2014 ANNUAL GROUNDWATER REPORT

Knight #1
Meter Code: 72556
T30N, R13W, Sec5, Unit A

SITE DETAILS

Site Location: Latitude: 36.846870 N, Longitude: -108.222305 W
Land Type: Fee
Operator: Fuller Production (Well P&A'd)

SITE BACKGROUND

- **Site Assessment:** 1/95
- **Excavation:** 1/95 (60 cy)
- **ORC Nutrient Injection** 11/96

Knight #1 (Site) is being managed pursuant to the procedures set forth in the document entitled, "Remediation Plan for Groundwater Encountered during Pit Closure Activities" (Remediation Plan, El Paso Natural Gas Company / El Paso Field Services Company, 1995). This Remediation Plan was conditionally approved by the New Mexico Oil Conservation Division (OCD) in correspondence dated November 30, 1995; and the OCD approval conditions were adopted into El Paso CGP Company, LLC's (EPCGP's) program methods. Formerly, the Site was operated by Fuller Production, Inc. and is no longer active. The wellhead was plugged and abandoned in August 2006.

The Site is located on Private/Fee land. Various site investigations have occurred from 1995 through 2000. Monitoring wells were installed in 1995 (MW-1 through MW-4) and 2000 (MW-5). Free product recovery has been periodically conducted at the Site. Currently, groundwater sampling is conducted on a semi-annual basis. Free product was observed in 2014.

SUMMARY OF 2014 ACTIVITIES

On April 3 and October 21, 2014, water levels were gauged at MW-1, MW-2, MW-3, MW-4, and MW-5. Groundwater samples were collected at MW-1, MW-2, MW-3, and MW-5. Due to the presence of free product, groundwater was not sampled at MW-4 in April or October 2014. Groundwater samples were collected from each well that did not contain free product using HydraSleeve™ (HydraSleeve) no-purge passive groundwater sampling devices. The HydraSleeves were set during the previous sampling event approximately 0.5 foot above termination depth of the monitoring wells using a suspension tether and stainless steel weights to collect a sample from the screened interval. Groundwater samples were placed into laboratory-supplied sample containers, packed on ice, and shipped under standard chain-of-custody protocols to TestAmerica Laboratories, Inc. (TestAmerica) in Corpus Christi, Texas where they were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Additional field parameters were collected including dissolved oxygen, temperature, conductivity, pH, and oxidation-reduction potential (ORP) using a YSI multi-parameter instrument, if free product was not present. The water remaining in the HydraSleeves was combined in a waste container and taken to Basin Disposal, Inc. for disposal.

2014 ANNUAL GROUNDWATER REPORT

Knight #1
Meter Code: 72556
T30N, R13W, Sec5, Unit A

SUMMARY TABLES

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

SITE MAPS

Groundwater analytical maps and groundwater elevation contour maps from each sampling event are included as Figures 1 through 4.

ANALYTICAL LAB REPORTS

TestAmerica reported the October 2014 samples were analyzed out of hold time due to the sample pH being above 2. When sample pH is above 2, the holding time is seven days, not the standard 14 days. The cause of the higher pH has not been determined. The groundwater analytical lab reports are included as Appendix A.

RESULTS

- The groundwater flow direction at the Site is generally to the south-southwest (see Figures 2 and 4).

- Concentrations of benzene and total xylenes in groundwater collected from MW-1 remained above the New Mexico Water Quality Control Commission (NMWQCC) standards for both sampling events. Toluene concentration was below the NMWQCC standard during the April 2014 sampling event and not detected during the October 2014 sampling event. Ethylbenzene was not detected during either of the sampling events in 2014.

- Concentrations of benzene in groundwater collected from MW-2 remained above the NMWQCC standard for the April sampling event and reported values were below the laboratory quantitative limit (J-flagged) for the October 2014 sampling event. Ethylbenzene, toluene, and total xylene concentrations were either below NMWQCC standards, or reported values were below the laboratory quantitative limit (J-flagged) for the April 2014 sampling event. Toluene, ethylbenzene, and total xylenes were not detected in the October 2014 sampling event.

- Concentrations of benzene, ethylbenzene, and total xylenes in groundwater collected from MW-3 remained above the NMWQCC standards for both sampling events. Toluene concentrations were not detected in the collected groundwater during the sampling events in 2014.

- Approximately 0.36 foot of free product was recorded at MW-4 during the April 2014 sampling event. Approximately 0.88 foot of free product was detected in October 2014. Groundwater samples were not collected.

- BTEX concentrations were not detected at MW-5 during the 2014 sampling events.

PLANNED FUTURE ACTIVITIES

Following the completion of a site access agreement with the current land owner, installation of additional monitoring wells is proposed at the Site to further assess the extent of dissolved-phase hydrocarbons and to confirm and/or further define the groundwater gradient at the Site. MW-1 through MW-5 and the newly-installed monitoring wells will be sampled on a semi-annual basis. Groundwater samples will also be field checked to ensure they reach the laboratory at the proper pH.

TABLES

TABLE 1 – GROUNDWATER ANALYTICAL AND WATER LEVEL RESULTS

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Knight								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-1	10/16/95	5080	1180	1050	9970	26.03	-	-
MW-1	12/12/95	4330	679	1010	8560	25.91	-	-
MW-1	04/09/96	5490	208	1100	7370	26.71	26.34	0.37
MW-1	07/17/96	6450	279	990	9060	25.39	25.35	0.04
MW-1	10/15/96	9870	840	1120	10900	27.35	26.60	0.75
MW-1	01/13/97	7760	332	914	10900	26.53	-	-
MW-1	04/22/97	2700	<1	492	6690	26.23	-	-
MW-1	07/14/97	3900	36.7	530	6700	25.25	-	-
MW-1	10/22/97	4270	48.7	728	8580	26.22	-	-
MW-1	01/09/98	4750	24.2	819	9480	25.82	-	-
MW-1	04/24/98	5610	44.7	898	9530	26.01	25.87	0.14
MW-1	04/16/99	7340	42.8	853	10600	26.52	26.40	0.12
MW-1	04/19/00	9400	510	4300	66000	27.14	27.07	0.07
MW-1	09/05/01					28.32	27.93	0.39
MW-1	09/11/01					28.10	28.05	0.05
MW-1	09/04/02					28.39	28.31	0.08
MW-1	12/10/02					28.47	28.31	0.16
MW-1	03/20/03					28.14	28.05	0.09
MW-1	06/19/03					28.02	28.00	0.02
MW-1	09/17/03					28.97	28.95	0.02
MW-1	12/09/03					28.32	28.30	0.02
MW-1	03/15/04					27.99	27.89	0.10
MW-1	09/15/04					28.78	28.77	0.01
MW-1	03/16/05					27.68	27.67	0.00
MW-1	09/19/05	4430	23.7	487	7370	27.47	-	-
MW-1	03/27/06	4410	26.6 J	337	7860	26.49	-	-
MW-1	09/26/06	5880	36.5	633	11000	25.91	-	-
MW-1	03/28/07	3740	<50	441	9210	25.87	-	-
MW-1	09/17/07	4640	93.3	444	8180	26.94	-	-
MW-1	03/04/08					25.70	-	-
MW-1	09/09/08	3230	<50	324	6780	26.68	-	-
MW-1	03/02/09					24.71	-	-
MW-1	08/27/09	2790	8.3 J	1190	12500	24.30	-	-
MW-1	02/11/10					24.83	-	-
MW-1	05/21/10					23.54	-	-
MW-1	09/29/10	2910	<50	1600	15000	24.33	-	-
MW-1	11/02/10					22.31	-	-
MW-1	02/02/11					23.62	-	-
MW-1	05/04/11					22.50	-	-
MW-1	09/30/11	1590	5 J	1120	10600	22.26	-	-
MW-1	11/11/11					22.87	-	-
MW-1	02/16/12					24.01	-	-
MW-1	05/08/12					22.01	-	-
MW-1	06/07/13	830	<60	1100	14000	21.73	-	-
MW-1	09/13/13	810	<60	960	3100	26.75	-	-
MW-1	12/13/13	600	25 J	730	2200	26.45	-	-
MW-1	04/03/14	330	28	<0.20	1400	25.71	-	-
MW-1	10/21/14	380	<7.0	<5.0	3000	25.88	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Knight								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-2	12/12/95	175	<12.5	74.3	671	25.37	-	-
MW-2	04/09/96	39.2	<1	13.4	77.9	25.58	-	-
MW-2	07/17/96	9.55	<1	2.39	3.65	25.09	-	-
MW-2	10/15/96	49.7	<1	<1	38.4	26.36	-	-
MW-2	01/13/97	20.3	<1	<1	37.3	26.05	-	-
MW-2	04/22/97	19.4	<1	<1	29.8	25.82	-	-
MW-2	10/22/97	155	<1	12.6	204	25.86	-	-
MW-2	01/09/98	58	<1	3.85	207	25.50	-	-
MW-2	04/24/98	19.4	<1	<1	40.7	25.60	-	-
MW-2	02/09/99	19	<1	<1	48	26.05	-	-
MW-2	04/16/99	16.7	<1	<1	41	26.16	-	-
MW-2	04/19/00	23	0.5	<0.5	26	25.92	-	-
MW-2	09/11/01	110	<0.5	17	200	27.60	-	-
MW-2	09/04/02	269	7.4	48.9	482.4	27.88	-	-
MW-2	12/10/02					27.90	-	-
MW-2	06/19/03					27.46	-	-
MW-2	09/17/03	177	<1	41	343	28.42	-	-
MW-2	12/09/03					27.87	-	-
MW-2	03/15/04					27.55	-	-
MW-2	09/15/04	291	<0.5	48.9	431	28.25	-	-
MW-2	03/16/05					27.30	-	-
MW-2	09/19/05	126	<1	9.5	231	26.80	-	-
MW-2	03/27/06					26.18	-	-
MW-2	09/26/06	95.8	<1	5.5	189	25.66	-	-
MW-2	03/28/07					25.58	-	-
MW-2	09/17/07	317	<1	12.5	354	26.63	-	-
MW-2	03/04/08					25.47	-	-
MW-2	09/09/08	34.3	<1	1.1	71.9	26.30	-	-
MW-2	03/02/09					24.46	-	-
MW-2	08/27/09	26.6	1.3	1.6	9	24.00	-	-
MW-2	02/11/10					24.45	-	-
MW-2	05/21/10					23.21	-	-
MW-2	09/29/10	100	<2	J1.5	34.8	23.00	-	-
MW-2	11/02/10					22.03	-	-
MW-2	02/02/11					23.41	-	-
MW-2	05/04/11					22.67	-	-
MW-2	09/30/11	26.6	<1	1	9.5	21.75	-	-
MW-2	11/11/11					22.59	-	-
MW-2	02/16/12					23.72	-	-
MW-2	05/08/12					21.99	-	-
MW-2	06/07/13	200	<0.30	4.4	21	22.88	-	-
MW-2	09/13/13	120	<0.30	17	150	26.49	-	-
MW-2	12/13/13	27	3	5.5	74	26.18	-	-
MW-2	04/03/14	120	3.2 J	12	190	25.43	-	-
MW-2	10/21/14	0.64 J	<0.70	<0.50	<1.6	25.62	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Knight								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-3	12/12/95	979	<125	398	2540	25.67	-	-
MW-3	04/09/96	328	<1	132	369	25.78	-	-
MW-3	07/17/96	299	<1	76.7	251	25.15	-	-
MW-3	01/13/97	395	<1	126	955	26.41	26.25	0.16
MW-3	07/14/97	499	<1	104	583	25.21	-	-
MW-3	10/22/97	817	7.22	141	869	26.01	-	-
MW-3	01/09/98	702	<1	185	1080	25.69	-	-
MW-3	04/24/98	377	11.8	126	525	25.76	-	-
MW-3	04/16/99	191	4.11	18.1	169	26.30	-	-
MW-3	04/19/00	40	0.6	1.1	28	26.75	-	-
MW-3	09/05/01					27.91	27.84	0.07
MW-3	09/11/01					27.91	27.89	0.02
MW-3	09/04/02					28.17	28.16	0.01
MW-3	12/10/02					28.20	28.17	0.03
MW-3	06/19/03					27.81	-	-
MW-3	09/17/03					28.79	28.76	0.03
MW-3	12/09/03					28.11	-	-
MW-3	03/15/04					27.78	-	-
MW-3	09/15/04					28.60	-	-
MW-3	03/16/05					27.48	-	-
MW-3	09/19/05	73.8	<1	5.2	158	27.16	-	-
MW-3	03/27/06					26.34	-	-
MW-3	09/26/06	3370	25	498	3960	25.83	-	-
MW-3	03/28/07					25.71	-	-
MW-3	09/17/07	288	<1	65.4	599	26.85	-	-
MW-3	03/04/08					25.55	-	-
MW-3	09/09/08	805	3.3	160	1630	25.62	-	-
MW-3	03/02/09					24.55	-	-
MW-3	08/27/09	2490	<25	842	6560	24.13	-	-
MW-3	02/11/10					24.67	-	-
MW-3	05/21/10					23.40	-	-
MW-3	09/29/10	2710	<50	1390	10600	23.42	-	-
MW-3	11/02/10					22.20	-	-
MW-3	02/02/11					23.44	-	-
MW-3	05/04/11					22.37	-	-
MW-3	09/30/11	1410	5.8 J	1280	12600	21.94	-	-
MW-3	11/11/11					22.75	-	-
MW-3	02/16/12					23.85	-	-
MW-3	05/08/12					21.90	-	-
MW-3	06/07/13	760	<0.30	1700	19000	21.61	-	-
MW-3	09/13/13	770	<0.30	1400	11000	26.71	-	-
MW-3	12/13/13	610	<38	960	9200	26.31	-	-
MW-3	04/03/14	670	<19	890	10000	25.55	-	-
MW-3	10/21/14	250	<35	990	10000	25.73	-	-

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Knight								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-4	12/12/95	90.1	<12.5	16.8	144	26.27	-	-
MW-4	04/09/96	63.1	<1	<1	42.5	26.40	-	-
MW-4	07/17/96	35	<1	<1	17.8	25.77	-	-
MW-4	10/15/96	53.5	<1	<1	28.4	27.26	-	-
MW-4	01/13/97	56.2	<1	<1	48.4	26.96	-	-
MW-4	04/22/97	32.8	<1	<1	15.2	26.69	-	-
MW-4	07/14/97	10.4	<1	<1	5.79	25.78	-	-
MW-4	10/22/97	215	<1	5.5	184	26.72	-	-
MW-4	01/09/98	114	<1	2.66	85.7	26.34	-	-
MW-4	04/24/98	55.4	<1	<1	19.3	26.44	-	-
MW-4	04/16/99	129	<1	2.03	87.3	26.97	-	-
MW-4	04/19/00	110	6.5	17	140	26.09	-	-
MW-4	09/11/01	140	<0.5	9.6	110	28.48	-	-
MW-4	09/04/02	261	3.1	20.1	246.5	28.76	-	-
MW-4	12/10/02					28.80	-	-
MW-4	06/19/03					28.43	-	-
MW-4	09/17/03	192	<1	26.3	194	29.36	-	-
MW-4	12/09/03					28.73	-	-
MW-4	03/15/04					28.42	-	-
MW-4	09/15/04	182	<0.5	9.8	161	29.20	-	-
MW-4	03/16/05					28.12	-	-
MW-4	09/19/05	199	<1	53.8	416	27.74	-	-
MW-4	03/27/06					26.87	-	-
MW-4	09/26/06	180	12.5	55.9	417	26.45	-	-
MW-4	03/28/07					26.34	-	-
MW-4	09/17/07	272	4.7	21.3	236	27.44	-	-
MW-4	03/04/08					26.23	-	-
MW-4	09/09/08	265	0.94 J	26.5	274	26.15	-	-
MW-4	03/02/09					25.19	-	-
MW-4	08/27/09					27.10	24.13	2.97
MW-4	09/23/09	2110	12.6 J	676	6440	26.15	25.35	0.80
MW-4	10/19/09					25.70	25.15	0.55
MW-4	11/05/09					25.95	25.69	0.26
MW-4	12/21/09					26.05	25.85	0.20
MW-4	02/11/10					25.40	25.28	0.12
MW-4	05/21/10					24.05	24.03	0.02
MW-4	09/29/10	1400	<50	1020	6410	25.05	23.35	1.70
MW-4	11/02/10					23.38	22.74	0.64
MW-4	02/02/11					24.37	24.18	0.19
MW-4	05/04/11					22.13	-	-
MW-4	09/30/11	534	<10	1800	9510	24.52	21.85	2.67
MW-4	11/11/11					23.74	23.40	0.34
MW-4	02/16/12					24.68	-	-
MW-4	05/08/12					22.46	22.44	0.02
MW-4	06/07/13	2700	<0.30	900	12000	24.76	23.75	1.01
MW-4	09/13/13					28.84	27.07	1.77
MW-4	12/13/13					27.30	26.78	0.52
MW-4	04/03/14					26.43	26.07	0.36
MW-4	10/21/14					27.02	26.14	0.88

TABLE 1 - GROUNDWATER ANALYTICAL RESULTS

Knight								
Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)
NMWQCC Standards:		10	750	750	620	NA	NA	NA
MW-5	11/15/00	<0.5	<0.5	<0.5	<0.5	25.62	-	-
MW-5	09/11/01	<0.5	<0.5	<0.5	0.6	25.94	-	-
MW-5	09/04/02	<0.5	0.3	0.9	1.4	26.21	-	-
MW-5	12/10/02					26.11	-	-
MW-5	06/19/03					25.80	-	-
MW-5	09/17/03					26.67	-	-
MW-5	12/09/03					25.88	-	-
MW-5	03/15/04					25.52	-	-
MW-5	09/15/04					26.60	-	-
MW-5	03/16/05					25.21	-	-
MW-5	09/19/05					25.20	-	-
MW-5	03/28/07					23.54	-	-
MW-5	09/17/07					24.87	-	-
MW-5	03/04/08					23.28	-	-
MW-5	09/09/08					23.69	-	-
MW-5	03/02/09					22.52	-	-
MW-5	08/27/09					22.51	-	-
MW-5	02/11/10					22.74	-	-
MW-5	05/21/10					21.43	-	-
MW-5	09/29/10	34.1	<2	<2	2.7 J	21.33	-	-
MW-5	11/02/10					20.48	-	-
MW-5	02/02/11					20.52	-	-
MW-5	05/04/11					20.66	-	-
MW-5	09/30/11	<1	<1	<1	1.2 J	20.24	-	-
MW-5	11/11/11					21.89	-	-
MW-5	02/16/12					21.85	-	-
MW-5	05/08/12					19.79	-	-
MW-5	06/07/13	<0.14	<0.30	<0.20	<0.23	20.70	-	-
MW-5	09/13/13	<0.14	<0.30	<0.20	<0.23	24.68	-	-
MW-5	12/13/13	<0.20	<0.38	<0.20	0.68 J	24.13	-	-
MW-5	04/03/14	<0.20	<0.38	<0.20	<0.65	23.42	-	-
MW-5	10/21/14	<0.38	<0.70	<0.50	<1.6	23.72	-	-

Notes:
Results highlighted yellow exceed their respective New Mexico Water Quality Control Comission standards.
"J" = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
"<" = analyte was not detected at the indicated reporting limit (some historic data were reported at the detection limit).

FIGURES

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\KNIGHT #1\2014 MAPS\Knight#1_GARM_1SA_2014.mxd

LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT
J = RESULT IS LESS THAN THE RL, BUT GREATER THAN OR EQUAL TO THE MDL AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
MDL = METHOD DETECTION LIMIT
RL = REPORTING LIMIT OR REQUESTED LIMIT (RADIOCHEMISTRY)

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/15/2014	CCL	CCL	DCW

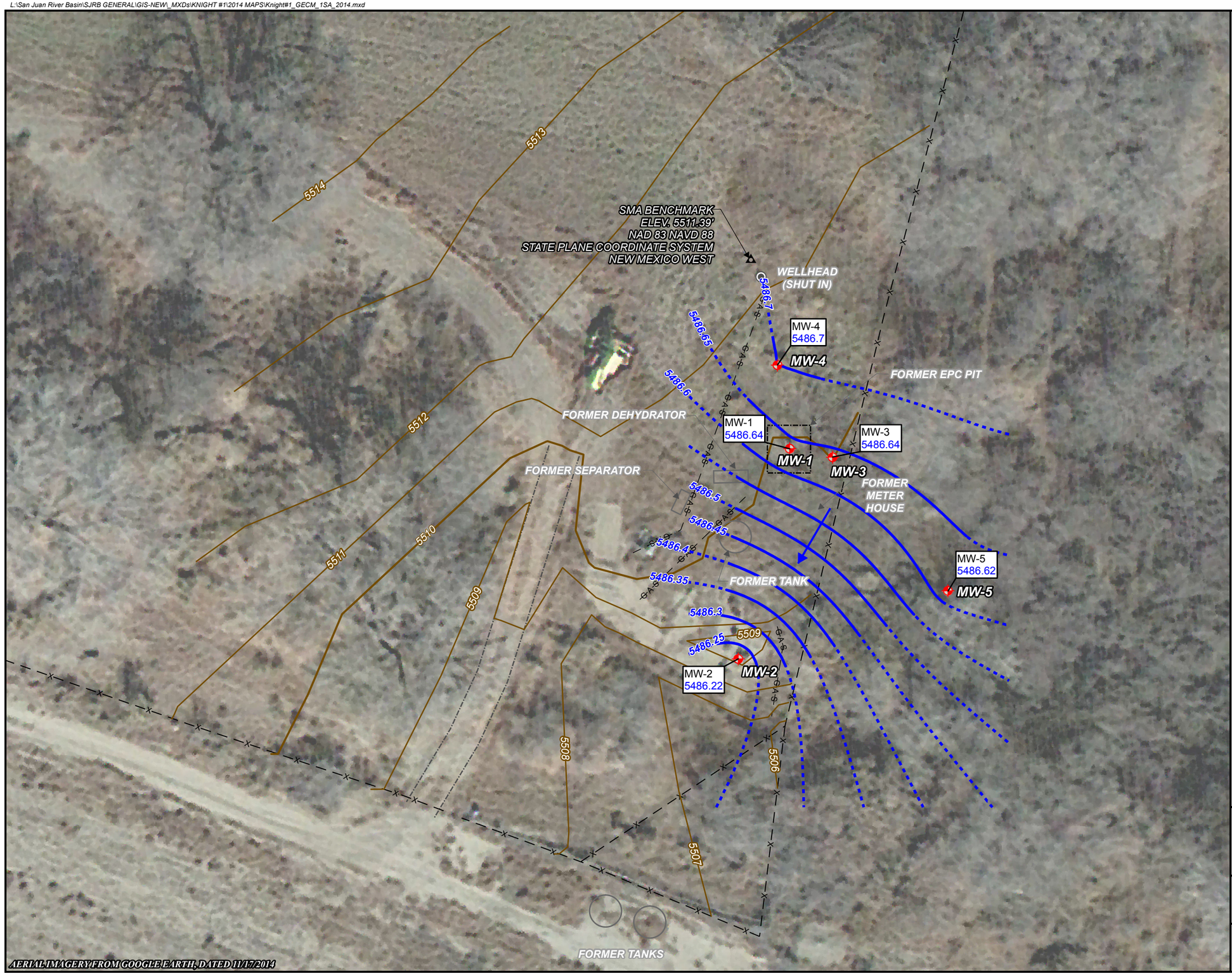
TITLE:
KNIGHT #1
GROUNDWATER ANALYTICAL RESULTS
SAMPLED APRIL 3, 2014

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

MWH

Figure No.: 1

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\KNIGHT #1\2014 MAPS\Knight#1_GECM_1SA_2014.mxd



LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL

NOTES:

- 6288.85 — GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL
- 6288 — CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.05 FOOT CONTOUR INTERVAL)
- DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET

0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	10/15/2014	CCL	CCL	DCW

TITLE:

KNIGHT #1
GROUNDWATER ELEVATION MAP
GAUGED APRIL 3, 2014

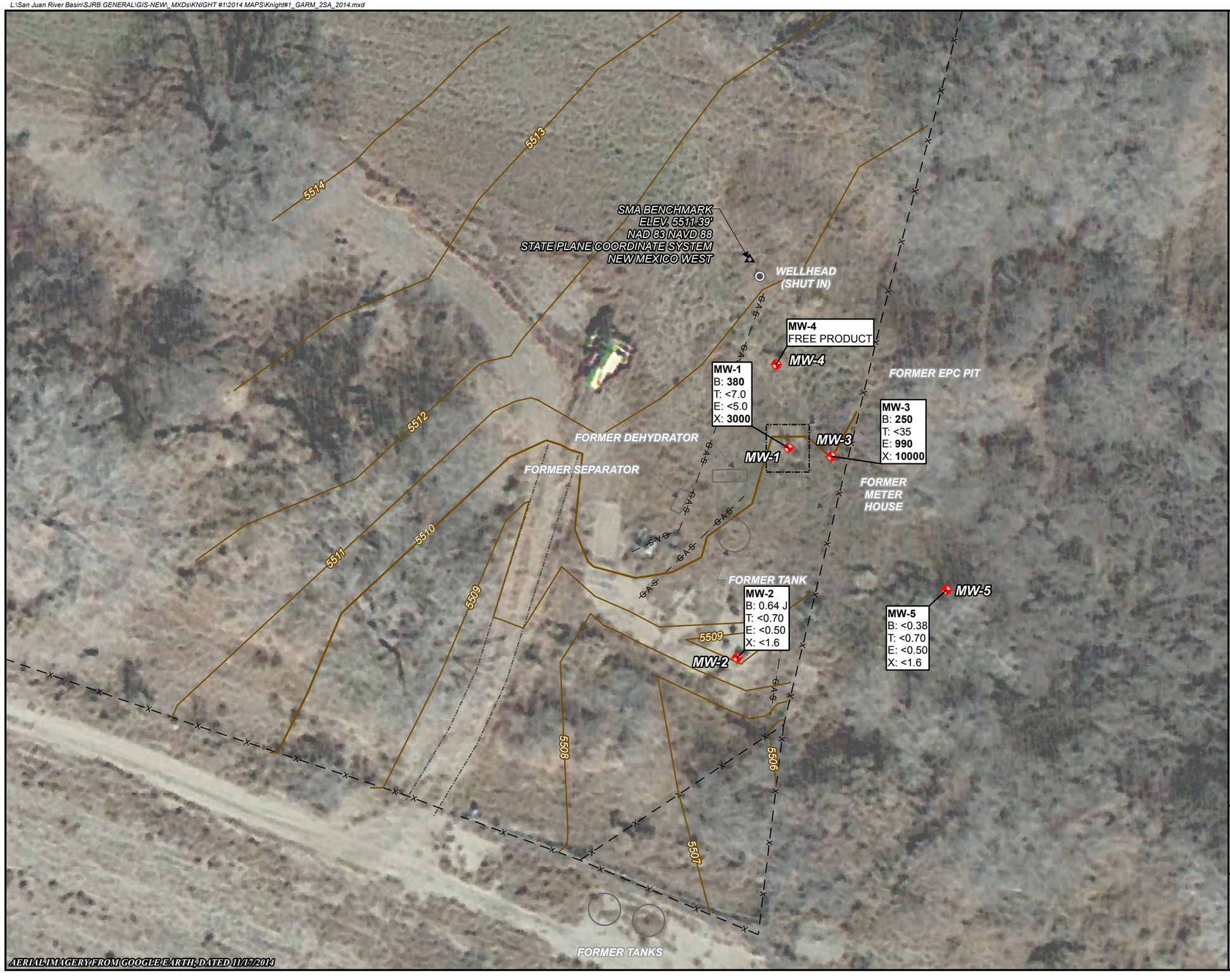
PROJECT:

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

MWH

Figure No.: 2

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\KNIGHT #1\2014 MAPS\Knight#1_GARM_2SA_2014.mxd



LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL

EXPLANATION OF ANALYTES AND APPLICABLE STANDARDS:

RESULTS IN **BOLDFACE** TYPE INDICATE CONCENTRATION IN EXCESS OF THE STANDARD FOR THAT ANALYTE.
NS = NOT SAMPLED
µg/L = MICROGRAMS PER LITER
<0.30 = BELOW METHOD DETECTION LIMIT
J = RESULT IS LESS THAN THE RL, BUT GREATER THAN OR EQUAL TO THE MDL AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
MDL = METHOD DETECTION LIMIT
RL = REPORTING LIMIT OR REQUESTED LIMIT (RADIOCHEMISTRY)

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

N

SCALE IN FEET
0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	11/17/2014	CCL	CCL	DCW

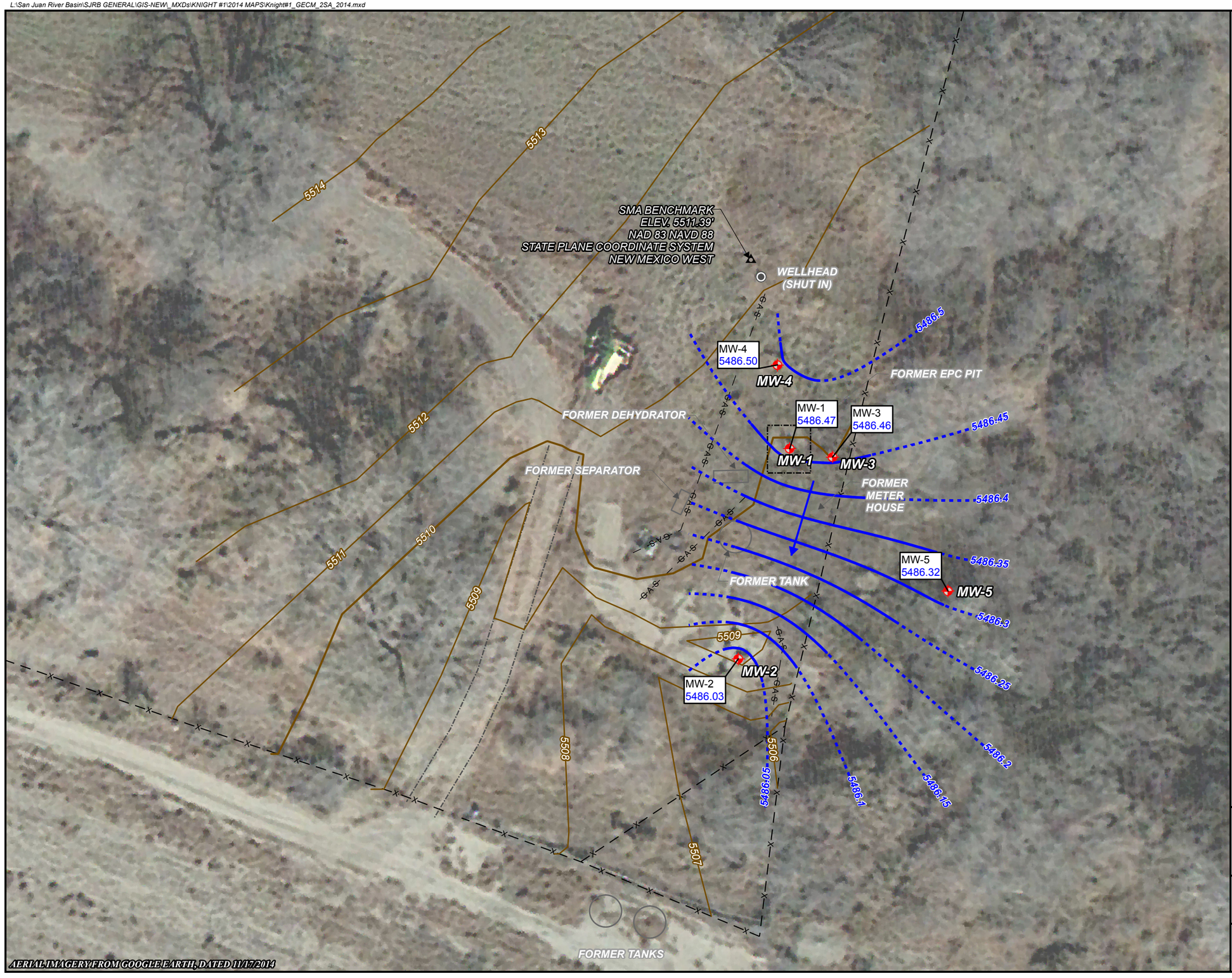
TITLE:
KNIGHT #1
GROUNDWATER ANALYTICAL RESULTS
SAMPLED OCTOBER 21, 2014

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

MWH

Figure No.: 3

L:\San Juan River Basin\SJRB GENERAL\GIS-NEW_MXDs\KNIGHT #1\2014 MAPS\Knight#1_GECM_2SA_2014.mxd



LEGEND:

- 6082 — APPROX. GROUND SURFACE CONTOUR AND ELEVATION, FEET
- ACCESS ROAD
- FORMER PIT
- BENCHMARK
- MONITORING WELL

NOTES:

6288.85 GROUNDWATER ELEVATION CORRECTED FOR PRODUCT THICKNESS. FEET ABOVE MEAN SEA LEVEL

6288 CORRECTED WATER LEVEL ELEVATION CONTOUR DASHED WHERE INFERRED (FEET ABOVE MEAN SEA LEVEL, 0.05 FOOT CONTOUR INTERVAL)

DIRECTION OF GROUNDWATER FLOW

N

SCALE IN FEET

0 30 60

REVISION	DATE	DESIGN BY	DRAWN BY	REVIEWED BY
A	11/17/2014	CCL	CCL	DCW

TITLE:

KNIGHT #1
GROUNDWATER ELEVATION MAP
GAUGED OCTOBER 21, 2014

PROJECT:

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

MWH

Figure No.: 4

APPENDIX A

APRIL 3, 2014 GROUNDWATER SAMPLING ANALYTICAL REPORT
OCTOBER 21, 2014 GROUNDWATER SAMPLING ANALYTICAL REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-46613-1
Client Project/Site: Knight, 4/3/14 BTEX

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

Attn: Ms. Sarah Gardner

Authorized for release by:
4/22/2014 10:53:29 AM

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

Qualifiers

GC VOA

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

Glossary

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

Case Narrative

Client: MWH Americas Inc
Project/Site: Knight, 4/3/14 BTEX

TestAmerica Job ID: 560-46613-1

Job ID: 560-46613-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-46613-1

Comments
No additional comments.

Receipt
The samples were received on 4/8/2014 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 1.8º C.

GC VOA
Method(s) 8021B: Due to Achon failure, MS/MSD was not run for these samples.

8021
Batch100676

Method(s) 8021B: Due to Archon failure, MS/MSD was not run for these samples. LCS passed QC requirements.

8021
Batch 100676

No other analytical or quality issues were noted.

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

Detection Summary

Client: MWH Americas Inc
Project/Site: Knight, 4/3/14 BTEX

TestAmerica Job ID: 560-46613-1

Client Sample ID: MW-1 — Lab Sample ID: 560-46613-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	330		20	2.0	ug/L	10		8021B	Total/NA
Toluene	28		2.0	0.38	ug/L	1		8021B	Total/NA
Xylenes, Total	1400		20	6.5	ug/L	10		8021B	Total/NA

Client Sample ID: MW-2 — Lab Sample ID: 560-46613-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	120		4.0	0.40	ug/L	2		8021B	Total/NA
Toluene	3.2	J	4.0	0.75	ug/L	2		8021B	Total/NA
Ethylbenzene	12		4.0	0.40	ug/L	2		8021B	Total/NA
Xylenes, Total	190		4.0	1.3	ug/L	2		8021B	Total/NA

Client Sample ID: MW-3 — Lab Sample ID: 560-46613-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	670		100	10	ug/L	50		8021B	Total/NA
Ethylbenzene	890		100	10	ug/L	50		8021B	Total/NA
Xylenes, Total	10000		100	32	ug/L	50		8021B	Total/NA

Client Sample ID: MW-5 — Lab Sample ID: 560-46613-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1

Lab Sample ID: 560-46613-1

Date Collected: 04/03/14 14:00
Matrix: Water
Date Received: 04/08/14 09:45

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**330**		20	2.0	ug/L			04/10/14 15:58	10
Toluene	**28**		2.0	0.38	ug/L			04/10/14 11:46	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/10/14 11:46	1
Xylenes, Total	**1400**		20	6.5	ug/L			04/10/14 15:58	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*58 - 129*		*04/10/14 11:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*58 - 129*		*04/10/14 15:58*	*10*
Trifluorotoluene (Surr)	*128*		*54 - 130*		*04/10/14 11:46*	*1*
Trifluorotoluene (Surr)	*92*		*54 - 130*		*04/10/14 15:58*	*10*

Client Sample ID: MW-2

Lab Sample ID: 560-46613-2

Date Collected: 04/03/14 13:50
Matrix: Water
Date Received: 04/08/14 09:45

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**120**		4.0	0.40	ug/L			04/16/14 14:42	2
Toluene	**3.2**	**J**	4.0	0.75	ug/L			04/16/14 14:42	2
Ethylbenzene	**12**		4.0	0.40	ug/L			04/16/14 14:42	2
Xylenes, Total	**190**		4.0	1.3	ug/L			04/16/14 14:42	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*58 - 129*		*04/16/14 14:42*	*2*
Trifluorotoluene (Surr)	*96*		*54 - 130*		*04/16/14 14:42*	*2*

Client Sample ID: MW-3

Lab Sample ID: 560-46613-3

Date Collected: 04/03/14 13:55
Matrix: Water
Date Received: 04/08/14 09:45

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**670**		100	10	ug/L			04/16/14 15:10	50
Toluene	<19		100	19	ug/L			04/16/14 15:10	50
Ethylbenzene	**890**		100	10	ug/L			04/16/14 15:10	50
Xylenes, Total	**10000**		100	32	ug/L			04/16/14 15:10	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*58 - 129*		*04/16/14 15:10*	*50*
Trifluorotoluene (Surr)	*92*		*54 - 130*		*04/16/14 15:10*	*50*

Client Sample ID: MW-5

Lab Sample ID: 560-46613-4

Date Collected: 04/03/14 13:45
Matrix: Water
Date Received: 04/08/14 09:45

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/16/14 15:38	1
Toluene	<0.38		2.0	0.38	ug/L			04/16/14 15:38	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/16/14 15:38	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/16/14 15:38	1

Client: MWH Americas Inc
Project/Site: Knight, 4/3/14 BTEX

TestAmerica Job ID: 560-46613-1

Client Sample ID: MW-5
Date Collected: 04/03/14 13:45
Date Received: 04/08/14 09:45

Lab Sample ID: 560-46613-4
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*101*		*58 - 129*		*04/16/14 15:38*	*1*
Trifluorotoluene (Surr)	*90*		*54 - 130*		*04/16/14 15:38*	*1*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 560-100676/5
Matrix: Water
Analysis Batch: 100676

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/10/14 11:19	1
Toluene	<0.38		2.0	0.38	ug/L			04/10/14 11:19	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/10/14 11:19	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/10/14 11:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*58 - 129*		*04/10/14 11:19*	*1*
Trifluorotoluene (Surr)	*103*		*54 - 130*		*04/10/14 11:19*	*1*

Lab Sample ID: LCS 560-100676/4
Matrix: Water
Analysis Batch: 100676

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	40.8		ug/L		102	70 - 130
Toluene	40.0	42.7		ug/L		107	70 - 130
Ethylbenzene	40.0	42.0		ug/L		105	70 - 130
Xylenes, Total	120	118		ug/L		98	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*58 - 129*
Trifluorotoluene (Surr)	*97*		*54 - 130*

Lab Sample ID: MB 560-100888/3
Matrix: Water
Analysis Batch: 100888

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.20		2.0	0.20	ug/L			04/16/14 10:43	1
Toluene	<0.38		2.0	0.38	ug/L			04/16/14 10:43	1
Ethylbenzene	<0.20		2.0	0.20	ug/L			04/16/14 10:43	1
Xylenes, Total	<0.65		2.0	0.65	ug/L			04/16/14 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*58 - 129*		*04/16/14 10:43*	*1*
Trifluorotoluene (Surr)	*88*		*54 - 130*		*04/16/14 10:43*	*1*

Lab Sample ID: LCS 560-100888/2
Matrix: Water
Analysis Batch: 100888

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	40.0		ug/L		100	70 - 130
Toluene	40.0	41.1		ug/L		103	70 - 130
Ethylbenzene	40.0	40.9		ug/L		102	70 - 130
Xylenes, Total	120	118		ug/L		98	70 - 130

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 560-100888/2
Matrix: Water
Analysis Batch: 100888

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

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*58 - 129*
Trifluorotoluene (Surr)	*99*		*54 - 130*

Lab Sample ID: 560-46613-3 MS
Matrix: Water
Analysis Batch: 100888

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	670		2000	2510		ug/L		92	64 - 130
Toluene	<19		2000	1950		ug/L		97	59 - 130
Ethylbenzene	890		2000	2670		ug/L		89	63 - 133
Xylenes, Total	10000		6000	14000		ug/L		60	53 - 147

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*58 - 129*
Trifluorotoluene (Surr)	*88*		*54 - 130*

Lab Sample ID: 560-46613-3 MSD
Matrix: Water
Analysis Batch: 100888

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	670		2000	2510		ug/L		92	64 - 130	0	20
Toluene	<19		2000	1980		ug/L		99	59 - 130	2	20
Ethylbenzene	890		2000	2740		ug/L		92	63 - 133	3	20
Xylenes, Total	10000		6000	14400		ug/L		66	53 - 147	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*58 - 129*
Trifluorotoluene (Surr)	*87*		*54 - 130*

Certification Summary

Client: MWH Americas Inc
Project/Site: Knight, 4/3/14 BTEX

TestAmerica Job ID: 560-46613-1

Laboratory: TestAmerica Corpus Christi

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Kansas	NELAP	7	E-10362	10-31-14
Oklahoma	State Program	6	9968	08-31-14
Texas	NELAP	6	T104704210	03-31-15

Method Summary

Client: MWH Americas Inc
Project/Site: Knight, 4/3/14 BTEX

TestAmerica Job ID: 560-46613-1

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

Protocol References:

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

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

Sample Summary

Client: MWH Americas Inc
Project/Site: Knight, 4/3/14 BTEX

TestAmerica Job ID: 560-46613-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-46613-1	MW-1	Water	04/03/14 14:00	04/08/14 09:45
560-46613-2	MW-2	Water	04/03/14 13:50	04/08/14 09:45
560-46613-3	MW-3	Water	04/03/14 13:55	04/08/14 09:45
560-46613-4	MW-5	Water	04/03/14 13:45	04/08/14 09:45

TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Phone (361) 289-2673 Fax (361) 289-2471

Chain of Custody Record

Client Information	Sampler: Sarah Gardner / Chris Lee	Lab PM: Kellogg, Timothy L.	Carrier Tracking No(s): Fed ex 8045 2775 7362	COC No: 560-13131-1157
Client Contact: ~~Mr. Daniel Wade~~ Sarah Gardner	Phone: 303 291 2239	E-Mail: tim.kellogg@testamericainc.com		Page: Page Loc: 560
Company: MWH Americas Inc				Job #: 46613

Address: 1801 California Street Suite 2900	Due Date Requested:	
City: Denver	TAT Requested (days):	
State, Zip: CO, 80202		
Phone: ~~713-420-3414(Tel)~~ 303 291 2239	PO #: Purchase Order not required	
Email: sarah.gardner ~~Daniel.A.Wade~~@us.mwhglobal.com	WO #: TWO # C-STLI-	
Project Name: San Juan River Basin Pit Sites	Project #: 56000058	
Site: Knight	SSOW#:	

Analysis Requested

Preservation Code: A

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)	8260B - BTEX	Total Number of containers	Special Instructions/Note:
mw-1	4/3/14	1400		Water			X	2	Unpreserved
mw-2	4/3/14	1350		Water			X	3	
mw-3	4/3/14	1355		Water			X	3	
~~mw-4~~	~~4/3/14~~			Water					Not Sampled
mw-5	4/3/14	1345		Water			X	3	
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

Special Instructions/Note:
A - H
B - N
C - Z
D - Nitric Acid — P - Na2O4S
E - NaHSO4 — Q - Na2SO3
F - MeOH — R - Na2S2SO3
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:

560-46613 Chain of Custody

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		4/7/14 900	MWH		4/8/14 9:[illegible]	TAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	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: Seal Broke 1.6°C Cor 1.8°C IR#1

4/22/2014

Login Sample Receipt Checklist

Client: MWH Americas Inc

Job Number: 560-46613-1
SDG Number:

Login Number: 46613
List Number: 1
Creator: Rood, Vivian R

List Source: TestAmerica Corpus Christi

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 400-97698-1
Client Project/Site: KM Knight #1

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

Attn: Ms. Sarah Gardner

Authorized for release by:
11/6/2014 2:04:09 PM
Bernard Kirkland, Manager of Project Management
(912)354-7858 e.3238
bernard.kirkland@testamericainc.com

Designee for

Neal Salcher, Senior Project Manager
(713)690-4444
neal.salcher@testamericainc.com

Table of Contents

Client: MWH Americas Inc
Project/Site: KM Knight #1

TestAmerica Job ID: 400-97698-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Job ID: 400-97698-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-97698-1

Comments
No additional comments.

Receipt
The samples were received on 10/29/2014 9:39 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.8º C.

GC/MS VOA
Method(s) 8260B: Samples MW-1 (400-97698-1), MW-2 (400-97698-2), MW-3 (400-97698-3), MW-5 (400-97698-4) were analyzed outside of holding time due to the pH being out of range. The samples were marked as preserved when received at the lab. The holding time expired on 10.28.14 and the samples were analyzed on 10.31.14.

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.

Sample Summary

Client: MWH Americas Inc
Project/Site: KM Knight #1

TestAmerica Job ID: 400-97698-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-97698-1	MW-1	Water	10/21/14 11:05	10/29/14 09:39
400-97698-2	MW-2	Water	10/21/14 10:55	10/29/14 09:39
400-97698-3	MW-3	Water	10/21/14 11:00	10/29/14 09:39
400-97698-4	MW-5	Water	10/21/14 10:50	10/29/14 09:39
400-97698-5	TRIP BLANK	Water	10/21/14 11:30	10/29/14 09:39

Client Sample ID: MW-1

Lab Sample ID: 400-97698-1

Date Collected: 10/21/14 11:05

Matrix: Water

Date Received: 10/29/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**380**	**H**	10	3.8	ug/L			11/01/14 11:03	10
Ethylbenzene	<5.0	H	10	5.0	ug/L			11/01/14 11:03	10
Toluene	<7.0	H	10	7.0	ug/L			11/01/14 11:03	10
Xylenes, Total	**3000**	**H**	100	16	ug/L			11/01/14 11:03	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*99*		*78 - 118*		*11/01/14 11:03*	*10*
Dibromofluoromethane	*106*		*81 - 121*		*11/01/14 11:03*	*10*
Toluene-d8 (Surr)	*95*		*80 - 120*		*11/01/14 11:03*	*10*

Client Sample ID: MW-2

Lab Sample ID: 400-97698-2

Date Collected: 10/21/14 10:55

Matrix: Water

Date Received: 10/29/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.64**	**J H**	1.0	0.38	ug/L			11/01/14 09:46	1
Ethylbenzene	<0.50	H	1.0	0.50	ug/L			11/01/14 09:46	1
Toluene	<0.70	H	1.0	0.70	ug/L			11/01/14 09:46	1
Xylenes, Total	<1.6	H	10	1.6	ug/L			11/01/14 09:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*11/01/14 09:46*	*1*
Dibromofluoromethane	*116*		*81 - 121*		*11/01/14 09:46*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*11/01/14 09:46*	*1*

Client Sample ID: MW-3

Lab Sample ID: 400-97698-3

Date Collected: 10/21/14 11:00

Matrix: Water

Date Received: 10/29/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**250**	**H**	50	19	ug/L			11/01/14 11:29	50
Ethylbenzene	**990**	**H**	50	25	ug/L			11/01/14 11:29	50
Toluene	<35	H	50	35	ug/L			11/01/14 11:29	50
Xylenes, Total	**10000**	**H**	500	80	ug/L			11/01/14 11:29	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*78 - 118*		*11/01/14 11:29*	*50*
Dibromofluoromethane	*103*		*81 - 121*		*11/01/14 11:29*	*50*
Toluene-d8 (Surr)	*93*		*80 - 120*		*11/01/14 11:29*	*50*

Client Sample ID: MW-5

Lab Sample ID: 400-97698-4

Date Collected: 10/21/14 10:50

Matrix: Water

Date Received: 10/29/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38	H	1.0	0.38	ug/L			11/01/14 10:12	1
Ethylbenzene	<0.50	H	1.0	0.50	ug/L			11/01/14 10:12	1
Toluene	<0.70	H	1.0	0.70	ug/L			11/01/14 10:12	1

Client Sample ID: MW-5

Lab Sample ID: 400-97698-4

Date Collected: 10/21/14 10:50

Matrix: Water

Date Received: 10/29/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<1.6	H	10	1.6	ug/L			11/01/14 10:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*78 - 118*		*11/01/14 10:12*	*1*
Dibromofluoromethane	*116*		*81 - 121*		*11/01/14 10:12*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*11/01/14 10:12*	*1*

Client Sample ID: TRIP BLANK

Lab Sample ID: 400-97698-5

Date Collected: 10/21/14 11:30

Matrix: Water

Date Received: 10/29/14 09:39

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38		1.0	0.38	ug/L			11/01/14 10:37	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 10:37	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 10:37	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 10:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*78 - 118*		*11/01/14 10:37*	*1*
Dibromofluoromethane	*111*		*81 - 121*		*11/01/14 10:37*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*11/01/14 10:37*	*1*

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

Lab Sample ID: MB 400-235146/4
Matrix: Water
Analysis Batch: 235146

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.38		1.0	0.38	ug/L			11/01/14 09:19	1
Ethylbenzene	<0.50		1.0	0.50	ug/L			11/01/14 09:19	1
Toluene	<0.70		1.0	0.70	ug/L			11/01/14 09:19	1
Xylenes, Total	<1.6		10	1.6	ug/L			11/01/14 09:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*78 - 118*		*11/01/14 09:19*	*1*
Dibromofluoromethane	*112*		*81 - 121*		*11/01/14 09:19*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*11/01/14 09:19*	*1*

Lab Sample ID: LCS 400-235146/1002
Matrix: Water
Analysis Batch: 235146

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	56.1		ug/L		112	79 - 120
Ethylbenzene	50.0	54.1		ug/L		108	80 - 120
Toluene	50.0	52.9		ug/L		106	80 - 120
Xylenes, Total	100	103		ug/L		103	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*101*		*78 - 118*
Dibromofluoromethane	*106*		*81 - 121*
Toluene-d8 (Surr)	*94*		*80 - 120*

Lab Chronicle

Client: MWH Americas Inc
Project/Site: KM Knight #1

TestAmerica Job ID: 400-97698-1

Client Sample ID: MW-1 — Lab Sample ID: 400-97698-1

Date Collected: 10/21/14 11:05 — **Matrix: Water**
Date Received: 10/29/14 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	235146	11/01/14 11:03	EAS	TAL PEN

Client Sample ID: MW-2 — Lab Sample ID: 400-97698-2

Date Collected: 10/21/14 10:55 — **Matrix: Water**
Date Received: 10/29/14 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235146	11/01/14 09:46	EAS	TAL PEN

Client Sample ID: MW-3 — Lab Sample ID: 400-97698-3

Date Collected: 10/21/14 11:00 — **Matrix: Water**
Date Received: 10/29/14 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	235146	11/01/14 11:29	EAS	TAL PEN

Client Sample ID: MW-5 — Lab Sample ID: 400-97698-4

Date Collected: 10/21/14 10:50 — **Matrix: Water**
Date Received: 10/29/14 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235146	11/01/14 10:12	EAS	TAL PEN

Client Sample ID: TRIP BLANK — Lab Sample ID: 400-97698-5

Date Collected: 10/21/14 11:30 — **Matrix: Water**
Date Received: 10/29/14 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	235146	11/01/14 10:37	EAS	TAL PEN

Laboratory References:

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

Method Summary

Client: MWH Americas Inc
Project/Site: KM Knight #1

TestAmerica Job ID: 400-97698-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PEN

Protocol References:

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

Laboratory References:

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

TestAmerica Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Chris Lee, Sarah Gardner	Lab PM: Salcher, Neal	Carrier Tracking No(s):	COC No: 560-15302-1536.1
Client Contact: Ms. Sarah Gardner	Phone:	E-Mail: neal.salcher@testamericainc.com		Page: Page 1 of 1
Company: MWH Americas Inc				Job #:
Address: 1801 California Street Suite 2900	Due Date Requested:			
City: Denver	TAT Requested (days):			
State, Zip: CO, 80202				
Phone: 303-291-2239(Tel)	PO #: Purchase Order Requested			
Email: sarah.gardner@mwhglobal.com	WO #: As per Enfos			
Project Name: KM Knight #1	Project #: 56004978			
Site:	SSOW#:			

Analysis Requested

400-97698 COC

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
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)	8260B - BTEX	Total Number of containers	Special Instructions/Note:
Preservation Code:							A		
MW-1	10/21/14	1105	G	Water			X		
MW-2	10/21/14	1055	G	Water			X		
MW-3	10/21/14	1100	G	Water			X		
MW-5	10/21/14	1050	G	Water			X		
TRIP BLANK	10/21/14	1130		Water			X		
				Water					

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	Choh Lee	10/27/14 915	MWH		10-28-14 939	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 5.8°C IR-2