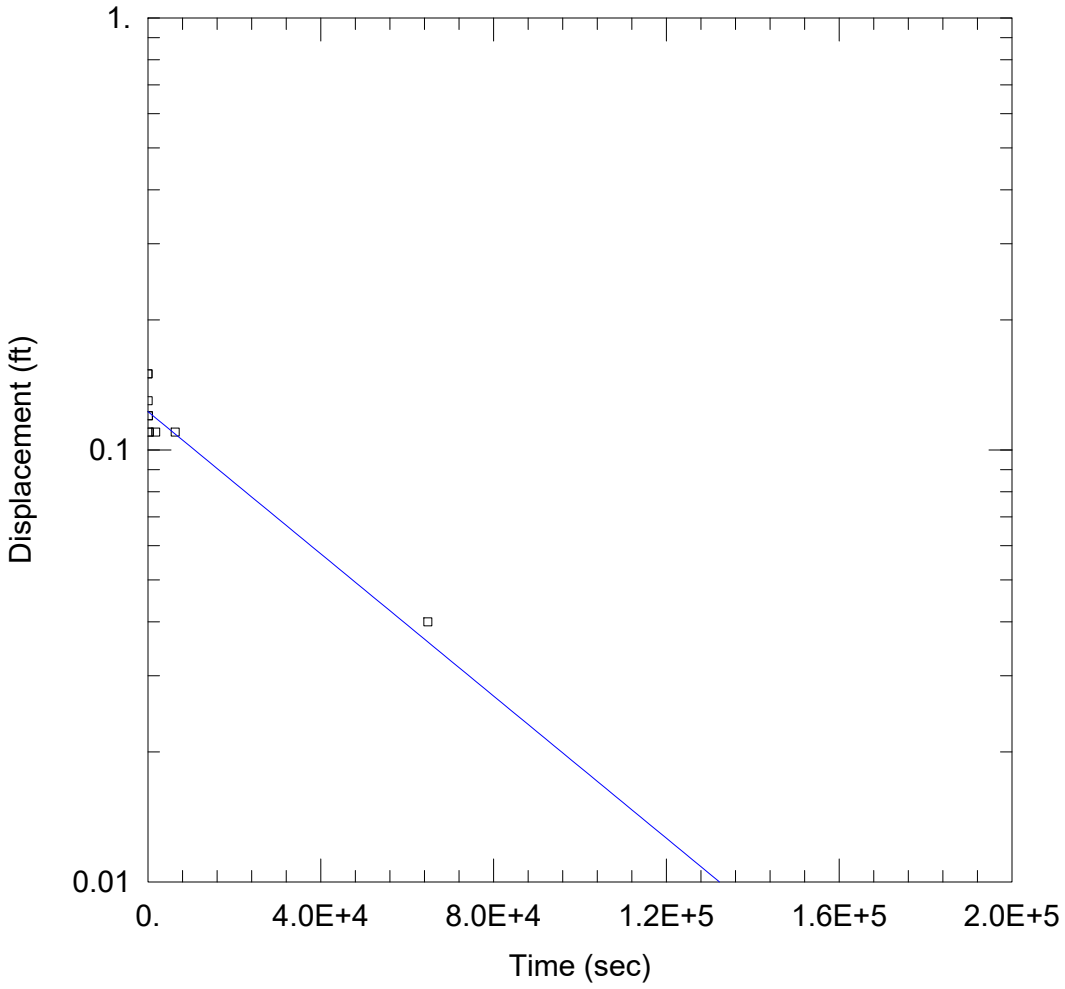
WELL DATA (MW-3)

Initial Displacement: 0.16 ft
Total Well Penetration Depth: 4.82 ft
Casing Radius: 0.17 ft
Static Water Column Height: 4.82 ft
Screen Length: 4.82 ft
Well Radius: 0.42 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0716 ft/day y0 = 0.1398 ft



MW-4 SLUG OUT TEST

Data Set: C:\...\MW-4 Slug Out.aqt
Date: 12/10/18 Time: 15:04:38

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-4
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 5.18 ft Anisotropy Ratio (Kz/Kr): 1.

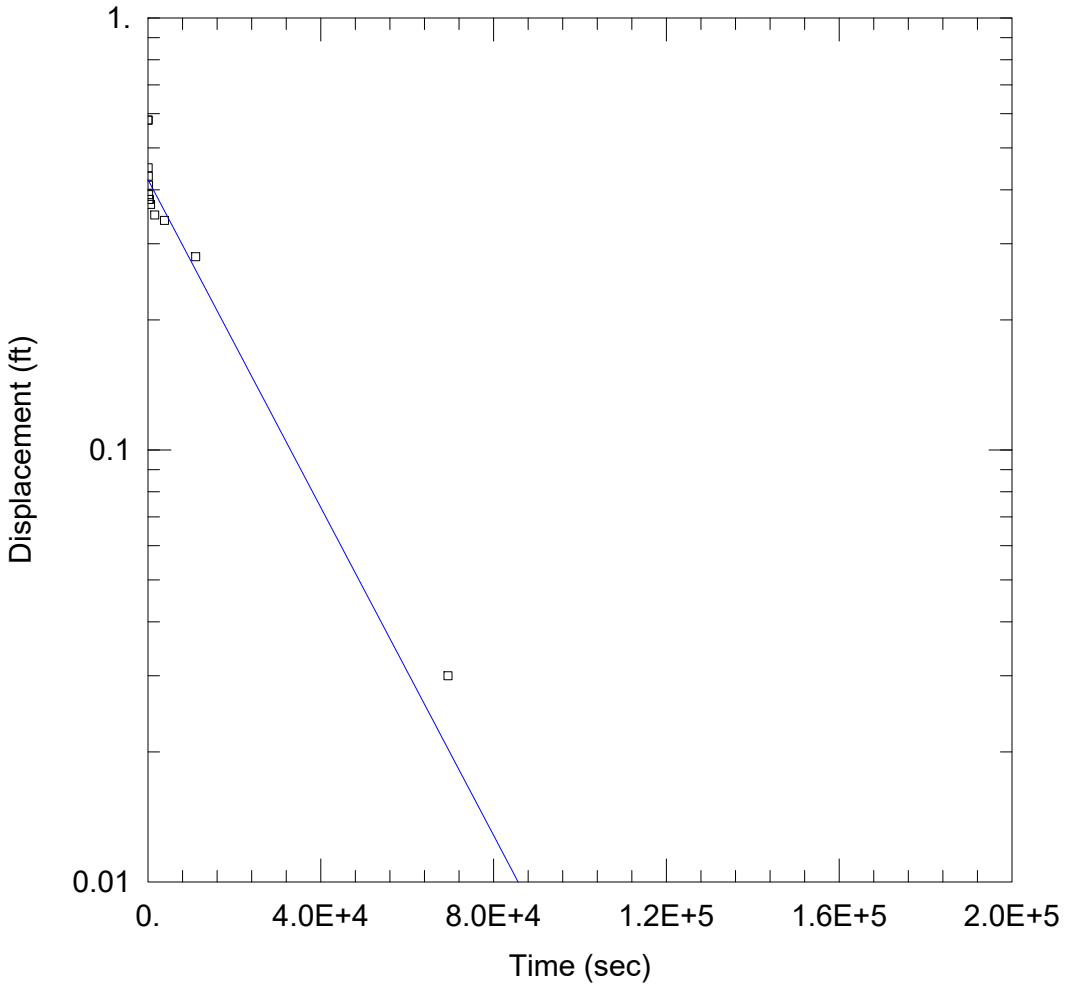
WELL DATA (MW-4)

Initial Displacement: 0.15 ft
Total Well Penetration Depth: 5.18 ft
Casing Radius: 0.17 ft
Static Water Column Height: 5.18 ft
Screen Length: 5.18 ft
Well Radius: 0.42 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01886 ft/day y0 = 0.1226 ft



MW-5 SLUG OUT TEST

Data Set: C:\...\MW-5 Slug Out.aqt
Date: 12/10/18 Time: 15:05:13

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-5
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 5.48 ft Anisotropy Ratio (Kz/Kr): 1.

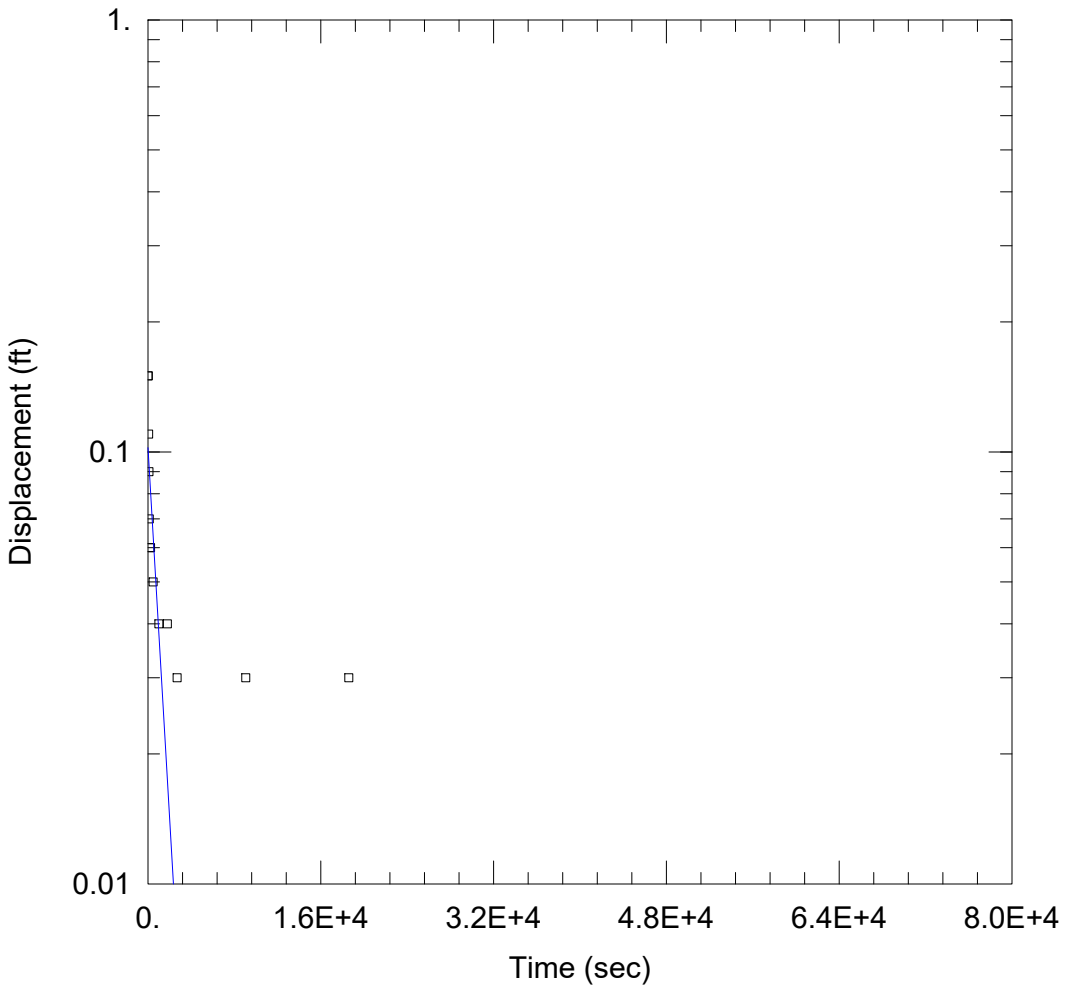
WELL DATA (MW-5)

Initial Displacement: 0.58 ft
Total Well Penetration Depth: 5.48 ft
Casing Radius: 0.083 ft
Static Water Column Height: 5.48 ft
Screen Length: 5.48 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.023 ft/day y0 = 0.4224 ft



MW-6 SLUG OUT TEST

Data Set: C:\...\MW-6 Slug Out.aqt
Date: 12/10/18 Time: 15:05:46

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-6
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 7.11 ft Anisotropy Ratio (Kz/Kr): 1.

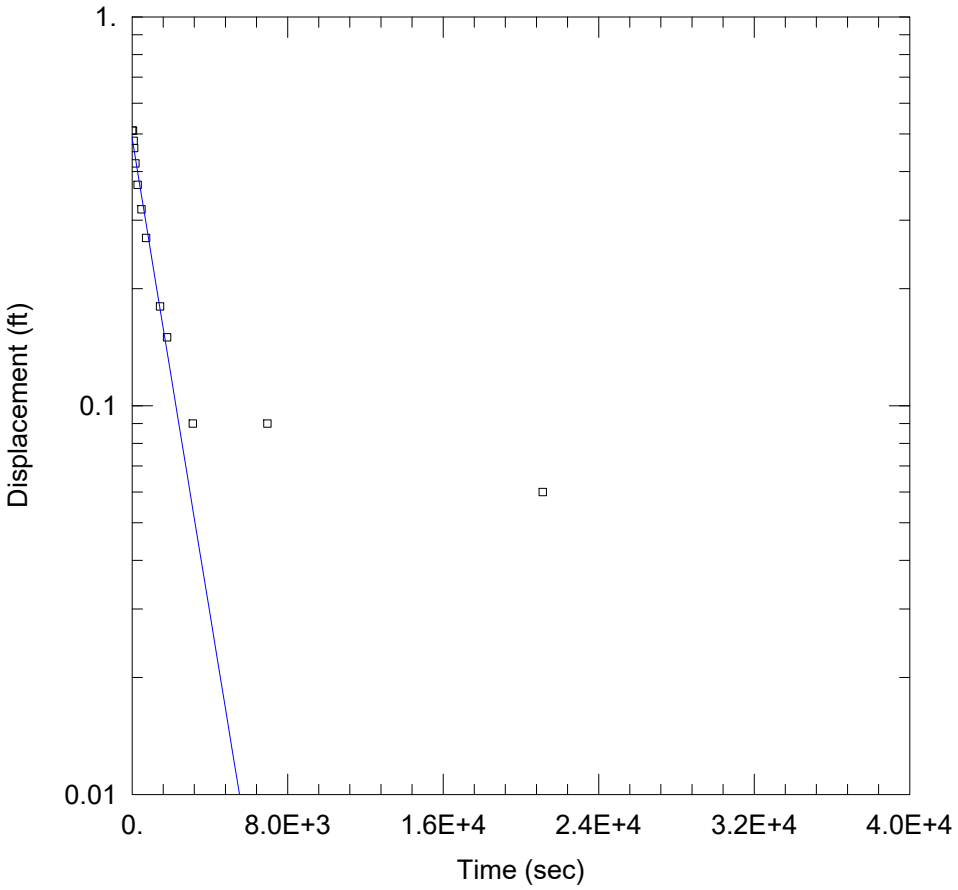
WELL DATA (MW-6)

Initial Displacement: 0.15 ft
Total Well Penetration Depth: 7.11 ft
Casing Radius: 0.083 ft
Static Water Column Height: 7.11 ft
Screen Length: 7.11 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.4432 ft/day y0 = 0.1023 ft



MW-9 SLUG OUT TEST

Data Set: C:\...\MW-9 Slug Out.aqt
Date: 12/10/18 Time: 15:01:53

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-9
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 10.44 ft Anisotropy Ratio (Kz/Kr): 1.

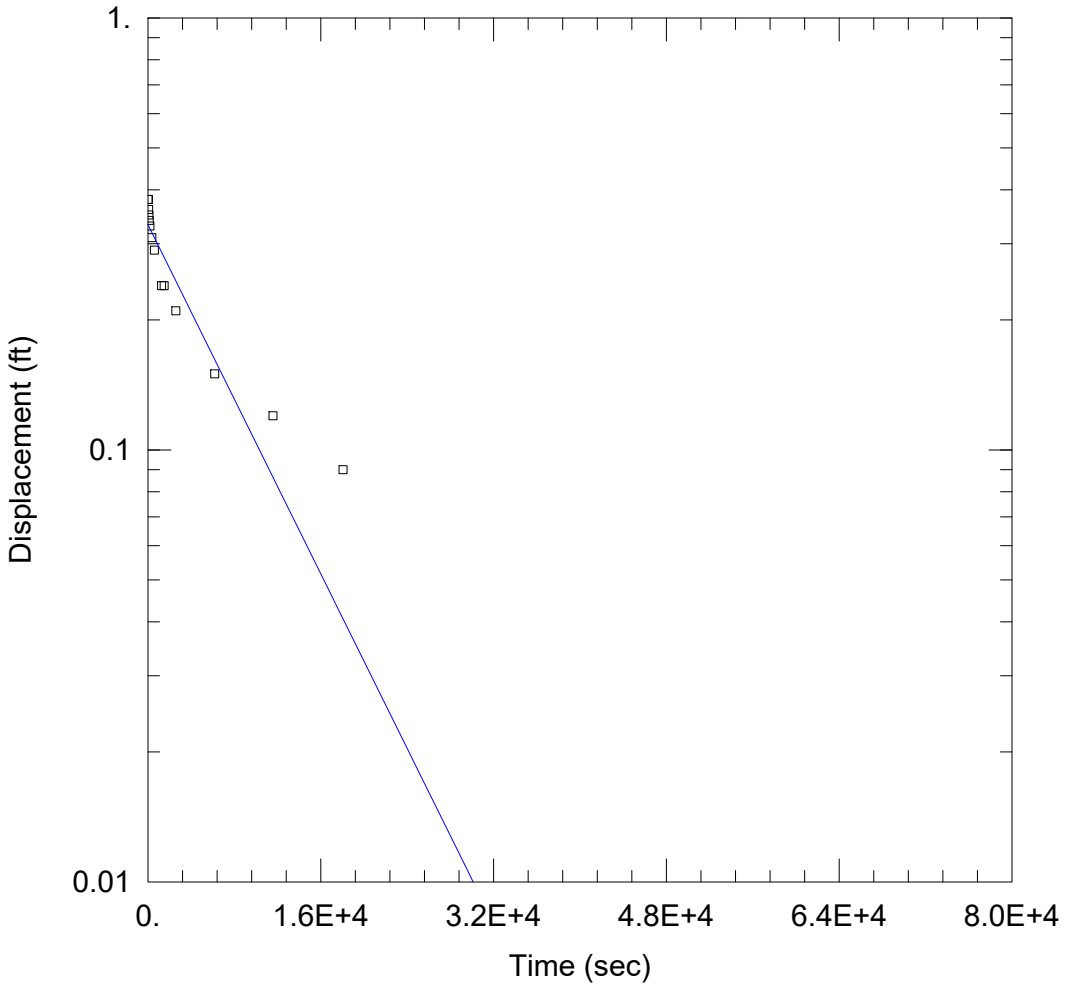
WELL DATA (MW-9)

Initial Displacement: 0.51 ft
Total Well Penetration Depth: 10.44 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.44 ft
Screen Length: 10.44 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.2466 ft/day y0 = 0.4873 ft



MW-10 SLUG OUT TEST

Data Set: C:\...\MW-10 Slug Out.aqt
Date: 12/10/18 Time: 15:07:51

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-10
Test Date: 10/30/18

AQUIFER DATA

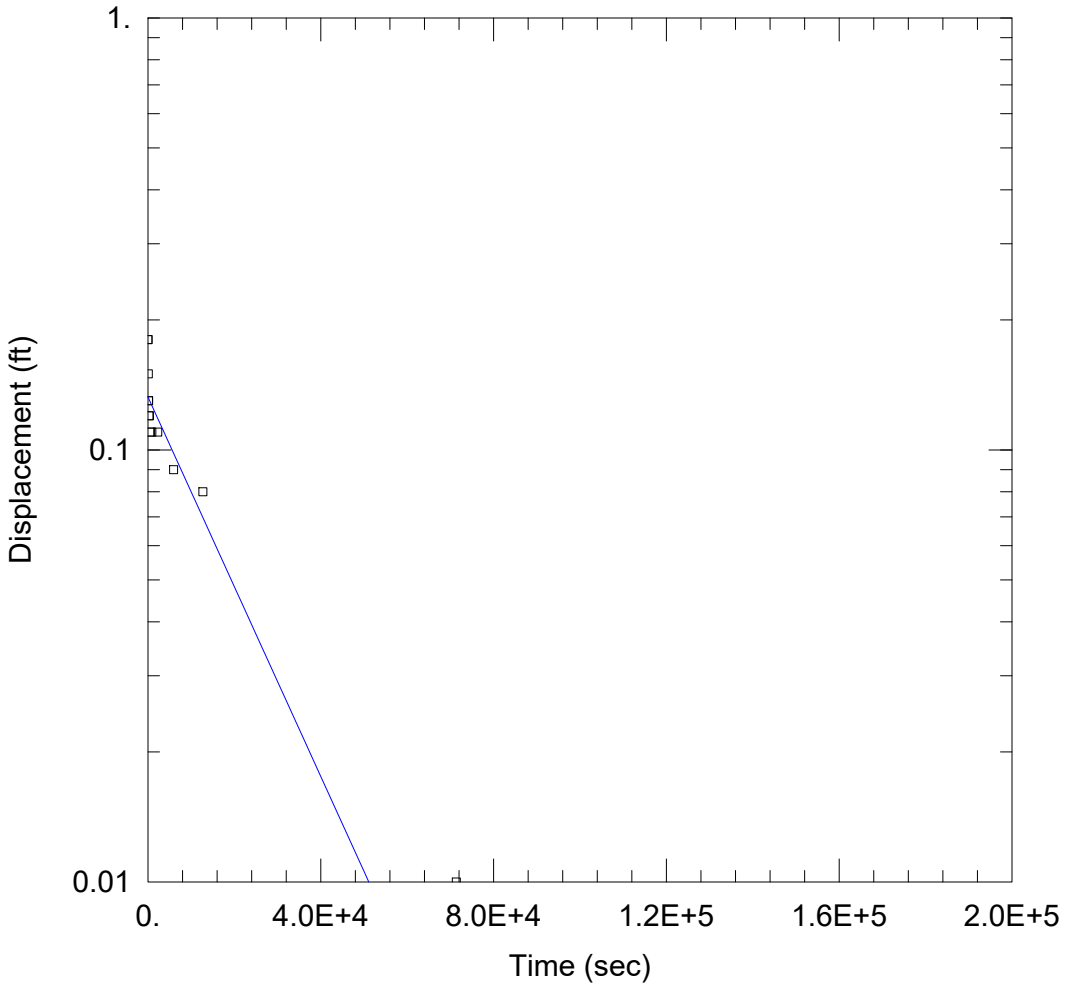
Saturated Thickness: 15.06 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

Initial Displacement: 0.38 ft
Total Well Penetration Depth: 15.06 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.06 ft
Screen Length: 15.06 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.03156 ft/day
y0 = 0.3321 ft



MW-11 SLUG OUT TEST

Data Set: C:\...\MW-11 Slug Out.aqt
Date: 12/10/18 Time: 15:08:58

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-11
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 11.92 ft Anisotropy Ratio (Kz/Kr): 1.

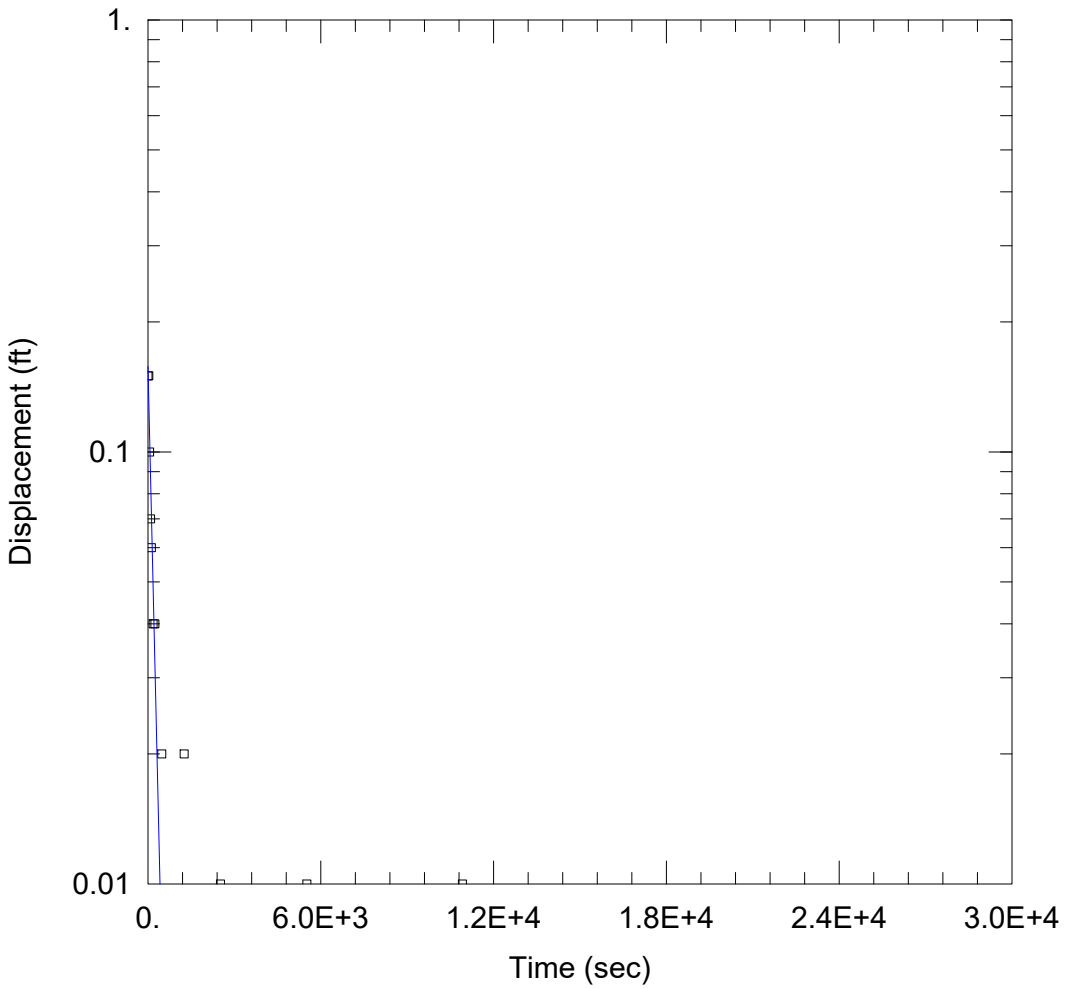
WELL DATA (MW-11)

Initial Displacement: 0.18 ft
Total Well Penetration Depth: 11.92 ft
Casing Radius: 0.083 ft
Static Water Column Height: 11.92 ft
Screen Length: 11.92 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.01619 ft/day y0 = 0.1326 ft



MW-12 SLUG OUT TEST

Data Set: C:\...\MW-12 Slug Out.aqt
Date: 12/10/18 Time: 15:10:18

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-12
Test Date: 10/30/18

AQUIFER DATA

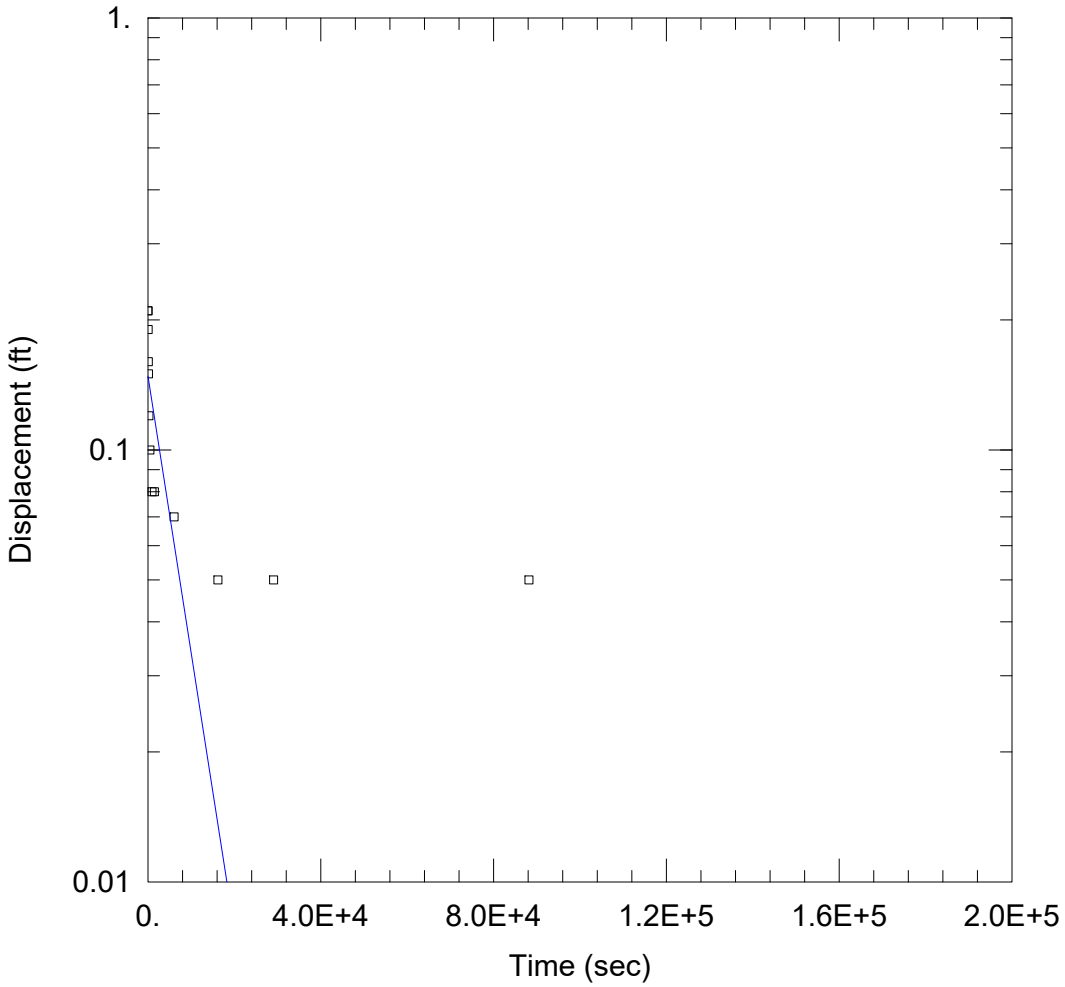
Saturated Thickness: 4.89 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-12)

Initial Displacement: 0.15 ft
Total Well Penetration Depth: 4.89 ft
Casing Radius: 0.083 ft
Static Water Column Height: 4.89 ft
Screen Length: 4.89 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.719 ft/day
y0 = 0.1576 ft



MW-13 SLUG OUT TEST

Data Set: C:\...\MW-13 Slug Out.aqt
Date: 12/10/18 Time: 15:11:12

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-13
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 6.84 ft Anisotropy Ratio (Kz/Kr): 1.

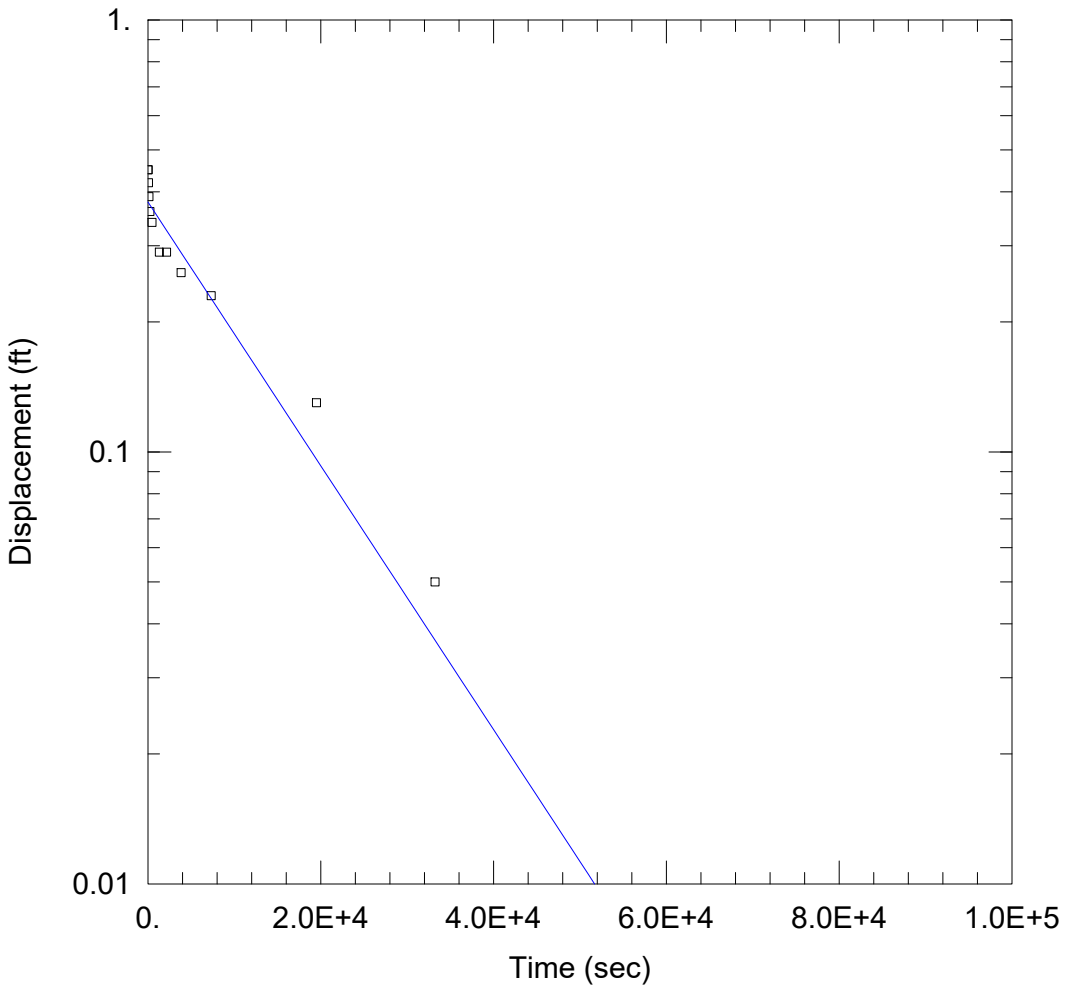
WELL DATA (MW-13)

Initial Displacement: 0.21 ft
Total Well Penetration Depth: 6.84 ft
Casing Radius: 0.083 ft
Static Water Column Height: 6.84 ft
Screen Length: 6.84 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.06801 ft/day y0 = 0.1482 ft



MW-14 SLUG OUT TEST

Data Set: C:\...\MW-14 Slug Out.aqt
Date: 12/10/18 Time: 15:11:59

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-14
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 13.57 ft Anisotropy Ratio (Kz/Kr): 1.

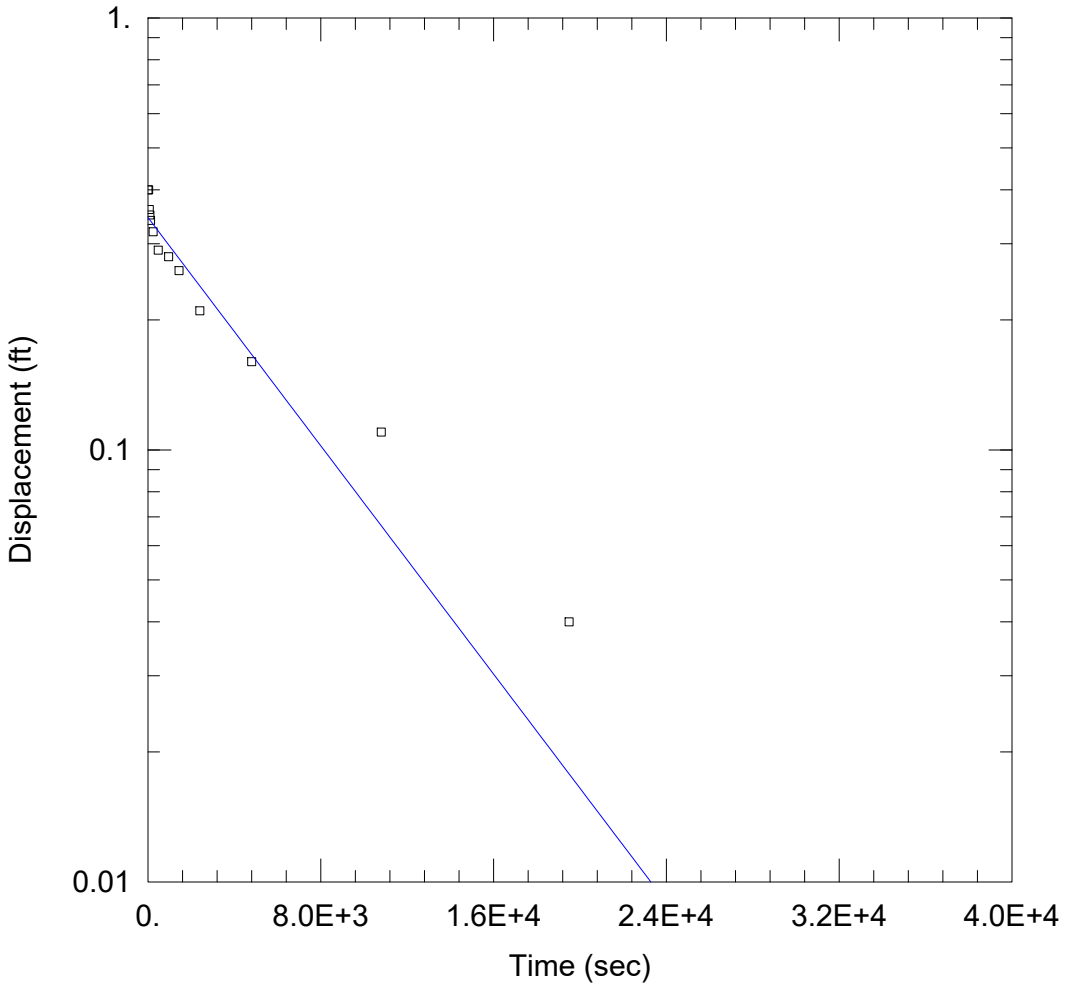
WELL DATA (MW-14)

Initial Displacement: 0.45 ft
Total Well Penetration Depth: 13.57 ft
Casing Radius: 0.083 ft
Static Water Column Height: 13.57 ft
Screen Length: 13.57 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.02055 ft/day y0 = 0.3788 ft



MW-15 SLUG OUT TEST

Data Set: C:\...\MW-15 Slug Out.aqt
Date: 12/10/18 Time: 15:12:47

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-15
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 14.26 ft Anisotropy Ratio (Kz/Kr): 1.

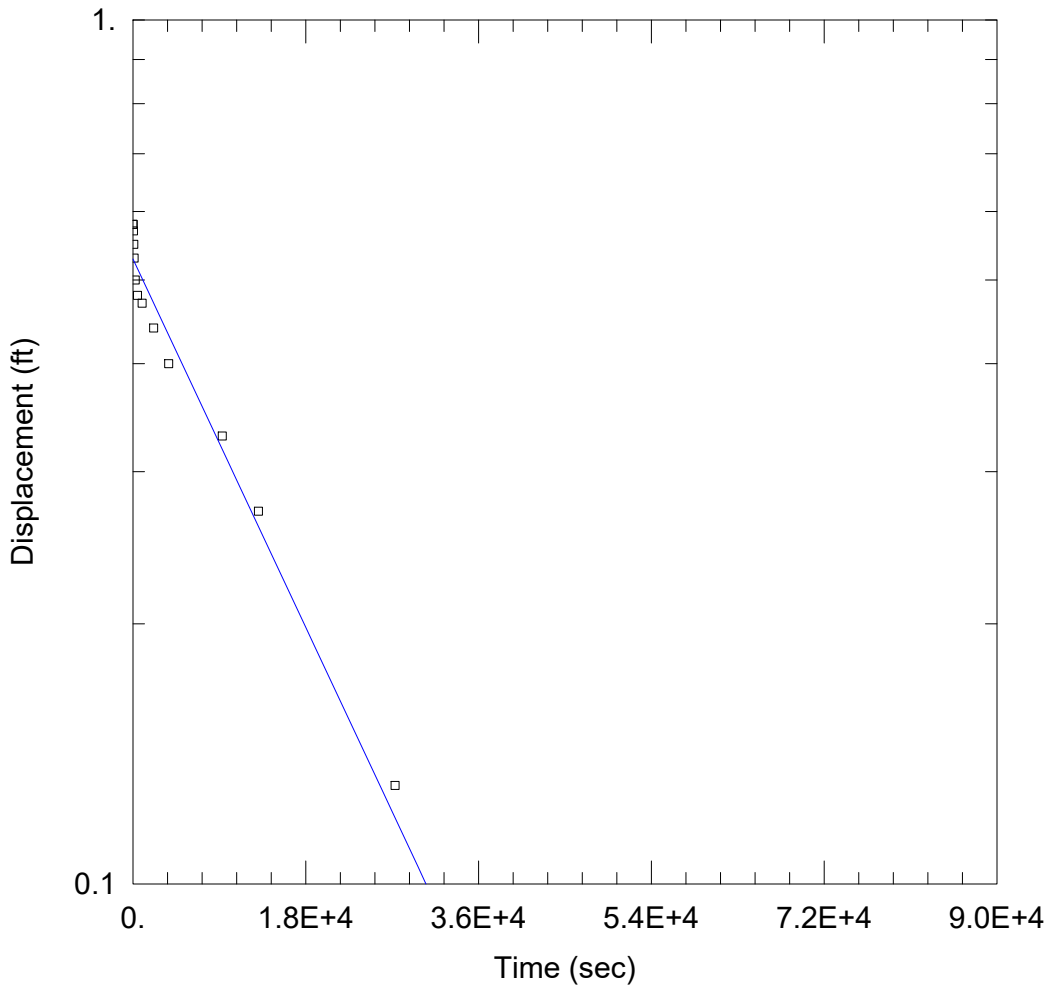
WELL DATA (MW-15)

Initial Displacement: 0.4 ft
Total Well Penetration Depth: 14.26 ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.26 ft
Screen Length: 14.26 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.04292 ft/day y0 = 0.3451 ft



MW-16 SLUG OUT TEST

Data Set: C:\...\MW-16 Slug Out.aqt
Date: 12/10/18 Time: 15:13:38

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-16
Test Date: 10/30/18

AQUIFER DATA

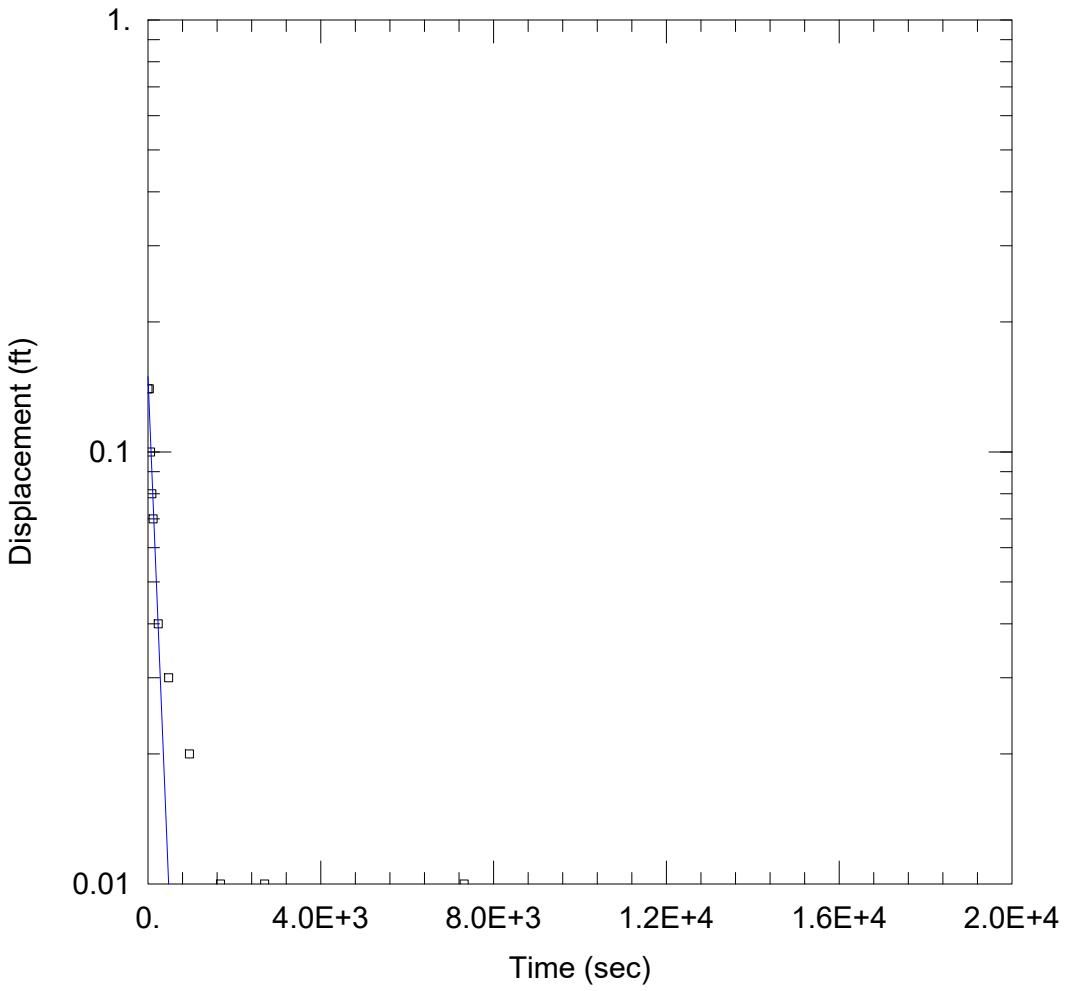
Saturated Thickness: 11.88 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-16)

Initial Displacement: 0.58 ft
Total Well Penetration Depth: 11.88 ft
Casing Radius: 0.083 ft
Static Water Column Height: 11.88 ft
Screen Length: 11.88 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0175 ft/day
y0 = 0.5287 ft



MW-17 SLUG OUT TEST

Data Set: C:\...\MW-17 Slug Out.aqt
Date: 12/10/18 Time: 15:14:43

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-17
Test Date: 10/30/18

AQUIFER DATA

Saturated Thickness: 3.65 ft Anisotropy Ratio (Kz/Kr): 1.

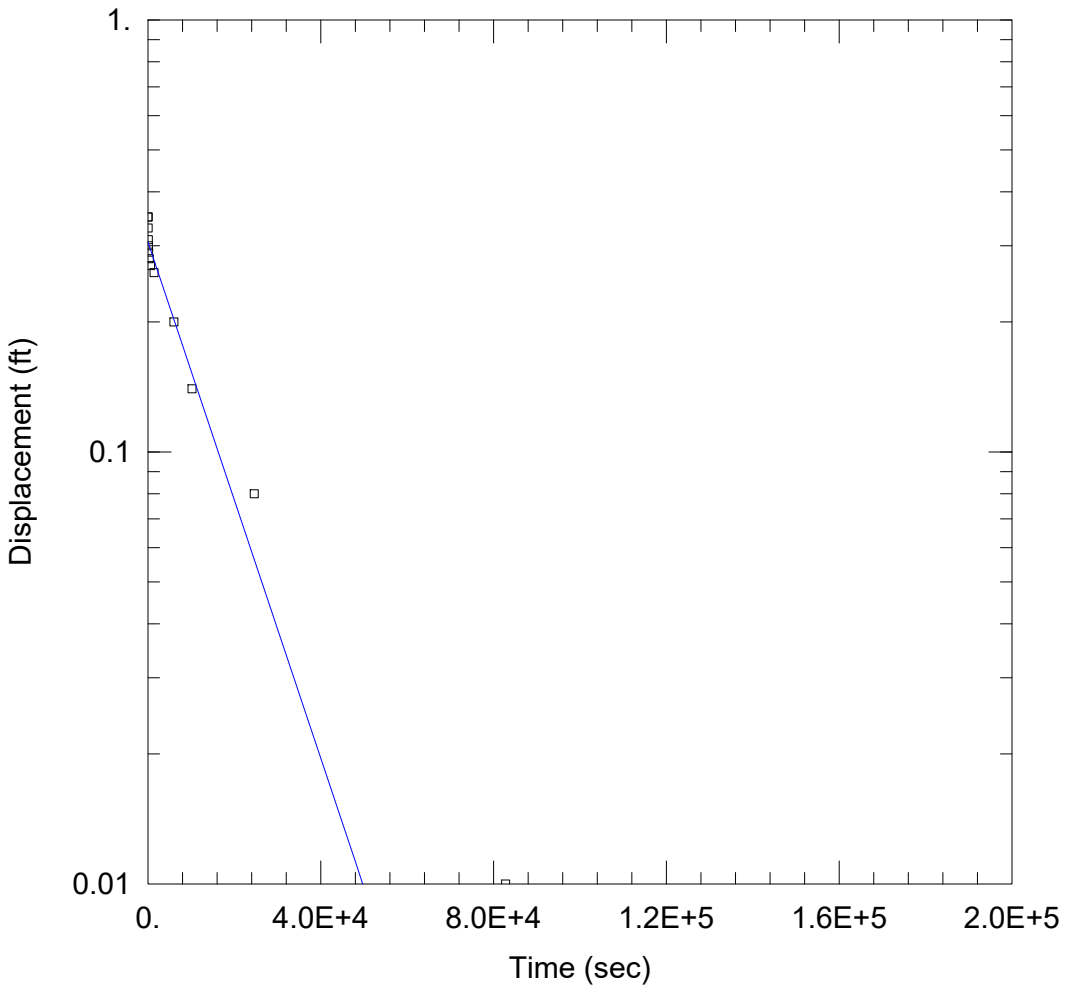
WELL DATA (MW-17)

Initial Displacement: 0.14 ft
Total Well Penetration Depth: 3.65 ft
Casing Radius: 0.083 ft
Static Water Column Height: 3.65 ft
Screen Length: 3.65 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.743 ft/day y0 = 0.1494 ft



MW-18 SLUG OUT TEST

Data Set: C:\...\MW-18 Slug Out.aqt
Date: 12/10/18 Time: 15:15:26

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-18
Test Date: 10/30/18

AQUIFER DATA

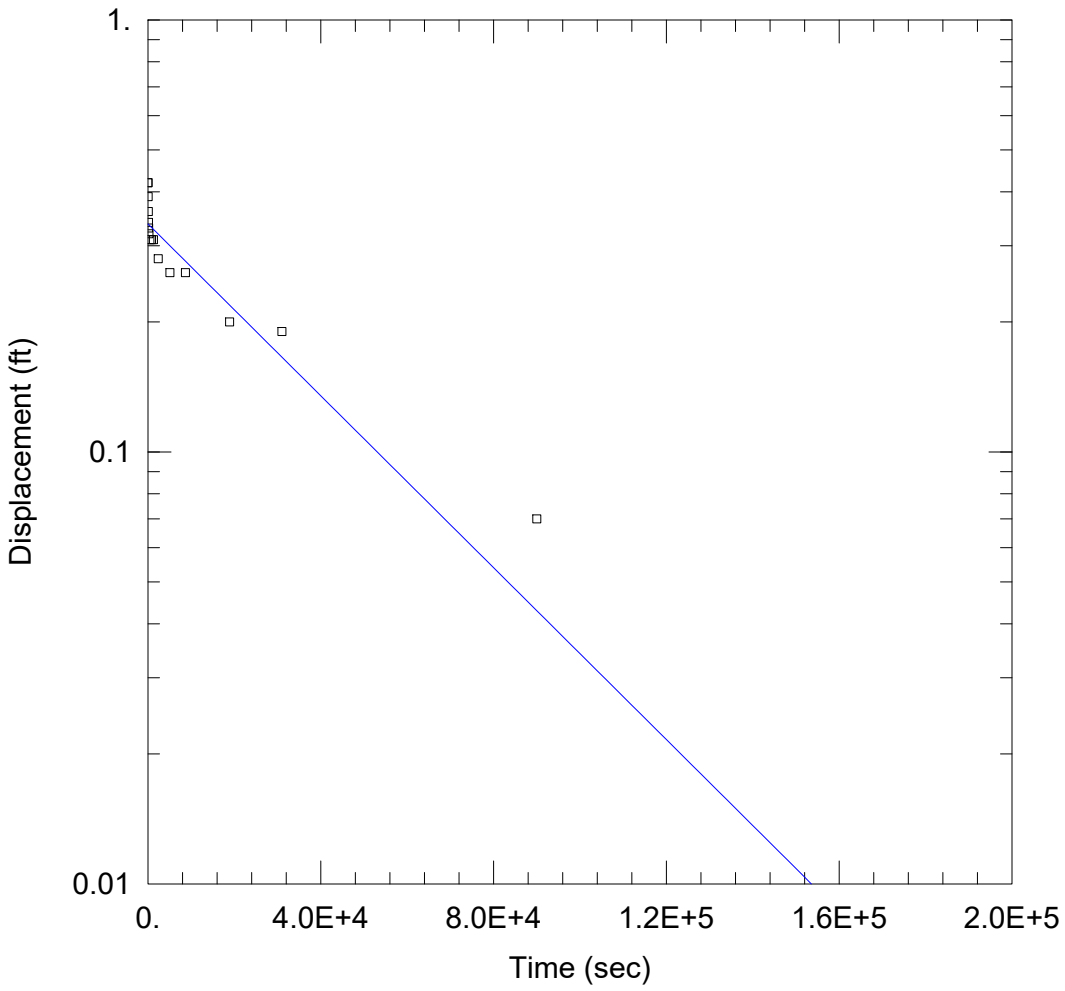
Saturated Thickness: 8. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-18)

Initial Displacement: 0.35 ft
Total Well Penetration Depth: 8. ft
Casing Radius: 0.083 ft
Static Water Column Height: 8. ft
Screen Length: 8. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.02872 ft/day
y0 = 0.306 ft



MW-19 SLUG OUT TEST

Data Set: C:\...\MW-19 Slug Out.aqt
Date: 12/10/18 Time: 15:16:12

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: MW-19
Test Date: 10/30/18

AQUIFER DATA

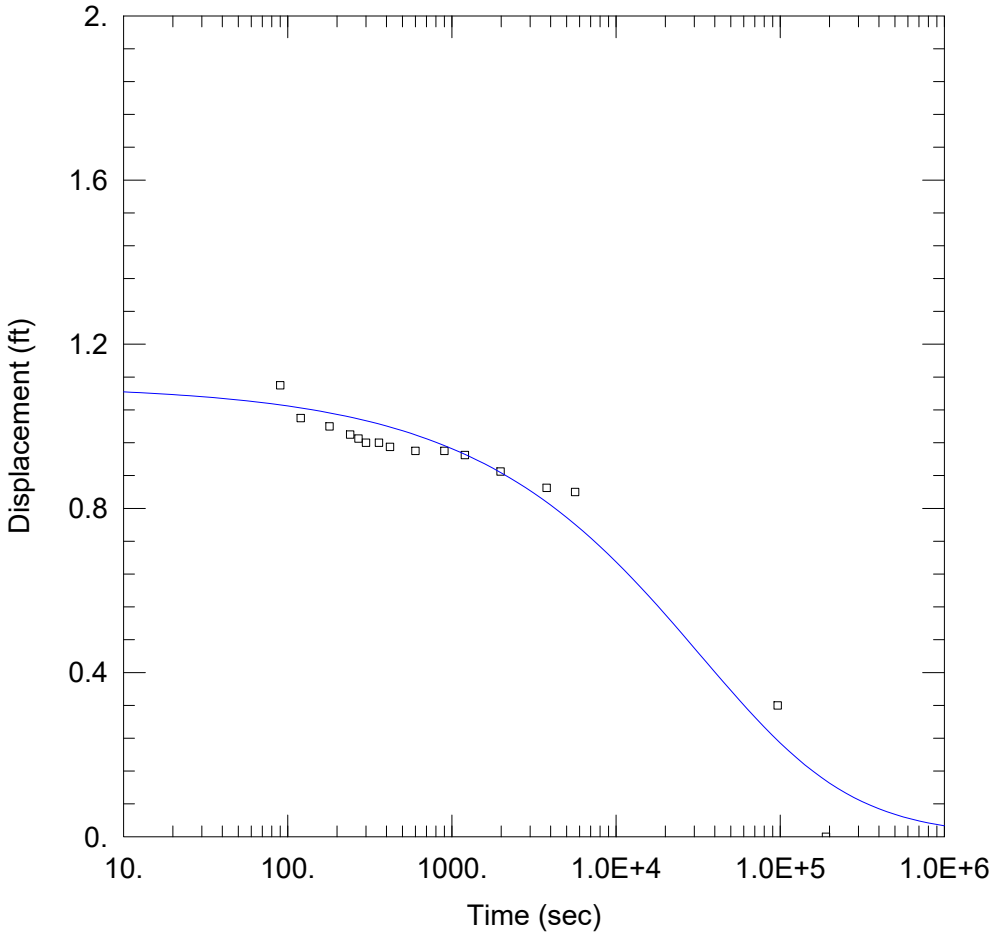
Saturated Thickness: 11.7 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-19)

Initial Displacement: 0.42 ft
Total Well Penetration Depth: 11.7 ft
Casing Radius: 0.083 ft
Static Water Column Height: 11.7 ft
Screen Length: 11.7 ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.007428 ft/day
y0 = 0.3371 ft



TW-1 SLUG OUT TEST

Data Set:
Date: 02/21/19 Time: 12:01:13

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: TW-1
Test Date: 2/6/19

AQUIFER DATA

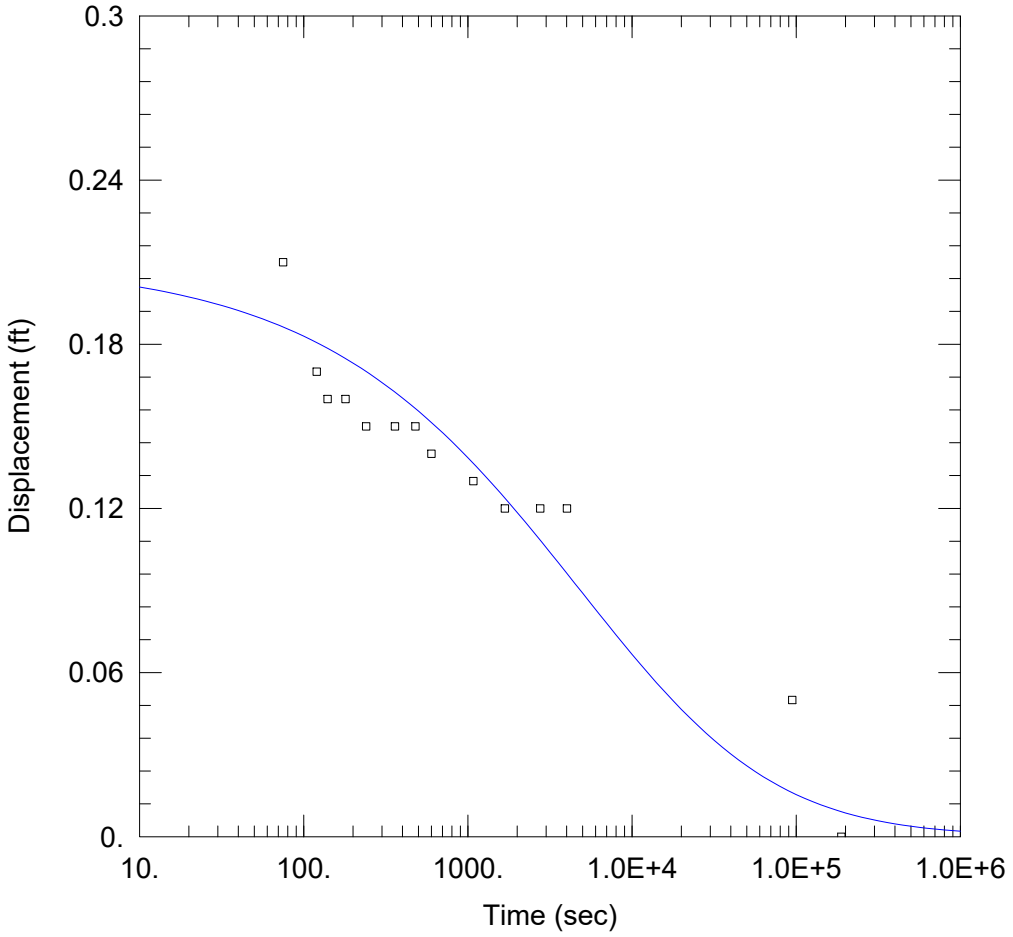
Saturated Thickness: 6. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TW-1)

Initial Displacement: 1.1 ft
Total Well Penetration Depth: 6. ft
Casing Radius: 0.083 ft
Static Water Column Height: 13.7 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos
T = 0.006537 ft^2/day
S = 0.0244



TW-2 SLUG OUT TEST

Data Set:
Date: 02/21/19 Time: 12:10:50

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: TW-2
Test Date: 2/6/19

AQUIFER DATA

Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

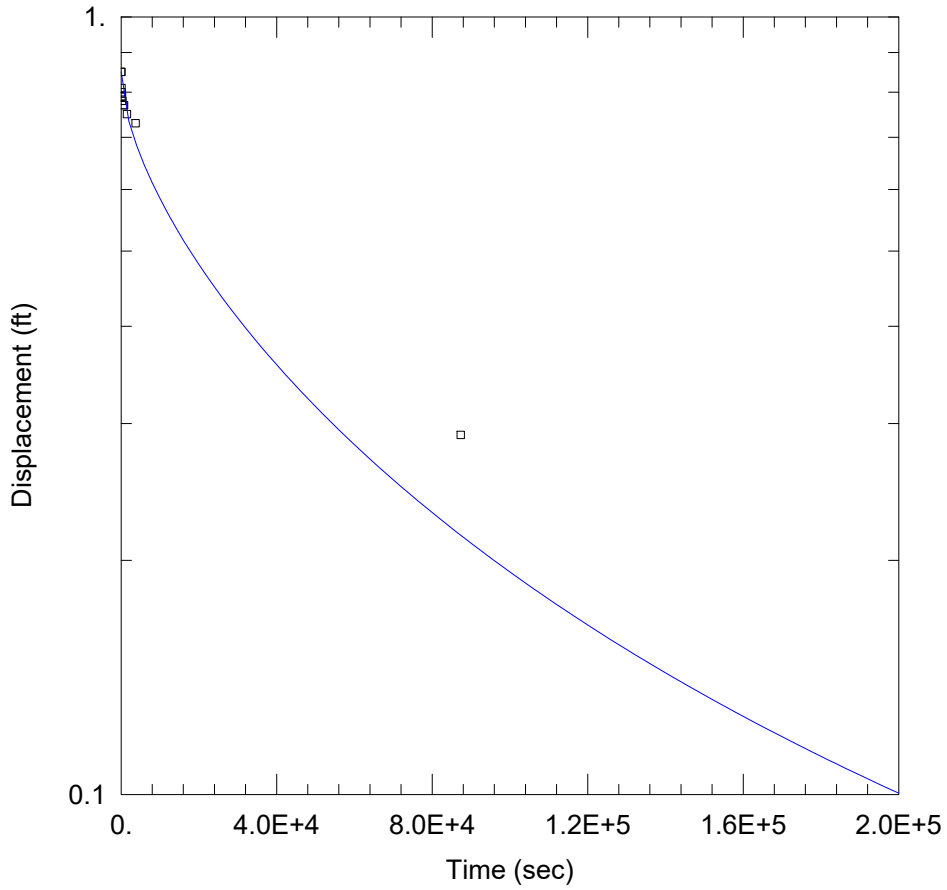
WELL DATA (TW-2)

Initial Displacement: 0.21 ft
Total Well Penetration Depth: 9. ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.67 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Bredehoeft-Papadopulos

T = 0.0147 ft^2/day S = 0.1



TW-3 SLUG OUT TEST

Data Set:
Date: 12/11/18 Time: 10:31:36

PROJECT INFORMATION

Company: Stantec Consulting Services
Client: EPCGPC
Project: State Gas Com N #1
Location: San Juan County, New Mexico
Test Well: TW-3
Test Date: 7/12/18

AQUIFER DATA

Saturated Thickness: 6. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (TW-3)

Initial Displacement: 0.85 ft
Total Well Penetration Depth: 6. ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.33 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos
T = 0.009069 ft^2/day
S = 0.00627

APPENDIX E

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised August 1, 2011

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. **Generator Name and Address:**
El Paso CGP Company L.L.C., 1001 Louisiana Street, Houston, TX 77002

2. **Originating Site:**
State Gas Com N#1

3. **Location of Material (Street Address, City, State or ULSTR):**
Unit H, Sec. 16, T31N, R12W

4. **Source and Description of Waste:**

A historic release occurred on the State Gas Com N#1 property. As part of environmental remediation testing activities, wastewater generated from these activities will be removed from the Site.

Estimated Volume 1 yd^3 / (bbls) Known Volume (to be entered by the operator at the end of the haul) yd^3 / bbls

5. **GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS**

I, Joseph Wiley, representative or authorized agent for El Paso CGP Company L.L.C. do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency* ☐ *Monthly* ☐ *Weekly* ☐ *Per Load*

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, _____, representative for El Paso CGP Company L.L.C. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. **Transporter: Stantec Consulting Services**

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: Basin Disposal Inc. Permit # NM1-005

Address of Facility: 906 S Main Avenue Aztec, NM 87410-2285

Method of Treatment and/or Disposal:

☐ Evaporation ☒ Injection ☐ Treating Plant ☐ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☐ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: _____ TITLE: _____ DATE: _____

SIGNATURE: _____ TELEPHONE NO.: _____

Surface Waste Management Facility Authorized Agent

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. 713363
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 5-8-13
DEL. TKT#.
GENERATOR: El Paso
BILL TO: ~~Basin~~ Stanteo
HAULING CO. Stanteo
DRIVER: SM
(Print Full Name)
ORDERED BY: Joseph Miller
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	01	State Gas Com N #1	1	70			40 13 MAY 8	2:47PM
2		Knight	1					
3		Fogelson						
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]

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District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised August 1, 2011

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. **Generator Name and Address:**
El Paso CGP Company L.L.C., 1001 Louisiana Street, Houston, TX 77002

2. **Originating Site(s):**
Fields A#7A, Fogelson 4-1, Gallegos Canyon Unit #124E, GCU Com A #142E, James F. Bell #1E, Knight #1, Lat L 40, and State Gas Com N #1.

3. **Location of Material (Street Address, City, State or ULSTR):**
Unit E, Sec. 34, T32N, R11W; Unit P, Sec. 4, T29N, R11W; Unit N, Sec. 35, T28N, R12W; Unit G, Sec. 25, R29N, R12W; Unit P, Sec. 10, T30N, R13W; Unit A, Sec. 5, T30N, R13W; Unit H, Sec. 13, T28N, R04W; Unit H, Sec. 16, T31N, R12W, respectively.

4. **Source and Description of Waste:**
Historic releases occurred on the above-referenced properties. As part of environmental remediation activities, monitoring wells will be sampled and purged groundwater will be removed from the Site.

Estimated Volume 1 yd^3 / (bbls) Known Volume (to be entered by the operator at the end of the haul) _____ yd^3 / bbls

5. **GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS**

I, Joseph Wiley, representative or authorized agent for El Paso CGP Company L.L.C. do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency ☐ Monthly ☐ Weekly ☒ Per Load*

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Susan Gardner, representative for El Paso CGP Company L.L.C. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. **Transporter: Stantec Consulting Services**

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: Basin Disposal, Inc., Permit # NM1-005
Address of Facility: 906 S. Main Avenue, Aztec, NM 87410-2285
Method of Treatment and/or Disposal:

☐ Evaporation ☒ Injection ☐ Treating Plant ☐ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☐ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Velma Fergison TITLE: Attendant DATE: 5/19/15

SIGNATURE: _____ TELEPHONE NO.: 505-637-8936

Surface Waste Management Facility Authorized Agent

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. 714236
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 5/19/16
DEL. TKT#.
GENERATOR: El Paso
BILL TO: El Paso
HAULING CO. Stevens Tech
DRIVER: Salah (Print Full Name)
ORDERED BY: Josh Hiley
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		Field 17A, Fogelson 4A Gallegos Canyon Unit 129E	100	.70		00	70	
2		Scozoma 192E James Bell 1E Knight Lat L46		~~.70~~				
3		State Gas Com N #1						
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 _____

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District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised August 1, 2011

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address:
El Paso CGP Company L.L.C., 1001 Louisiana Street, Houston, TX 77002

2. Originating Site(s):
Fields A#7A, State Gas Com N #1, Johnston Federal #4, Johnston Federal #6A, Canada Mesa #2, K-27 LD072, Miles Federal #1A, Standard Oil Com #1.

3. Location of Material (Street Address, City, State or ULSTR):
Unit E, Sec. 34, T32N, R11W; Unit H, Sec. 16, T31N, R12W; Unit N, Sec. 27, T31N, R09W; Unit F, Sec. 35, T31N, R09W; Unit I, Sec. 24, T24N, R06W; Unit E, Sec. 4, T25N, R06W; Unit F, Sec 5, T26N, R09W; and Unit N, Sec. 36, T29N, R09W, respectively.

4. Source and Description of Waste:
Historic releases occurred on the above-referenced properties. As part of environmental remediation activities, monitoring wells will be sampled and purged groundwater will be removed from the Site.

Estimated Volume 1 yd^3 / (bbls) Known Volume (to be entered by the operator at the end of the haul) [redacted] yd^3 / bbls

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, Joseph Wiley, representative or authorized agent for El Paso CGP Company L.L.C. do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency ☐ Monthly ☐ Weekly ☒ Per Load*

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Sarah Gardner, representative for El Paso CGP Company L.L.C. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. Transporter: Stantec Consulting Services

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: Basin Disposal, Inc., Permit # NM1-005
Address of Facility: 906 S. Main Avenue, Aztec, NM 87410-2285
Method of Treatment and/or Disposal:

☐ Evaporation ☒ Injection ☐ Treating Plant ☐ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☐ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Alonzo Johnson TITLE: [redacted] DATE: 10-28-18

SIGNATURE: _____ TELEPHONE NO.: [redacted]

Surface Waste Management Facility Authorized Agent

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. 727110
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 10.28.19
DEL. TKT#.

GENERATOR: El Paso CGP
BILL TO: El Paso CGP

HAULING CO. Stanley
DRIVER: Sarah Gardner
(Print Full Name)

ORDERED BY: [redacted] & Joe W.
CODES:

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

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT

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

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1		Fields A #7A State Gas Com N #1	1	70			70	18 OCT 28 9:47 AM
2		Johnston Federal #4 Johnston Federal #6A						
3		Canada Mesa #1 K-27 LD07R						
4		Miles Federal #1A Standard Oil Com #						
5								

I, [redacted] 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 [redacted]

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French Dr., Hobbs, NM 88240
st II
S. First St., Artesia, NM 88210
strict III
000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised August 1, 2011

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. **Generator Name and Address:**
El Paso CGP Company L.L.C., 1001 Louisiana Street, Houston, TX 77002

2. **Originating Site(s):**
Fogelson 4-1, Gallegos Canyon Unit #124E, GCU Com A #142E, Sandoval GC A#1A, James F. Bell #1E, Knight #1, Lat L 40, and State Gas Com N #1.

3. **Location of Material (Street Address, City, State or ULSTR):**
Unit P, Sec. 4, T29N, R11W; Unit N, Sec. 35, T28N, R12W; Unit G, Sec. 25, R29N, R12W; Unit H, Sec. 13, T28N, R04W; Unit P, Sec. 10, T30N, R13W; Unit A, Sec. 5, T30N, R13W; Unit H, Sec. 13, T28N, R04W; Unit H, Sec. 16, T31N, R12W, respectively.

4. **Source and Description of Waste:**
Historic releases occurred on the above-referenced properties. As part of environmental remediation activities, monitoring wells will be sampled and purged groundwater will be removed from the Site. Wastewater generated from aquifer testing of existing monitoring wells at the State Gas Com N#1 site is also being removed from the subject site.

Estimated Volume 1 yd^3 / (bbls) Known Volume (to be entered by the operator at the end of the haul) _____ yd^3 / bbls

5. **GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS**

I, Joseph Wiley, representative or authorized agent for El Paso CGP Company L.L.C. do hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. *Operator Use Only: Waste Acceptance Frequency ☐ Monthly ☐ Weekly ☒ Per Load*

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, _____ representative for El Paso CGP Company L.L.C. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. **Transporter: Stantec Consulting Services**

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: Basin Disposal, Inc., Permit # NM1-005
Address of Facility: 906 S. Main Avenue, Aztec, NM 87410-2285
Method of Treatment and/or Disposal:

☐ Evaporation ☒ Injection ☐ Treating Plant ☐ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☒ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Damian Hernandez TITLE: _____ DATE: _____

SIGNATURE: _____ TELEPHONE NO.: _____

Surface Waste Management Facility Authorized Agent

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. 727466
NMOCD PERMIT: NM -001-0005
Oil Field Waste Document, Form C138
INVOICE:

DATE 11-1-18
DEL. TKT#.
GENERATOR: El Paso CGP Co.
BILL TO: El Paso CGP
HAULING CO. Stantec Consulting
DRIVER: Jarrh G.
(Print Full Name)
ORDERED BY: Joe W.
CODES:

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

STATE: ☑ NM ☐ CO ☐ AZ ☐ UT TREATMENT/DISPOSAL METHODS: ☒ EVAPORATION ☒ INJECTION ☒ TREATING PLANT

NO.	TRUCK	LOCATION(S)	VOLUME	COST	H2S	COST	TOTAL	TIME
1		Foyl Com #1 State Gas Com N#1	1	70			.70	
2		Gallegos Canyon Unit #12E					'18 NOV 1 6:3 PM	
3		GCU Com A #111E						
4		Knight #1 Federal GCA #1A						
5		James F. Bell #1E Lat 40						

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 _____

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representative samples of the oil field waste have been subjected to the paint filter test and have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. **Transporter: Stantec Consulting Services**

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: Basin Disposal, Inc., Permit # NM1-005
Address of Facility: 906 S. Main Avenue, Aztec, NM 87410-2285
Method of Treatment and/or Disposal:

☐ Evaporation ☒ Injection ☐ Treating Plant ☐ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status: ☑ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Damian Hernandez TITLE: [redacted] DATE: _____

SIGNATURE: _____ TELEPHONE NO.: [redacted]

Surface Waste Management Facility Authorized Agent

APPENDIX F

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: 400-154044-1
Client Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

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

Attn: Ms. Sarah Gardner

Carol M Webb

Authorized for release by:
5/30/2018 10:12:57 AM

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

Table of Contents

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-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Job ID: 400-154044-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-154044-1

Comments
No additional comments.

Receipt
The samples were received on 5/22/2018 11:53 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0º C.

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

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

Detection Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-1 — Lab Sample ID: 400-154044-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	10000		50		ug/L	50		8260C	Total/NA
Toluene	4500		50		ug/L	50		8260C	Total/NA
Ethylbenzene	630		50		ug/L	50		8260C	Total/NA
Xylenes, Total	6000		500		ug/L	50		8260C	Total/NA

Client Sample ID: MW-3 — Lab Sample ID: 400-154044-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	20000		100		ug/L	100		8260C	Total/NA
Toluene	250		100		ug/L	100		8260C	Total/NA
Ethylbenzene	620		100		ug/L	100		8260C	Total/NA
Xylenes, Total	4900		1000		ug/L	100		8260C	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 400-154044-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	4200		50		ug/L	50		8260C	Total/NA
Toluene	5800		50		ug/L	50		8260C	Total/NA
Ethylbenzene	420		50		ug/L	50		8260C	Total/NA
Xylenes, Total	3600		500		ug/L	50		8260C	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 400-154044-4

No Detections.

Client Sample ID: MW-13 — Lab Sample ID: 400-154044-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	23		1.0		ug/L	1		8260C	Total/NA
Toluene	1.0		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	5.8		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 400-154044-6

No Detections.

Client Sample ID: MW-15 — Lab Sample ID: 400-154044-7

No Detections.

Client Sample ID: MW-16 — Lab Sample ID: 400-154044-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	30		1.0		ug/L	1		8260C	Total/NA
Toluene	2.1		1.0		ug/L	1		8260C	Total/NA
Xylenes, Total	23		10		ug/L	1		8260C	Total/NA

Client Sample ID: MW-18 — Lab Sample ID: 400-154044-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	21		1.0		ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-18 (Continued) — Lab Sample ID: 400-154044-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Toluene	1.3		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	5.3		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-19 — Lab Sample ID: 400-154044-10

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	6.3		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	14		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: DP-01 — Lab Sample ID: 400-154044-11

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	10		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	2.5		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: TB (5/18/18) — Lab Sample ID: 400-154044-12

No Detections.

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-154044-1	MW-1	Water	05/18/18 09:00	05/22/18 11:53
400-154044-2	MW-3	Water	05/18/18 08:55	05/22/18 11:53
400-154044-3	MW-6	Water	05/18/18 07:50	05/22/18 11:53
400-154044-4	MW-9	Water	05/18/18 07:30	05/22/18 11:53
400-154044-5	MW-13	Water	05/18/18 08:10	05/22/18 11:53
400-154044-6	MW-14	Water	05/18/18 07:40	05/22/18 11:53
400-154044-7	MW-15	Water	05/18/18 07:45	05/22/18 11:53
400-154044-8	MW-16	Water	05/18/18 08:00	05/22/18 11:53
400-154044-9	MW-18	Water	05/18/18 08:50	05/22/18 11:53
400-154044-10	MW-19	Water	05/18/18 07:20	05/22/18 11:53
400-154044-11	DP-01	Water	05/18/18 00:00	05/22/18 11:53
400-154044-12	TB (5/18/18)	Water	05/18/18 07:20	05/22/18 11:53

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-1
Date Collected: 05/18/18 09:00
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-1
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**10000**		50		ug/L			05/24/18 17:49	50
Toluene	**4500**		50		ug/L			05/24/18 17:49	50
Ethylbenzene	**630**		50		ug/L			05/24/18 17:49	50
Xylenes, Total	**6000**		500		ug/L			05/24/18 17:49	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*81 - 121*		*05/24/18 17:49*	*50*
4-Bromofluorobenzene	*99*		*78 - 118*		*05/24/18 17:49*	*50*
1,2-Dichloroethane-d4 (Surr)	*101*		*67 - 134*		*05/24/18 17:49*	*50*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/24/18 17:49*	*50*

Client Sample ID: MW-3
Date Collected: 05/18/18 08:55
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-2
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20000		100		ug/L			05/24/18 18:33	100
Toluene	250		100		ug/L			05/24/18 18:33	100
Ethylbenzene	620		100		ug/L			05/24/18 18:33	100
Xylenes, Total	4900		1000		ug/L			05/24/18 18:33	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*81 - 121*		*05/24/18 18:33*	*100*
4-Bromofluorobenzene	*102*		*78 - 118*		*05/24/18 18:33*	*100*
1,2-Dichloroethane-d4 (Surr)	*105*		*67 - 134*		*05/24/18 18:33*	*100*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/24/18 18:33*	*100*

Client Sample ID: MW-6
Date Collected: 05/18/18 07:50
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-3
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4200		50		ug/L			05/24/18 18:11	50
Toluene	5800		50		ug/L			05/24/18 18:11	50
Ethylbenzene	420		50		ug/L			05/24/18 18:11	50
Xylenes, Total	3600		500		ug/L			05/24/18 18:11	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*106*		*81 - 121*		*05/24/18 18:11*	*50*
4-Bromofluorobenzene	*101*		*78 - 118*		*05/24/18 18:11*	*50*
1,2-Dichloroethane-d4 (Surr)	*102*		*67 - 134*		*05/24/18 18:11*	*50*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/24/18 18:11*	*50*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-9
Date Collected: 05/18/18 07:30
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-4
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			05/28/18 16:05	1
Toluene	<1.0		1.0		ug/L			05/28/18 16:05	1
Ethylbenzene	<1.0		1.0		ug/L			05/28/18 16:05	1
Xylenes, Total	<10		10		ug/L			05/28/18 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/28/18 16:05*	*1*
Dibromofluoromethane	*107*		*81 - 121*		*05/28/18 16:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*67 - 134*		*05/28/18 16:05*	*1*

Client Sample ID: MW-13
Date Collected: 05/18/18 08:10
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-5
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**23**		1.0		ug/L			05/28/18 16:31	1
Toluene	**1.0**		1.0		ug/L			05/28/18 16:31	1
Ethylbenzene	**5.8**		1.0		ug/L			05/28/18 16:31	1
Xylenes, Total	<10		10		ug/L			05/28/18 16:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*05/28/18 16:31*	*1*
Dibromofluoromethane	*104*		*81 - 121*		*05/28/18 16:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*67 - 134*		*05/28/18 16:31*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-14
Date Collected: 05/18/18 07:40
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-6
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			05/28/18 16:57	1
Toluene	<1.0		1.0		ug/L			05/28/18 16:57	1
Ethylbenzene	<1.0		1.0		ug/L			05/28/18 16:57	1
Xylenes, Total	<10		10		ug/L			05/28/18 16:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*99*		*78 - 118*		*05/28/18 16:57*	*1*
Dibromofluoromethane	*107*		*81 - 121*		*05/28/18 16:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*67 - 134*		*05/28/18 16:57*	*1*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-15
Date Collected: 05/18/18 07:45
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-7
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			05/28/18 17:24	1
Toluene	<1.0		1.0		ug/L			05/28/18 17:24	1
Ethylbenzene	<1.0		1.0		ug/L			05/28/18 17:24	1
Xylenes, Total	<10		10		ug/L			05/28/18 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*05/28/18 17:24*	*1*
Dibromofluoromethane	*109*		*81 - 121*		*05/28/18 17:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*67 - 134*		*05/28/18 17:24*	*1*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-16
Date Collected: 05/18/18 08:00
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-8
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**30**		1.0		ug/L			05/28/18 17:50	1
Toluene	**2.1**		1.0		ug/L			05/28/18 17:50	1
Ethylbenzene	<1.0		1.0		ug/L			05/28/18 17:50	1
Xylenes, Total	**23**		10		ug/L			05/28/18 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*05/28/18 17:50*	*1*
Dibromofluoromethane	*101*		*81 - 121*		*05/28/18 17:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*67 - 134*		*05/28/18 17:50*	*1*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-18
Date Collected: 05/18/18 08:50
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-9
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**21**		1.0		ug/L			05/28/18 18:16	1
Toluene	**1.3**		1.0		ug/L			05/28/18 18:16	1
Ethylbenzene	**5.3**		1.0		ug/L			05/28/18 18:16	1
Xylenes, Total	<10		10		ug/L			05/28/18 18:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*05/28/18 18:16*	*1*
Dibromofluoromethane	*105*		*81 - 121*		*05/28/18 18:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*67 - 134*		*05/28/18 18:16*	*1*

Client Sample ID: MW-19
Date Collected: 05/18/18 07:20
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-10
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.3**		1.0		ug/L			05/24/18 14:54	1
Toluene	<1.0		1.0		ug/L			05/24/18 14:54	1
Ethylbenzene	**14**		1.0		ug/L			05/24/18 14:54	1
Xylenes, Total	<10		10		ug/L			05/24/18 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*106*		*81 - 121*		*05/24/18 14:54*	*1*
4-Bromofluorobenzene	*101*		*78 - 118*		*05/24/18 14:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*110*		*67 - 134*		*05/24/18 14:54*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*05/24/18 14:54*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: DP-01
Date Collected: 05/18/18 00:00
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-11
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**10**		1.0		ug/L			05/28/18 18:43	1
Toluene	<1.0		1.0		ug/L			05/28/18 18:43	1
Ethylbenzene	**2.5**		1.0		ug/L			05/28/18 18:43	1
Xylenes, Total	<10		10		ug/L			05/28/18 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*05/28/18 18:43*	*1*
Dibromofluoromethane	*106*		*81 - 121*		*05/28/18 18:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*67 - 134*		*05/28/18 18:43*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: TB (5/18/18)
Date Collected: 05/18/18 07:20
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-12
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			05/28/18 13:53	1
Toluene	<1.0		1.0		ug/L			05/28/18 13:53	1
Ethylbenzene	<1.0		1.0		ug/L			05/28/18 13:53	1
Xylenes, Total	<10		10		ug/L			05/28/18 13:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*05/28/18 13:53*	*1*
Dibromofluoromethane	*106*		*81 - 121*		*05/28/18 13:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*67 - 134*		*05/28/18 13:53*	*1*

QC Association Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

GC/MS VOA

Analysis Batch: 398772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154044-1	MW-1	Total/NA	Water	8260C	
400-154044-2	MW-3	Total/NA	Water	8260C	
400-154044-3	MW-6	Total/NA	Water	8260C	
400-154044-10	MW-19	Total/NA	Water	8260C	
MB 400-398772/5	Method Blank	Total/NA	Water	8260C	
LCS 400-398772/1003	Lab Control Sample	Total/NA	Water	8260C	
400-153735-A-7 MS	Matrix Spike	Total/NA	Water	8260C	
400-153735-A-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

Analysis Batch: 399157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154044-4	MW-9	Total/NA	Water	8260C	
400-154044-5	MW-13	Total/NA	Water	8260C	
400-154044-6	MW-14	Total/NA	Water	8260C	
400-154044-7	MW-15	Total/NA	Water	8260C	
400-154044-8	MW-16	Total/NA	Water	8260C	
400-154044-9	MW-18	Total/NA	Water	8260C	
400-154044-11	DP-01	Total/NA	Water	8260C	
400-154044-12	TB (5/18/18)	Total/NA	Water	8260C	
MB 400-399157/4	Method Blank	Total/NA	Water	8260C	
LCS 400-399157/1002	Lab Control Sample	Total/NA	Water	8260C	
400-154042-A-1 MS	Matrix Spike	Total/NA	Water	8260C	
400-154042-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

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

Lab Sample ID: MB 400-398772/5
Matrix: Water
Analysis Batch: 398772

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			05/24/18 10:28	1
Toluene	<1.0		1.0		ug/L			05/24/18 10:28	1
Ethylbenzene	<1.0		1.0		ug/L			05/24/18 10:28	1
Xylenes, Total	<10		10		ug/L			05/24/18 10:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*81 - 121*		*05/24/18 10:28*	*1*
4-Bromofluorobenzene	*101*		*78 - 118*		*05/24/18 10:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*67 - 134*		*05/24/18 10:28*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*05/24/18 10:28*	*1*

Lab Sample ID: LCS 400-398772/1003
Matrix: Water
Analysis Batch: 398772

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	56.7		ug/L		113	70 - 130		
Toluene			50.0	55.5		ug/L		111	70 - 130		
Ethylbenzene			50.0	55.9		ug/L		112	70 - 130		
Xylenes, Total			100	115		ug/L		115	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*104*		*81 - 121*
4-Bromofluorobenzene	*88*		*78 - 118*
1,2-Dichloroethane-d4 (Surr)	*103*		*67 - 134*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: 400-153735-A-7 MS
Matrix: Water
Analysis Batch: 398772

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	58.2		ug/L		116	56 - 142		
Toluene	<1.0		50.0	55.0		ug/L		110	65 - 130		
Ethylbenzene	<1.0		50.0	55.0		ug/L		110	58 - 131		
Xylenes, Total	<10		100	111		ug/L		111	59 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane	*105*		*81 - 121*
4-Bromofluorobenzene	*94*		*78 - 118*
1,2-Dichloroethane-d4 (Surr)	*100*		*67 - 134*
Toluene-d8 (Surr)	*98*		*80 - 120*

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

Lab Sample ID: 400-153735-A-7 MSD
Matrix: Water
Analysis Batch: 398772

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<1.0		50.0	54.4		ug/L		109	56 - 142	7	30
Toluene	<1.0		50.0	53.0		ug/L		106	65 - 130	4	30
Ethylbenzene	<1.0		50.0	53.5		ug/L		107	58 - 131	3	30
Xylenes, Total	<10		100	108		ug/L		108	59 - 130	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane	*104*		*81 - 121*
4-Bromofluorobenzene	*94*		*78 - 118*
1,2-Dichloroethane-d4 (Surr)	*99*		*67 - 134*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 400-399157/4
Matrix: Water
Analysis Batch: 399157

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			05/28/18 11:15	1
Toluene	<1.0		1.0		ug/L			05/28/18 11:15	1
Ethylbenzene	<1.0		1.0		ug/L			05/28/18 11:15	1
Xylenes, Total	<10		10		ug/L			05/28/18 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*81 - 121*		*05/28/18 11:15*	*1*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/28/18 11:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*67 - 134*		*05/28/18 11:15*	*1*

Lab Sample ID: LCS 400-399157/1002
Matrix: Water
Analysis Batch: 399157

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	54.9		ug/L		110	70 - 130		
Toluene			50.0	55.9		ug/L		112	70 - 130		
Ethylbenzene			50.0	57.9		ug/L		116	70 - 130		
Xylenes, Total			100	115		ug/L		115	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*102*		*81 - 121*
4-Bromofluorobenzene	*95*		*78 - 118*
1,2-Dichloroethane-d4 (Surr)	*109*		*67 - 134*

Lab Sample ID: 400-154042-A-1 MS
Matrix: Water
Analysis Batch: 399157

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<1.0		50.0	50.6		ug/L		101	56 - 142		

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

Lab Sample ID: 400-154042-A-1 MS
Matrix: Water
Analysis Batch: 399157

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
Toluene	<1.0		50.0	50.6		ug/L		101	65 - 130
Ethylbenzene	<1.0		50.0	52.4		ug/L		105	58 - 131
Xylenes, Total	<10		100	103		ug/L		103	59 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane	*101*		*81 - 121*
4-Bromofluorobenzene	*93*		*78 - 118*
1,2-Dichloroethane-d4 (Surr)	*107*		*67 - 134*

Lab Sample ID: 400-154042-A-1 MSD
Matrix: Water
Analysis Batch: 399157

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	50.1		ug/L		100	56 - 142	1	30
Toluene	<1.0		50.0	51.2		ug/L		102	65 - 130	1	30
Ethylbenzene	<1.0		50.0	52.3		ug/L		105	58 - 131	0	30
Xylenes, Total	<10		100	103		ug/L		103	59 - 130	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane	*101*		*81 - 121*
4-Bromofluorobenzene	*96*		*78 - 118*
1,2-Dichloroethane-d4 (Surr)	*106*		*67 - 134*

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-1
Date Collected: 05/18/18 09:00
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-1
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		50	5 mL	5 mL	398772	05/24/18 17:49	BSW	TAL PEN
	Instrument ID: CH_LARS									

Client Sample ID: MW-3
Date Collected: 05/18/18 08:55
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-2
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		100	5 mL	5 mL	398772	05/24/18 18:33	BSW	TAL PEN
	Instrument ID: CH_LARS									

Client Sample ID: MW-6
Date Collected: 05/18/18 07:50
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-3
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		50	5 mL	5 mL	398772	05/24/18 18:11	BSW	TAL PEN
	Instrument ID: CH_LARS									

Client Sample ID: MW-9
Date Collected: 05/18/18 07:30
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-4
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	399157	05/28/18 16:05	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: MW-13
Date Collected: 05/18/18 08:10
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-5
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	399157	05/28/18 16:31	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: MW-14
Date Collected: 05/18/18 07:40
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-6
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	399157	05/28/18 16:57	WPD	TAL PEN
	Instrument ID: CH_TAN									

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Client Sample ID: MW-15
Date Collected: 05/18/18 07:45
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-7
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	399157	05/28/18 17:24	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: MW-16
Date Collected: 05/18/18 08:00
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-8
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	399157	05/28/18 17:50	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: MW-18
Date Collected: 05/18/18 08:50
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-9
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	399157	05/28/18 18:16	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: MW-19
Date Collected: 05/18/18 07:20
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-10
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	398772	05/24/18 14:54	BSW	TAL PEN
	Instrument ID: CH_LARS									

Client Sample ID: DP-01
Date Collected: 05/18/18 00:00
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-11
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	399157	05/28/18 18:43	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: TB (5/18/18)
Date Collected: 05/18/18 07:20
Date Received: 05/22/18 11:53

Lab Sample ID: 400-154044-12
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	399157	05/28/18 13:53	WPD	TAL PEN
	Instrument ID: CH_TAN									

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

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: 400-154044-1
Project/Site: ElPaso CGP Company LLC-State Gas Com N#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	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	06-30-18
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	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
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	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-19

Method Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company LLC-State Gas Com N#1

TestAmerica Job ID: 400-154044-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL PEN
5030B	Purge and Trap	SW846	TAL PEN
5030C	Purge and Trap	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

Client Information
Client Contact: Ms. Sarah Gardner
Company: Stantec Consulting Services Inc
Address: 1560 Broadway Suite 1800
City: Denver
State, Zip: CO, 80202
Phone: 303-291-2239(Tel)
Email: sarah.gardner@mwhglobal.com
Project Name: State Gas Com N #1 Q2 2018
Site: State Gas Com N #1

Sampler: S. Gardner | S. Hansen
Phone: 303 291 2239
Lab PM: Webb, Carol M
E-Mail: carol.webb@testamericainc.com
Carrier Tracking No(s):
COC No: 400-74089-292
Page: Page 1 of 2
Job #:

Due Date Requested:
TAT Requested (days): Standard
PO #: See Project Notes
WO #:
Project #: 40005479
SSOW#:

Analysis Requested

400 154044 COC

Preservation Codes:
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)
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)	8260C - BTEX 8260	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-1	5/18/18	900	G	W					Unpreserved
MW-3	5/18/18	855	G	W					Unpreserved
~~MW-4~~									Not Sampled
MW-6	5/18/18	750	G	W					Unpreserved
MW-9	5/18/18	730	G	W					Unpreserved
MW-13	5/18/18	810	G	W					Unpreserved
MW-14	5/18/18	740	G	W					
MW-15	5/18/18	745	G	W					
MW-16	5/18/18	800	G	W					
MW-18	5/18/18	850	G	W					
MW-19	5/18/18	720	G	W					Unpreserved

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

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

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

Special Instructions/QC Requirements:

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

	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	5/21/2018 800	Stantec			
Relinquished by:			Received by:		
Relinquished by:			Received by:	5/22/18@0919	TA PENS.

Custody Seals Intact: △ Yes △ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 2.0°C IR 7

Ver: 08/04/2016

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 / S. Hansen	Lab PM: Webb, Carol M	Carrier Tracking No(s):	COC No: 400-74089-29211.2
Client Contact: Ms. Sarah Gardner	Phone: 303 291 2239	E-Mail: carol.webb@testamericainc.com		Page: Page 2 of 2
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 #: See Project Notes			
Phone: 303-291-2239(Tel)	WO #:			
Email: sarah.gardner@mwhglobal.com	Project #: 40005479			
Project Name: State Gas Com N #1 Q2 2018	SSOW#:			
Site: State Gas Com N#1				

Analysis Requested

Preservation Codes:

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)

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)	8260C - BTEX 8260	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
DP-01	5/18/18	—	G	W			3	3	
TB (5/18/18)	5/18/18	720	—	W			3	3	

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/21/2018 800	Stantec			
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 5/22/18@0919	Company TA PENS.

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Stantec Consulting Services Inc

Job Number: 400-154044-1

Login Number: 154044
List Number: 1
Creator: Whitley, Adrian

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	2.00°C IR7
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 400-161273-1
Client Project/Site: ElPaso CGP Company - State Gas Com N #1

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

Attn: Ms. Sarah Gardner

Carol M Webb

Authorized for release by:
11/2/2018 8:55:25 AM

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

Table of Contents

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 - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Job ID: 400-161273-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-161273-1

Comments
No additional comments.

Receipt
The samples were received on 10/30/2018 9:38 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3º C.

GC/MS VOA
Method 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-1 (400-161273-1), MW-3 (400-161273-2), MW-6 (400-161273-3) and MW-16 (400-161273-8). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or 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 - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-1 — Lab Sample ID: 400-161273-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	7700		50		ug/L	50		8260C	Total/NA
Toluene	3200		50		ug/L	50		8260C	Total/NA
Ethylbenzene	570		50		ug/L	50		8260C	Total/NA
Xylenes, Total	4900		500		ug/L	50		8260C	Total/NA

Client Sample ID: MW-3 — Lab Sample ID: 400-161273-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	20000		100		ug/L	100		8260C	Total/NA
Toluene	230		100		ug/L	100		8260C	Total/NA
Ethylbenzene	670		100		ug/L	100		8260C	Total/NA
Xylenes, Total	4500		1000		ug/L	100		8260C	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 400-161273-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	3900		50		ug/L	50		8260C	Total/NA
Toluene	5300		50		ug/L	50		8260C	Total/NA
Ethylbenzene	580		50		ug/L	50		8260C	Total/NA
Xylenes, Total	4800		500		ug/L	50		8260C	Total/NA

Client Sample ID: MW-9 — Lab Sample ID: 400-161273-4

No Detections.

Client Sample ID: MW-13 — Lab Sample ID: 400-161273-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	25		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	1.9		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-14 — Lab Sample ID: 400-161273-6

No Detections.

Client Sample ID: MW-15 — Lab Sample ID: 400-161273-7

No Detections.

Client Sample ID: MW-16 — Lab Sample ID: 400-161273-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	380		2.0		ug/L	2		8260C	Total/NA
Toluene	16		2.0		ug/L	2		8260C	Total/NA
Ethylbenzene	12		2.0		ug/L	2		8260C	Total/NA
Xylenes, Total	99		20		ug/L	2		8260C	Total/NA

Client Sample ID: MW-18 — Lab Sample ID: 400-161273-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	70		1.0		ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-18 (Continued) — Lab Sample ID: 400-161273-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	11		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: MW-19 — Lab Sample ID: 400-161273-10

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	3.7		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	6.3		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 400-161273-11

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Benzene	24		1.0		ug/L	1		8260C	Total/NA
Ethylbenzene	1.9		1.0		ug/L	1		8260C	Total/NA

Client Sample ID: TB-01 — Lab Sample ID: 400-161273-12

No Detections.

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-161273-1	MW-1	Water	10/25/18 17:00	10/30/18 09:38
400-161273-2	MW-3	Water	10/25/18 17:10	10/30/18 09:38
400-161273-3	MW-6	Water	10/25/18 14:05	10/30/18 09:38
400-161273-4	MW-9	Water	10/25/18 15:00	10/30/18 09:38
400-161273-5	MW-13	Water	10/25/18 16:00	10/30/18 09:38
400-161273-6	MW-14	Water	10/25/18 15:10	10/30/18 09:38
400-161273-7	MW-15	Water	10/25/18 15:20	10/30/18 09:38
400-161273-8	MW-16	Water	10/25/18 15:35	10/30/18 09:38
400-161273-9	MW-18	Water	10/25/18 16:55	10/30/18 09:38
400-161273-10	MW-19	Water	10/25/18 15:45	10/30/18 09:38
400-161273-11	DUP-01	Water	10/25/18 15:40	10/30/18 09:38
400-161273-12	TB-01	Water	10/25/18 14:25	10/30/18 09:38

Client Sample ID: MW-1
Date Collected: 10/25/18 17:00
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-1
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	7700		50		ug/L			10/31/18 17:27	50
Toluene	3200		50		ug/L			10/31/18 17:27	50
Ethylbenzene	570		50		ug/L			10/31/18 17:27	50
Xylenes, Total	4900		500		ug/L			10/31/18 17:27	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*89*		*78 - 118*		*10/31/18 17:27*	*50*
Dibromofluoromethane	*108*		*81 - 121*		*10/31/18 17:27*	*50*
1,2-Dichloroethane-d4 (Surr)	*107*		*67 - 134*		*10/31/18 17:27*	*50*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-3
Date Collected: 10/25/18 17:10
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-2
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	20000		100		ug/L			10/31/18 18:22	100
Toluene	230		100		ug/L			10/31/18 18:22	100
Ethylbenzene	670		100		ug/L			10/31/18 18:22	100
Xylenes, Total	4500		1000		ug/L			10/31/18 18:22	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*78 - 118*		*10/31/18 18:22*	*100*
Dibromofluoromethane	*108*		*81 - 121*		*10/31/18 18:22*	*100*
Toluene-d8 (Surr)	*94*		*80 - 120*		*10/31/18 18:22*	*100*
1,2-Dichloroethane-d4 (Surr)	*105*		*67 - 134*		*10/31/18 18:22*	*100*

Client Sample ID: MW-6
Date Collected: 10/25/18 14:05
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-3
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3900		50		ug/L			10/31/18 17:55	50
Toluene	5300		50		ug/L			10/31/18 17:55	50
Ethylbenzene	580		50		ug/L			10/31/18 17:55	50
Xylenes, Total	4800		500		ug/L			10/31/18 17:55	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*10/31/18 17:55*	*50*
Dibromofluoromethane	*107*		*81 - 121*		*10/31/18 17:55*	*50*
Toluene-d8 (Surr)	*93*		*80 - 120*		*10/31/18 17:55*	*50*
1,2-Dichloroethane-d4 (Surr)	*102*		*67 - 134*		*10/31/18 17:55*	*50*

Client Sample ID: MW-9
Date Collected: 10/25/18 15:00
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-4
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			10/31/18 14:34	1
Toluene	<1.0		1.0		ug/L			10/31/18 14:34	1
Ethylbenzene	<1.0		1.0		ug/L			10/31/18 14:34	1
Xylenes, Total	<10		10		ug/L			10/31/18 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*10/31/18 14:34*	*1*
Dibromofluoromethane	*109*		*81 - 121*		*10/31/18 14:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*67 - 134*		*10/31/18 14:34*	*1*

Client Sample ID: MW-13
Date Collected: 10/25/18 16:00
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-5
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**25**		1.0		ug/L			10/31/18 15:11	1
Toluene	<1.0		1.0		ug/L			10/31/18 15:11	1
Ethylbenzene	**1.9**		1.0		ug/L			10/31/18 15:11	1
Xylenes, Total	<10		10		ug/L			10/31/18 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*10/31/18 15:11*	*1*
Dibromofluoromethane	*112*		*81 - 121*		*10/31/18 15:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*67 - 134*		*10/31/18 15:11*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-14
Date Collected: 10/25/18 15:10
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-6
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			10/31/18 15:38	1
Toluene	<1.0		1.0		ug/L			10/31/18 15:38	1
Ethylbenzene	<1.0		1.0		ug/L			10/31/18 15:38	1
Xylenes, Total	<10		10		ug/L			10/31/18 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*78 - 118*		*10/31/18 15:38*	*1*
Dibromofluoromethane	*108*		*81 - 121*		*10/31/18 15:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*67 - 134*		*10/31/18 15:38*	*1*

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-15
Date Collected: 10/25/18 15:20
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-7
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			10/31/18 16:06	1
Toluene	<1.0		1.0		ug/L			10/31/18 16:06	1
Ethylbenzene	<1.0		1.0		ug/L			10/31/18 16:06	1
Xylenes, Total	<10		10		ug/L			10/31/18 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*10/31/18 16:06*	*1*
Dibromofluoromethane	*110*		*81 - 121*		*10/31/18 16:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*67 - 134*		*10/31/18 16:06*	*1*

Client Sample ID: MW-16
Date Collected: 10/25/18 15:35
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-8
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**380**		2.0		ug/L			10/31/18 17:00	2
Toluene	**16**		2.0		ug/L			10/31/18 17:00	2
Ethylbenzene	**12**		2.0		ug/L			10/31/18 17:00	2
Xylenes, Total	**99**		20		ug/L			10/31/18 17:00	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*87*		*78 - 118*		*10/31/18 17:00*	*2*
Dibromofluoromethane	*105*		*81 - 121*		*10/31/18 17:00*	*2*
Toluene-d8 (Surr)	*91*		*80 - 120*		*10/31/18 17:00*	*2*
1,2-Dichloroethane-d4 (Surr)	*104*		*67 - 134*		*10/31/18 17:00*	*2*

Client Sample ID: MW-18
Date Collected: 10/25/18 16:55
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-9
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**70**		1.0		ug/L			10/31/18 16:33	1
Toluene	<1.0		1.0		ug/L			10/31/18 16:33	1
Ethylbenzene	**11**		1.0		ug/L			10/31/18 16:33	1
Xylenes, Total	<10		10		ug/L			10/31/18 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*10/31/18 16:33*	*1*
Dibromofluoromethane	*112*		*81 - 121*		*10/31/18 16:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*67 - 134*		*10/31/18 16:33*	*1*

Client Sample ID: MW-19
Date Collected: 10/25/18 15:45
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-10
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.7**		1.0		ug/L			10/31/18 14:04	1
Toluene	<1.0		1.0		ug/L			10/31/18 14:04	1
Ethylbenzene	**6.3**		1.0		ug/L			10/31/18 14:04	1
Xylenes, Total	<10		10		ug/L			10/31/18 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*10/31/18 14:04*	*1*
Dibromofluoromethane	*98*		*81 - 121*		*10/31/18 14:04*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/31/18 14:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*67 - 134*		*10/31/18 14:04*	*1*

Client Sample ID: DUP-01
Date Collected: 10/25/18 15:40
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-11
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**24**		1.0		ug/L			10/31/18 14:29	1
Toluene	<1.0		1.0		ug/L			10/31/18 14:29	1
Ethylbenzene	**1.9**		1.0		ug/L			10/31/18 14:29	1
Xylenes, Total	<10		10		ug/L			10/31/18 14:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*10/31/18 14:29*	*1*
Dibromofluoromethane	*98*		*81 - 121*		*10/31/18 14:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*67 - 134*		*10/31/18 14:29*	*1*

Client Sample Results

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: TB-01
Date Collected: 10/25/18 14:25
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-12
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			10/31/18 14:54	1
Toluene	<1.0		1.0		ug/L			10/31/18 14:54	1
Ethylbenzene	<1.0		1.0		ug/L			10/31/18 14:54	1
Xylenes, Total	<10		10		ug/L			10/31/18 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*78 - 118*		*10/31/18 14:54*	*1*
Dibromofluoromethane	*98*		*81 - 121*		*10/31/18 14:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*67 - 134*		*10/31/18 14:54*	*1*

GC/MS VOA

Analysis Batch: 417717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-161273-10	MW-19	Total/NA	Water	8260C	
400-161273-11	DUP-01	Total/NA	Water	8260C	
400-161273-12	TB-01	Total/NA	Water	8260C	
MB 400-417717/4	Method Blank	Total/NA	Water	8260C	
LCS 400-417717/1002	Lab Control Sample	Total/NA	Water	8260C	
400-161273-10 MS	MW-19	Total/NA	Water	8260C	
400-161273-10 MSD	MW-19	Total/NA	Water	8260C	

Analysis Batch: 417730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-161273-1	MW-1	Total/NA	Water	8260C	
400-161273-2	MW-3	Total/NA	Water	8260C	
400-161273-3	MW-6	Total/NA	Water	8260C	
400-161273-4	MW-9	Total/NA	Water	8260C	
400-161273-5	MW-13	Total/NA	Water	8260C	
400-161273-6	MW-14	Total/NA	Water	8260C	
400-161273-7	MW-15	Total/NA	Water	8260C	
400-161273-8	MW-16	Total/NA	Water	8260C	
400-161273-9	MW-18	Total/NA	Water	8260C	
MB 400-417730/4	Method Blank	Total/NA	Water	8260C	
LCS 400-417730/1002	Lab Control Sample	Total/NA	Water	8260C	
400-161160-A-7 MS	Matrix Spike	Total/NA	Water	8260C	
400-161160-A-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260C	

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

Lab Sample ID: MB 400-417717/4
Matrix: Water
Analysis Batch: 417717

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			10/31/18 09:01	1
Toluene	<1.0		1.0		ug/L			10/31/18 09:01	1
Ethylbenzene	<1.0		1.0		ug/L			10/31/18 09:01	1
Xylenes, Total	<10		10		ug/L			10/31/18 09:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*10/31/18 09:01*	*1*
Dibromofluoromethane	*102*		*81 - 121*		*10/31/18 09:01*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*10/31/18 09:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*67 - 134*		*10/31/18 09:01*	*1*

Lab Sample ID: LCS 400-417717/1002
Matrix: Water
Analysis Batch: 417717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			50.0	44.4		ug/L		89	70 - 130		
Toluene			50.0	47.2		ug/L		94	70 - 130		
Ethylbenzene			50.0	46.6		ug/L		93	70 - 130		
Xylenes, Total			100	92.0		ug/L		92	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*92*		*78 - 118*
Dibromofluoromethane	*96*		*81 - 121*
Toluene-d8 (Surr)	*97*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*102*		*67 - 134*

Lab Sample ID: 400-161273-10 MS
Matrix: Water
Analysis Batch: 417717

Client Sample ID: MW-19
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	3.7		50.0	45.3		ug/L		83	56 - 142		
Toluene	<1.0		50.0	43.1		ug/L		86	65 - 130		
Ethylbenzene	6.3		50.0	52.0		ug/L		91	58 - 131		
Xylenes, Total	<10		100	85.7		ug/L		86	59 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene	*96*		*78 - 118*
Dibromofluoromethane	*99*		*81 - 121*
Toluene-d8 (Surr)	*96*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*96*		*67 - 134*

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

Lab Sample ID: 400-161273-10 MSD
Matrix: Water
Analysis Batch: 417717

Client Sample ID: MW-19
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3.7		50.0	44.9		ug/L		83	56 - 142	1	30
Toluene	<1.0		50.0	41.0		ug/L		82	65 - 130	5	30
Ethylbenzene	6.3		50.0	47.9		ug/L		83	58 - 131	8	30
Xylenes, Total	<10		100	77.6		ug/L		78	59 - 130	10	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene	*93*		*78 - 118*
Dibromofluoromethane	*97*		*81 - 121*
Toluene-d8 (Surr)	*96*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*67 - 134*

Lab Sample ID: MB 400-417730/4
Matrix: Water
Analysis Batch: 417730

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			10/31/18 08:56	1
Toluene	<1.0		1.0		ug/L			10/31/18 08:56	1
Ethylbenzene	<1.0		1.0		ug/L			10/31/18 08:56	1
Xylenes, Total	<10		10		ug/L			10/31/18 08:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*78 - 118*		*10/31/18 08:56*	*1*
Dibromofluoromethane	*110*		*81 - 121*		*10/31/18 08:56*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*10/31/18 08:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*67 - 134*		*10/31/18 08:56*	*1*

Lab Sample ID: LCS 400-417730/1002
Matrix: Water
Analysis Batch: 417730

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	45.0		ug/L		90	70 - 130		
Toluene			50.0	41.5		ug/L		83	70 - 130		
Ethylbenzene			50.0	43.3		ug/L		87	70 - 130		
Xylenes, Total			100	85.3		ug/L		85	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*83*		*78 - 118*
Dibromofluoromethane	*109*		*81 - 121*
Toluene-d8 (Surr)	*95*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*67 - 134*

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

Lab Sample ID: 400-161160-A-7 MS
Matrix: Water
Analysis Batch: 417730

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	45.5		ug/L		91	56 - 142
Toluene	<1.0		50.0	38.2		ug/L		76	65 - 130
Ethylbenzene	<1.0		50.0	37.2		ug/L		74	58 - 131
Xylenes, Total	<10		100	74.9		ug/L		75	59 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene	*85*		*78 - 118*
Dibromofluoromethane	*105*		*81 - 121*
Toluene-d8 (Surr)	*90*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*111*		*67 - 134*

Lab Sample ID: 400-161160-A-7 MSD
Matrix: Water
Analysis Batch: 417730

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	44.5		ug/L		89	56 - 142	2	30
Toluene	<1.0		50.0	36.2		ug/L		72	65 - 130	5	30
Ethylbenzene	<1.0		50.0	36.3		ug/L		73	58 - 131	2	30
Xylenes, Total	<10		100	70.8		ug/L		71	59 - 130	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene	*88*		*78 - 118*
Dibromofluoromethane	*103*		*81 - 121*
Toluene-d8 (Surr)	*87*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*67 - 134*

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-1
Date Collected: 10/25/18 17:00
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-1
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		50	5 mL	5 mL	417730	10/31/18 17:27	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-3
Date Collected: 10/25/18 17:10
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-2
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		100	5 mL	5 mL	417730	10/31/18 18:22	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-6
Date Collected: 10/25/18 14:05
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-3
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		50	5 mL	5 mL	417730	10/31/18 17:55	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-9
Date Collected: 10/25/18 15:00
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-4
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	417730	10/31/18 14:34	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-13
Date Collected: 10/25/18 16:00
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-5
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	417730	10/31/18 15:11	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-14
Date Collected: 10/25/18 15:10
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-6
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	417730	10/31/18 15:38	RS	TAL PEN
	Instrument ID: Darwin									

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Client Sample ID: MW-15
Date Collected: 10/25/18 15:20
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-7
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	417730	10/31/18 16:06	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-16
Date Collected: 10/25/18 15:35
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-8
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		2	5 mL	5 mL	417730	10/31/18 17:00	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-18
Date Collected: 10/25/18 16:55
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-9
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	417730	10/31/18 16:33	RS	TAL PEN
	Instrument ID: Darwin									

Client Sample ID: MW-19
Date Collected: 10/25/18 15:45
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-10
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	417717	10/31/18 14:04	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: DUP-01
Date Collected: 10/25/18 15:40
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-11
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	417717	10/31/18 14:29	WPD	TAL PEN
	Instrument ID: CH_TAN									

Client Sample ID: TB-01
Date Collected: 10/25/18 14:25
Date Received: 10/30/18 09:38

Lab Sample ID: 400-161273-12
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	417717	10/31/18 14:54	WPD	TAL PEN
	Instrument ID: CH_TAN									

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

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: 400-161273-1
Project/Site: ElPaso CGP Company - State Gas Com N #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	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-16	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Stantec Consulting Services Inc
Project/Site: ElPaso CGP Company - State Gas Com N #1

TestAmerica Job ID: 400-161273-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL PEN
5030B	Purge and Trap	SW846	TAL PEN
5030C	Purge and Trap	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

400-161273 COC

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: S. Gardner & S. Spierring	Lab PM: Webb, Carol M	Carrier Tracking No(s):	COC No: 400-77998-29211.1
Client Contact: Ms. Sarah Gardner	Phone: 303 291 2239	E-Mail: carol.webb@testamericainc.com		Page: Page 1 of 2
Company: Stantec Consulting Services Inc				Job #:
Address: 1560 Broadway Suite 1800	Due Date Requested:			
City: Denver	TAT Requested (days): 7 day			
State, Zip: CO, 80202				
Phone: 303-291-2239(Tel)	PO #: See Project Notes			
Email: sarah.gardner@stantec.com	WO #:			
Project Name: State Gas Com N #1 Q4 2018	Project #: 40005479			
Site: State Gas Com N #1	SSOW#:			

Analysis Requested

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)	8260C - BTEX 8260	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-1	10/25/18	1700	G	W			3	3	
MW-3	10/25/18	1710	G	W			3	3	Unpreserved
MW-6	10/25/18	1405	G	W			3	3	Unpreserved
MW-9	10/25/18	1500	G	W			3	3	
MW-13	10/25/18	1600	G	W			3	3	
MW-14	10/25/18	1510	G	W			3	3	
MW-15	10/25/18	1520	G	W			3	3	
MW-16	10/25/18	1535	G	W			3	3	Unpreserved
MW-18	10/25/18	1655	G	W			3	3	
MW-19	10/25/18	1545	G	W			3	3	Unpreserved
DUP-01	10/25/18	1540	G	W			3	3	

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
1		10/29/18 1200	Stantec		10/30/18 0938	TAL
2						
3						

Custody Seals Intact: △ Yes △ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.3°C IR7

Ver: 08/04/2016

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 / S. Spiering	Lab PM: Webb, Carol M	Carrier Tracking No(s):	COC No: 400-77998-29211.2
Client Contact: Ms. Sarah Gardner	Phone: 303 291 2239	E-Mail: carol.webb@testamericainc.com		Page: Page 2 of 2
Company: Stantec Consulting Services Inc				Job #:
Address: 1560 Broadway Suite 1800	Due Date Requested:			
City: Denver	TAT Requested (days): 7 day			
State, Zip: CO, 80202				
Phone: 303-291-2239(Tel)	PO #: See Project Notes			
Email: sarah.gardner@stantec.com	WO #:			
Project Name: State Gas Com N #1 Q4 2018	Project #: 40005479			
Site: State Gas Com N #1	SSOW#:			

Analysis Requested

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)	8260C - BTEX 8260	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
TB-01	10/25/18	1425	G	W			3	3	

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: 10/29/18 1200	Company: Stantec	Received by:	Date/Time: 10/30/18 0938	Company: TAP
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:

Ver: 08/04/2016

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 RJT2 EXP 07/19

ORIGIN ID:PNSA (251) 666-6633
SAMPLE CONTROL
TESTAMERICA LABORATORIES
826 LAKESIDE DRIVE
SUITE D
MOBILE, AL 36693
UNITED STATES US

SHIP DATE: 28SEP18
ACTWGT: 10.00 LB MAN
CAD: 0335906/CAFE3211

TO SHIPPING MANAGER
TEST AMERICA PENSACOLA
3355 MCLEMORE DR
RETURNS
PENSACOLA FL 32514
(850) 474-1001 REF:
INV: DEPT:
PO:

RMA:

FedEx Express

FedEx
TRK# 0221 4535 0239 2835

TUE - 30 OCT 10:30A T
PRIORITY OVERNIGHT

XH PNSA

32514
FL-US BFM

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
420217

Seal

#292852 10/29 552J1/38E7/DCA5

Login Sample Receipt Checklist

Client: Stantec Consulting Services Inc

Job Number: 400-161273-1

Login Number: 161273
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	0.3°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.	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	