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GROUNDWATER MONITORING REPORT
THIRD QUARTER 2014

MARGARET SPAULDING WATER TREATMENT FACILITY
COGCC FACILITY ID# 115241 – REM #7058
SW ¼ SE ¼ SECTION 28, T9N, R81W
JACKSON COUNTY, COLORADO

PREPARED FOR

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DECEMBER 2014

PROJECT NO. 013-1489

OLSSON ASSOCIATES

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1.0 INTRODUCTION

Olsson Associates (Olsson) was contracted by CM Production, LLC (CM Production) to assist them with environmental compliance following acquisition of the Lone Pine field. This report presents the third quarter groundwater monitoring results conducted on September 22, 2014. The purpose of the groundwater monitoring was to assess groundwater conditions around the former Margaret Spaulding treater overflow pit (Colorado Oil and Gas Conservation Commission (COGCC) Facility ID# 115241) excavation and former produced water treatment pits (COGCC Facility # 112265, 112266, and 112267). The general site location is shown on **Figure 1**.

1.1 Site Location

The Margaret Spaulding produced water treatment system (Site) is located in the southwest quarter, of the southeast quarter of Section 28, Township 9 North, Range 81 West of the 6th Principal Meridian. The Site is located approximately 11 miles west of the town of Walden, Jackson County, Colorado, and is located on the Lone Pine Ranch off of County Road 12W.

1.2 Project Description

Groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6) were installed by Lone Pine Gas, Inc., the previous site owner, and their consultant, North Park Engineering & Consulting, Inc. The wells were installed on April 11 and April 12, 2012 to assess the potential for subsurface soil and groundwater impacts having resulted from the treater overflow pit onsite. Groundwater samples were initially collected on April 17, 2012.

1.3 Site Geology and Hydrogeology

The North Park Basin is an axial basin located west of the Front Range and bounded by the Continental Divide to the south and west. The Site is located in the southern part of the North Park Basin to the west of the Delaney Butte anticline. The Delaney Butte anticline consists of a large wedge-shaped granite core bound on the west by the Delaney Butte fault, a north-trending thrust fault. The Delaney Butte anticline is an asymmetric fold which plunges steeply to the south (Welsh, 1953) and the anticline is bound by the hanging wall of a reverse fault (Murray et al, 2012).

Based on a review of the geologic maps on the COGCC website, the Site is located on the Tertiary-age Coalmont Formation, near the contact with the Cretaceous-age Pierre Shale. The Pierre Shale is a marine shale composed of a sandy upper member, and a lower gray shale member. The maximum thickness of the Pierre Shale is 4,500 feet in the North Park area. The Coalmont Formation unconformably overlies the Pierre Shale. The Pierre Shale is a confining unit which inhibits groundwater flow.

According to a 1979 BLM and USGS Resource & Potential Reclamation Evaluation for the McCallum Study Area, located east of Walden, Colorado, the Coalmont Formation consists of non-marine fine-grained micaceous sandstones, tuffaceous siltstones, conglomerate, and carbonaceous claystones, and mudstones, and shale with some coal. According to the Colorado Geologic Survey, the Coalmont Formation is a basin-fill unit derived from the surrounding uplifted mountains, and consists of a complex, interfingering of coarse- and fine-grained sediments. The Coalmont Formation is poorly to moderately consolidated, and consists predominantly of shale in the central part of the North Park Basin (Topper et al, 2003).

Surface water hydrology in the vicinity of the site is controlled by the Spring Gulch drainage to the west of the former produced water treatment system on the Margaret Spaulding lease, the former pits, and Wolfers Ditch to the east of the former produced water treatment system. Both Spring Gulch and Wolfers Ditch flow to the north – northeast toward the confluence with Hell Creek. Hell Creek flows to the east – northeast to the north fork of the North Platte River.

Shallow groundwater in the vicinity of the site is generally expected to follow topography and flow to the northwest toward the Spring Gulch drainage. Potentiometric surface maps for the September 2014 sampling events show this flow direction.

2.0 SEPTEMBER 2014 GROUNDWATER MONITORING

This report presents the results of groundwater monitoring that was conducted by Olsson on September 22, 2014. A site map is presented as **Figure 2**.

2.1 Fluid Level Measurements

Olsson measured groundwater levels in the six groundwater monitoring wells using an oil/water interface probe. Light non-aqueous phase liquids (LNAPL) were not detected in any of the six monitoring wells. The absence of LNAPL was confirmed in all monitoring wells prior to sampling by observing the water in each of the bailers.

The fluid levels were measured in the wells to the top, north side of the PVC casing in each of the stick up well monuments to ± 0.01 feet. Field parameters were measured in all six monitoring wells using a YSI 556 multi-meter probe. The fluid levels are presented in **Table 1** and field parameters are presented in **Table 2**. The depth to groundwater ranged from 13.70 feet below ground surface (bgs) in MW-2 to 39.45 feet bgs in MW-5. Total depths were not measured so the total depths measured in September 2013 were used to determine the water column in each of the monitoring wells and calculate purge volumes. The September 2014 potentiometric surface map is presented as **Figure 3**.

The potentiometric surface map shows that the shallow groundwater flow is toward the northwest based on the groundwater levels measured in the monitoring wells and calculations based surveyed elevations of the tops of the well casings. The approximate gradient across the site in September was 0.0053 feet per foot as determined based on monitoring well MW-3 and MW-1.

Latitude and longitude coordinates for the monitoring wells were provided along with the soil analytical results electronic data deliverables on the COGCC website for remediation #7058. North Park Engineering and Consulting, Inc. surveyed the monitoring wells on June 18, 2012 and a copy of the survey was provided to Olsson by the COGCC. The data in **Table 1** presents the groundwater elevations calculated using the North Park Engineering and Consulting, Inc. survey data. According to Randy Miller with North Park Engineering and Consulting, Inc. the logbook containing the monitoring well construction data was misplaced.

2.2 Groundwater Purge Volumes and Bailing

Groundwater purge volumes were calculated based on removing a minimum of three casing volumes from the two inch diameter monitoring wells using new dedicated disposable bailers, and nylon rope. Purged groundwater volume was estimated by filling 5-gallon capacity plastic buckets. Purge water volumes of 5 gallons were bailed from each well, except MW-5, and was disposed onsite prior to groundwater sampling. The water column in MW-5 was not sufficient to allow a 5 gallon purge, instead the well was bailed dry (approximately 1 gallon) and allowed to recharge before sampling.

2.3 Groundwater Field Parameter Measurements

The field parameters show that the groundwater temperature, pH, and specific conductance were within expected ranges. The dissolved oxygen readings were high in monitoring wells MW-2, and readings were consistent in monitoring wells MW-1, MW-3, MW-4, MW-5 and MW-6. The oxidation – reduction potential (ORP) showed negative values for MW-1 groundwater and positive values for the five other monitoring wells which is consistent with the low level petroleum hydrocarbon impacts in this well.

2.4 Groundwater Sample Analytes

The samples were contained in bottleware provided by Accutest Mountain States Laboratory in Wheat Ridge, Colorado. Groundwater samples were stored on ice in a plastic cooler pending delivery to Accutest Mountain States Laboratory under chain-of-custody protocols.

The samples were submitted for the groundwater parameters specified in the COGCC Table 910-1, including:

- Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, xylenes (BTEX) and Gasoline Range Organics (GRO) by EPA Method 8260
- Diesel Range Organics (DRO) using an EPA modified Method 8015
- Polycyclic aromatic hydrocarbons (PAH) by EPA Method 8270
- Chloride by EPA 300.0/SW 845/9056
- Total Dissolved Solids (TDS) by SM 2540C -2011
- Sulfate by EPA 300.0/SW 846 9056

Copies of the laboratory analytical reports are included in **Appendix A**.

2.5 Groundwater Analytical Results

Organic Compound Results

The laboratory analytical results for the groundwater sample collected from monitoring well MW-1 show that ethylbenzene was detected at .0089 (J) mg/l. The ethylbenzene results in this sample is less than the COGCC Table 910-1 concentration level for these compounds. Concentrations of benzene, toluene, xylenes, and GRO were reportedly not detected above the laboratory reporting limit.

The analytical results for groundwater samples collected from monitoring wells MW-2, MW-3, MW-4, MW-5, and MW-6 show that BTEX, GRO, and PAH were not detected above laboratory reporting limits or method detection limits. The presence of DRO was detected in all sampled monitoring wells and ranged from 1.21 mg/l in MW-4 to 8.57 in MW-1 mg/l. The COGCC Table 910-1 does not have groundwater standards for DRO since it is not compound specific.

Inorganic Results

The inorganic results for the MW-1 groundwater sample showed that chloride was detected at 2.7 mg/l, TDS at 470 mg/l, and sulfate at 2.6 mg/l. The inorganic compound results for the MW-2 groundwater sample showed that chloride was detected at 1.0 mg/l, TDS were reported at 230 mg/l, and sulfate was reported at 4.0 mg/l. The inorganic results for MW-3 showed chloride was detected at 0.51 mg/l, TDS at 130, and sulfate was reported at 2.3 mg/l.

The inorganic compound results for the MW-4 groundwater sample showed that chloride was 0.84 mg/l, TDS were reported at 144 mg/l, and sulfate was reported at 4.2 mg/l. The inorganic compound results for the MW-5 groundwater sample showed that chloride was 1.00 mg/l, TDS were reported at 150 mg/l, and sulfate was reported at 8.8 mg/l. The inorganic compound results for the MW-6 groundwater sample showed that chloride was 2.1 mg/l, TDS were reported at 168 mg/l, and sulfate was reported at 6.8 mg/l.

These inorganic parameters in COGCC Table 910-1 concentration levels are based on 1.25 times background concentrations. The inorganic parameter results for the MW-1 sample are slightly elevated with respect to the results from the groundwater samples from the other three wells, but there does not appear to be evidence of significant groundwater impacts from the operation of the produced water pits and treatment system.

The BTEX, GRO, and DRO in groundwater results are summarized on **Table 3**, and the PAH compounds in groundwater results are summarized on **Table 4**. **Figure 4** also summarizes the groundwater results for the September 22, 2014 groundwater sampling event.

3.0 SUMMARY

Olsson conducted quarterly groundwater monitoring on September 22, 2014 at the former Margaret Spaulding produced water treatment facility. The results are summarized as follows:

- The potentiometric surface map shows a gradient to the northwest toward Spring Gulch. Phase separated hydrocarbons were not detected in any of the monitoring wells.
- Groundwater sample results collected from MW-1 showed that benzene, toluene, and xylenes were not detected above the laboratory reporting limits. Ethylbenzene was reported at 0.0089 with J qualifier flag, indicating that it was estimated above the method detection limit, but was below the laboratory reporting limit.
- Groundwater samples collected from MW-2, MW-3, MW-4, MW-5 and MW-6 were submitted for analysis of BTEX. The results show that benzene, toluene, ethylbenzene and xylenes were not detected above the laboratory reporting limits in these samples.
- Groundwater samples collected from all wells were submitted for analysis of GRO and DRO. The total petroleum hydrocarbon content in groundwater was assessed as an indication of subsurface soil impacts beneath the pits. The laboratory report showed that GRO was not detected in any of the groundwater samples. The DRO results for the groundwater samples from these wells ranged from 0.399 mg/l to 8.57 mg/l. Table 3 presents BTEX and TPH data. The COGCC Table 910-1 does not have a concentration for DRO in groundwater; but the DRO concentration in soil is 500 mg/kg. Groundwater does not appear to be significantly impacted at the site.
- Groundwater samples from MW-1, MW-2, MW-3 and MW-4 were submitted for analysis of PAH compounds. The laboratory results show that PAH compounds were not detected above the laboratory method detection limits or the laboratory reporting limits in MW-2, MW-3 AND MW-4. Laboratory results for MW-1 indicate acenaphthene at 0.00038 mg/l, chrysene at 0.00017 mg/l and indeno (1,2,3-cd) pyrene at 0.000071 mg/l.
- Groundwater samples submitted for analysis of chlorides, TDS, and sulfate during the June 2014 event show that the TDS results reported in the MW-1 sample were slightly elevated as compared to the results for the groundwater sample results reported for the other three wells. However, the results do not indicate that groundwater has been significantly impacted in the vicinity of the former Margaret Spaulding produced water treatment system.

Quarterly groundwater sampling will continue to assess groundwater conditions until all the pits are decommissioned. Since the previous sampling results do not show significant impacts to groundwater, Olsson and CM Production propose to reduce the sampling to Table 910-1 groundwater analytes to show that impact to groundwater is not occurring or migrating offsite, and either discontinue groundwater monitoring, or reduce the frequency to semi-annual monitoring, if the results of the fourth quarter 2014 monitoring event do not show impacts.

5.0 REFERENCES

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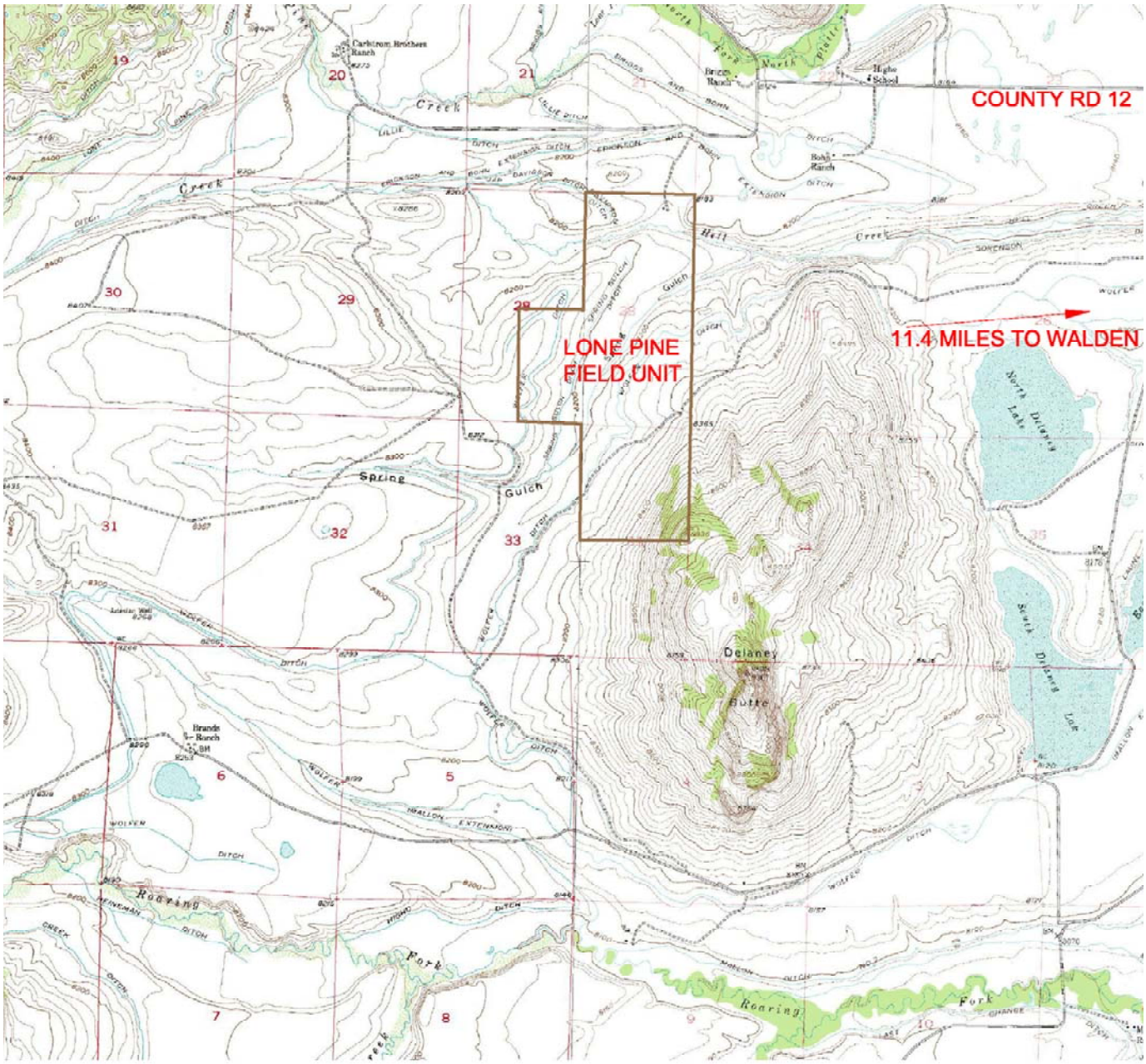
FIGURES



LOCATION MAP

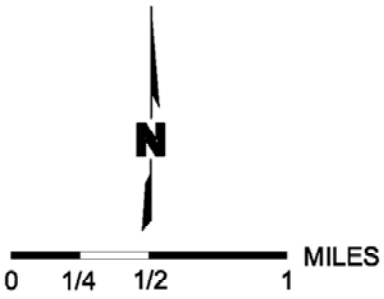


FIGURE 1

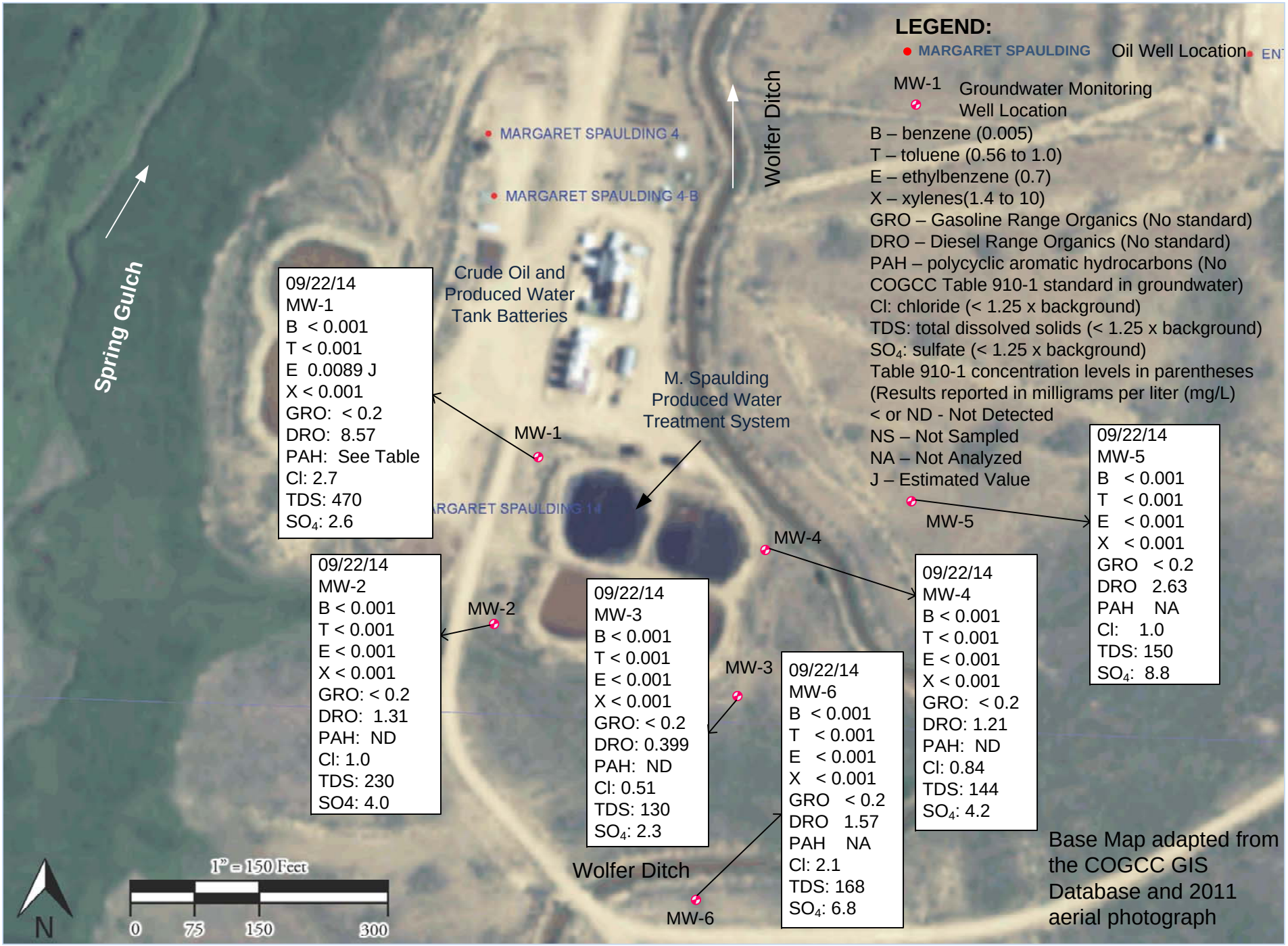
GENERAL SITE LOCATION MAP
CM Production, LLC
Lone Pine Field, Jackson County, Colorado

Revision Date:	09/18/14
Revision Number	
Revised by:	JWH
Approved by:	
Project Number:	013-1489
Scale:	As Shown

OLSSON ASSOCIATES

PROJECT NO: 013-1489 DRAWN BY: JWH DATE: 09/18/2014	Groundwater Monitoring Wells Map CM Production, LLC Lone Pine Field, Jackson County, Colorado	OLSSON ASSOCIATES 4690 Table Mountain Drive #200 Golden, Colorado 80403 TEL 303.237.2072 FAX 303.237.2659	FIGURE 2

PROJECT NO: 013-1489 DRAWN BY: NG DATE: 11/12/14	Potentiometric Surface Map – September, 2014 CM Production, LLC Lone Pine Field, Jackson County, Colorado	OLSSON ASSOCIATES 4690 Table Mountain Drive #200 Golden, Colorado 80403 TEL 303.237.2072 FAX 303.237.2659	FIGURE 3



PROJECT NO: 013-1489 DRAWN BY: JWH DATE: 12/6/14	Groundwater Analytical Results – September 22, 2014 CM Production, LLC Lone Pine Field, Jackson County, Colorado	OLSSON ASSOCIATES 4690 Table Mountain Drive #200 Golden, Colorado 80403 TEL 303.237.2072 FAX 303.237.2659	FIGURE 4

TABLES

TABLE 1

Summary of Fluid Level Measurements

CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID#	Date Measured	Northing	Easting	Depth to Product (feet)	Depth to Water (feet)	Total Depth (feet)	Water Column (feet)	Measuring Point Elevation (ft-amsl)	Calculated Groundwater Elevation (ft - amsl)
MW-1	7/12/2012	4403030.111	506765.951		19.00			8227.34	8208.34
	9/19/2013			ND	22.18	30.99	8.81		8205.16
	11/20/2013			ND	23.16		7.83		8204.18
	3/25/2014			ND	24.57		6.42		8202.77
	6/26/2014			ND	20.26		10.73		8207.08
	9/22/2014			ND	22.46		8.53		8204.88
MW-2	7/12/2012	4403049.744	506765.848		10.01			8219.87	8209.86
	9/1/9/2013			ND	13.33	24.87	11.54		8206.54
	11/20/2013			ND	14.26		10.61		8205.61
	3/25/2014			NM	NM	NM	NM		NM
	6/26/2014			ND	11.22		13.65		8208.65
	9/22/2014			ND	13.70		11.17		8206.17
MW-3	7/12/2012	4403107.371	506677.024		17.38			8229.00	8211.62
	9/19/2013			ND	22.13	34.35	12.22		8206.87
	11/20/2013			ND	23.24		11.11		8205.76
	3/25/2014			ND	24.87		9.48		8204.13
	6/26/2014			ND	18.82		15.53		8210.18
	9/22/2014			ND	22.19		12.16		8206.81
MW-4	7/12/2012	4403109.303	506751.803		24.77			8235.71	8210.94
	9/19/2013			ND	29.71	42.50	12.79		8206.00
	11/20/2013			ND	30.90		11.60		8204.81
	3/24/2014			ND	32.56		9.94		8203.15
	6/26/2014			ND	26.67		15.83		8209.04
	9/22/2014			ND	29.84		12.66		8205.87
MW-5	7/12/2012	4403107.537	506790.649		34.37			8244.96	8210.59
	9/19/2013			ND	34.27	42.70	8.43		8210.69
	11/20/2013			ND	40.56		2.14		8204.40
	3/25/2014			NM	NM	NM	NM		NM
	6/26/2014			ND	35.56		7.14		8209.40
	9/22/2014			ND	39.45		3.25		8205.51
MW-6	7/12/2012	4402964.351	506739.099		34.37			8242.23	8207.86
	9/19/2013			ND	39.42	47.55	8.13		8202.81
	11/20/2013			ND	35.28		12.27		8206.95
	3/25/2014			ND	36.81		10.74		8205.42
	6/26/2014			ND	30.45		17.10		8211.78
	9/22/2014			ND	34.20		13.35		8208.03

ft - amsl fee above mean sea level
ND Not Detected

Montioring wells were installed and surveyed by North Park Engineering - R. Miller on 06/18/2012.
Coordinate System - UTM Zone 13/NAD 1983
North Park Engineering measured groundwater in the montioring wells on 07/12/2012.

Olsson Associates measured fluid levels in the montioring wells on 09/19/2013, 11/20/2013, 3/25/2014, 6/26/2014, and 9/22/2014.

TABLE 2

Field Parameter Measurements

CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID#	Date Measured	Temperature (°C)	pH (s.u.)	D.O. (mg/l)	Specific Conductance (µmohs/cm)	ORP
MW-1	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	12.45	7.48	0.44	0.773	-69.0
	3/25/2014	10.97	7.37	1.42	0.468	-80.0
	6/26/2014	9.82	5.92	0.80	0.682	-126.40
	9/22/2014	10.80	7.04	0.85	0.474	-71.80
MW-2	7/12/2012	NM	NM	NM	NM	NM
	9/1/9/2013	NM	NM	NM	NM	NM
	11/20/2013	8.98	7.51	4.61	0.172	59.0
	3/25/2014	NM	NM	NM	NM	NM
	6/26/2014	6.72	6.71	6.58	0.182	137.8
	9/22/2014	10.59	7.25	5.12	0.181	117.9
MW-3	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	8.17	7.69	6.67	0.143	62.0
	3/25/2014	6.79	7.73	1.31	0.197	49.9
	6/26/2014	7.14	7.00	7.95	0.988	168.7
	9/22/2014	7.98	7.77	2.47	0.150	109.3
MW-4	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	8.70	6.54	6.92	0.145	89.8
	3/25/2014	8.06	7.53	2.31	0.202	38.3
	6/26/2014	7.77	5.80	7.22	0.192	158.4
	9/22/2014	7.68	6.95	3.02	0.178	140.6
MW-5	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	NM	NM	NM	NM	NM
	3/25/2014	NM	NM	NM	NM	NM
	6/26/2014	8.54	6.42	6.80	0.277	131.3
	9/22/2014	8.15	7.56	5.21	0.226	88.6
MW-6	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	NM	NM	NM	NM	NM
	3/25/2014	7.12	7.47	1.27	0.191	41.6
	6/26/2014	8.07	6.62	1.71	0.235	140.7
	9/22/2014	7.76	7.98	1.11	0.232	89.6

°C - temperature in degrees Celsius
pH (s.u.) - pH measurement in standard units
D.O. - dissolved oxygen in milligrams per liter (mg/l)
Specific Conductance in micromohs per centimeter (µmohs/cm)
ORP - Oxidation reduction potential

TABLE 3

Groundwater Analtyical Results
Summary of Volatile Organic Compounds and Total Petroleum Hydrocarbons

CM Production Inc. - Lone Pine Field Pits

Station ID#	Date Sampled	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)
COGCC 910-1		**0.005**	**0.56**	**0.7**	**1.4**	**N/A**	**N/A**
MW-1	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	4.3
	1/8/2013	< 0.001	0.0032	< 0.001	< 0.001	0.057	2.1
	9/19/2013	< 0.001	< 0.002	0.00073 J	< 0.001	NA	26.8
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	6.5
	3/25/2014	< 0.001	< 0.001	< 0.002	< 0.001	NA	2.26
	6/26/2014	0.0029	< 0.001	0.0081	< 0.001	< 0.2	6.6
	9/22/2014	< 0.001	< 0.001	0.0089 J	< 0.001	< 0.2	8.57
MW-2	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	1.1
	1/8/2013	< 0.001	0.0029	< 0.001	< 0.001	< 0.040	< 1.0
	9/1/9/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	< 0.40
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	2.5
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	1.48
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.31
MW-3	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	3.9
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 1.0
	3/25/2014	< 0.001	< 0.002	< 0.002	< 0.003	NA	0.441
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	0.418
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	0.399
MW-4	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	1.2
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	1.7
	3/25/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	3.12
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	1.65
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.21
MW-5	4/17/2012	NS	NS	NS	NS	NS	NS
	1/8/2013	NS	NS	NS	NS	NS	NS
	2/5/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	2.63
MW-6	4/17/2012	NS	NS	NS	NS	NS	NS
	1/8/2013	NS	NS	NS	NS	NS	NS
	2/5/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.57

COGCC 910-1	Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels
mg/L	milligrams per liter
N/A	Not Applicable (COGCC has not established a Table 910-1 Concentration Level for GRO or DRO in Groundwater)
< or ND	Not Detected
NA	Not Analyzed
NS	Not Sampled

TABLE 4

Groundwater Analtyical Results
Semi-Volatile Organic Compounds - Polycyclic Aromatic Hydrocarbons

CM Production Inc. - Lone Pine Field Pits

Station ID#	Date Sampled	Acenaphthene (mg/l)	Antracene (mg/l)	Benzo(a) anthrocene (mg/l)	Benzo(b) fluoranthene (mg/l)	Benzo(a) pyrene (mg/l)	Chrysene (mg/l)	Dibenzo(a,h) anthracene (mg/l)	Fluoranthene (mg/l)	Fluorene (mg/l)	Indeno (1,2,3-cd) pyrene (mg/l)	Naphthalene (mg/l)	Pyrene (mg/l)	DRO (mg/l)
COGCC 910-1		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CDPHE-WQCC Reg 41		0.42	2.1	0.000048	0.000048	0.000048	0.000048	0.000048	0.28	0.28	0.000048	0.14	0.21	NE
MW-1	9/19/2013	0.0003	< 0.00019	< 0.000095	< 0.000095	< 0.00019	0.00014	< 0.000095	< 0.00019	0.002	< 0.00019	0.00036	< 0.00019	26.8
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6.5
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	2.26
	6/26/2014	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	6.6
	9/22/2014	0.00038	< 0.00019	< 0.000095	< 0.000095	< 0.000095	0.00017	< 0.000095	< 0.00019	< 0.00019	0.000071	< 0.00019	< 0.0019	8.57
MW-2	9/1/9/2013	< 0.00038	< 0.00038	< 0.00019	< 0.00019	< 0.00038	< 0.00019	< 0.00019	< 0.00038	< 0.00038	< 0.00039	< 0.00039	< 0.00038	< 0.40
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.5
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	1.48
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	1.31
MW-3	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.000019	<0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	0.441
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.418
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	0.399
MW-4	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.7
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	3.12
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.65
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	1.21
MW-5	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2.63
MW-6	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.57

:OGCC 910- Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels
mg/L milligrams per liter
N/A Not Applicable - Total PAH (polycyclic aromatic hydrocarbons)
NE None Established - the COGCC has Table 910-1 Concentration Levels for PAHs in soil, but has not established PAH concentrations in Groundwater
< Not Detected above the laboratory reporting limit
NS Not Sampled
Note: Upgradient wells MW-5 and MW-6 were not sampled.

TABLE 5

Summary of Inorganic Compounds in Groundwater

CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID#	Date Measured	Chloride (mg/L)	TDS (mg/L)	Sulfate (mg/L)
COGCC T 910-1		**< 1.25 x background**	**< 1.25 x background**	**< 1.25 x background**
MW-1	4/17/2012	9.41	360	3.43
	9/19/2013	NS	NS	NS
	11/20/2013	NS	NS	NS
	3/25/2014	NS	NS	NS
	6/26/2014	4.6	452	2.5
	9/22/2014	2.7	470	2.6
MW-2	4/17/2012	1.71	120	4.48
	9/1/9/2013	NS	NS	NS
	11/20/2013	NS	NS	NS
	3/25/2014	NS	NS	NS
	6/26/2014	1.3	156	6.0
	9/22/2014	1.0	230	4.0
MW-3	4/17/2012	6.8	160	10.04
	9/19/2013	NS	NS	NS
	11/20/2013	NS	NS	NS
	3/25/2014	NS	NS	NS
	6/26/2014	0.93	133	4.9
	9/22/2014	0.51	130	2.3
MW-4	4/17/2012	6.34	160	4.47
	9/19/2013	NS	NS	NS
	11/20/2013	NS	NS	NS
	3/25/2014	NS	NS	NS
	6/26/2014	2.3	134	4.7
	9/22/2014	0.84	144	4.2
MW-5	4/17/2012	NS	NS	NS
	9/19/2013	NS	NS	NS
	11/20/2013	NS	NS	NS
	3/25/2014	NS	NS	NS
	6/26/2014	NS	NS	NS
	9/22/2014	1.0	150	8.8
MW-6	4/17/2012	NS	NS	NS
	9/19/2013	NS	NS	NS
	11/20/2013	NS	NS	NS
	3/25/2014	NS	NS	NS
	6/26/2014	NS	NS	NS
	9/22/2014	2.1	168	6.8

mg/L milligrams per liter
ND Not Detected
NS Not Sampled

APPENDIX A
September 2014
Groundwater Analytical Results

Mountain States ACCUTEST LABORATORIES

11/12/14

Technical Report for

Olsson Associates - Denver

CM Production-Lone Pine Excav.

Accutest Job Number: D62633

Sampling Date: 09/23/14

Report to:

Olsson Associates - Denver

ngraber@olssonassociates.com

ATTN: Nikki Graber

Total number of pages in report: **40**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

Sections: 1 2 3 4 5

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Sample Summary

Olsson Associates - Denver

CM Production-Lone Pine Excav.

Job No: D62633

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D62633-1	09/23/14	13:24	NG	09/24/14	AQ	Ground Water	MW1
D62633-2	09/23/14	16:44	NG	09/24/14	AQ	Ground Water	MW2
D62633-3	09/23/14	14:53	NG	09/24/14	AQ	Ground Water	MW3
D62633-4	09/23/14	14:16	NG	09/24/14	AQ	Ground Water	MW4
D62633-5	09/23/14	15:44	NG	09/24/14	AQ	Ground Water	MW5
D62633-6	09/23/14	16:19	NG	09/24/14	AQ	Ground Water	MW6
D62633-7	09/23/14	00:00	NG	09/24/14	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Olsson Associates - Denver	**Job No**	D62633
Site:	CM Production-Lone Pine Excav.	**Report Date**	10/1/2014 3:15:57 PM

On 09/24/2014, 6 sample(s), 1 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D62633 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** V3V1904

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D62572-1DUP, D62573-1MS were used as the QC samples indicated.

Matrix: AQ **Batch ID:** V7V1559

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60539-11DUP, D60539-12MS were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: AQ **Batch ID:** OP10707

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60539-7MS, D60539-7MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix: AQ **Batch ID:** OP10702

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60539-2MS, D60539-2MSD were used as the QC samples indicated.

Metals By Method EPA 200.8

Matrix: AQ **Batch ID:** MP14121

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D62653-1FAMS, D62653-1FAMSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ **Batch ID:** GP13621

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D62633-3MS, D62633-3MSD were used as the QC samples for the Chloride, Sulfate, Chloride analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix: AQ **Batch ID:** GN26638

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D62633-5DUP were used as the QC samples for the Solids, Total Dissolved analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D62633
Account: Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.
Collected: 09/23/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D62633-1	**MW1**					
Ethylbenzene		0.89 J	1.0	0.31	ug/l	SW846 8260B
Acenaphthene		0.38	0.19	0.048	ug/l	SW846 8270C BY SIM
Chrysene		0.17	0.095	0.048	ug/l	SW846 8270C BY SIM
Fluorene		1.6	0.19	0.048	ug/l	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene		0.071 J	0.095	0.048	ug/l	SW846 8270C BY SIM
Phenanthrene		0.63	0.19	0.048	ug/l	SW846 8270C BY SIM
TPH-DRO (C10-C28)		8.57	0.19	0.17	mg/l	SW846-8015B
Iron		30100	20		ug/l	EPA 200.8
Chloride		2.7	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		470	10		mg/l	SM 2540C-2011
Sulfate		2.6	0.50		mg/l	EPA 300.0/SW846 9056
D62633-2	**MW2**					
TPH-DRO (C10-C28)		1.31	0.19	0.17	mg/l	SW846-8015B
Iron		29200	20		ug/l	EPA 200.8
Chloride		1.0	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		230	10		mg/l	SM 2540C-2011
Sulfate		4.0	0.50		mg/l	EPA 300.0/SW846 9056
D62633-3	**MW3**					
TPH-DRO (C10-C28)		0.399	0.19	0.17	mg/l	SW846-8015B
Iron		49100	20		ug/l	EPA 200.8
Chloride		0.51	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		130	10		mg/l	SM 2540C-2011
Sulfate		2.3	0.50		mg/l	EPA 300.0/SW846 9056
D62633-4	**MW4**					
TPH-DRO (C10-C28)		1.21	0.19	0.17	mg/l	SW846-8015B
Iron		64700	20		ug/l	EPA 200.8
Chloride		0.84	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		144	10		mg/l	SM 2540C-2011
Sulfate		4.2	0.50		mg/l	EPA 300.0/SW846 9056
D62633-5	**MW5**					
TPH-DRO (C10-C28)		2.63	0.19	0.17	mg/l	SW846-8015B
Iron		27700	20		ug/l	EPA 200.8
Chloride		1.0	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		150	10		mg/l	SM 2540C-2011
Sulfate		8.8	0.50		mg/l	EPA 300.0/SW846 9056

Summary of Hits

Job Number: D62633
Account: Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.
Collected: 09/23/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D62633-6	**MW6**					
TPH-DRO (C10-C28)		1.57	0.19	0.17	mg/l	SW846-8015B
Iron		74800	20		ug/l	EPA 200.8
Chloride		2.1	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		168	10		mg/l	SM 2540C-2011
Sulfate		6.8	0.50		mg/l	EPA 300.0/SW846 9056
D62633-7	**TRIP BLANK**					

No hits reported in this sample.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW1		
Lab Sample ID:	D62633-1	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V28654.D	1	09/25/14	EV	n/a	n/a	V7V1559
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics+ GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	0.89	1.0	0.31	ug/l	J
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	98%		62-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	101%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW1		
Lab Sample ID:	D62633-1	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G21575.D	1	09/30/14	AR	09/26/14	OP10707	E3G1072
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.38	0.19	0.048	ug/l	
208-96-8	Acenaphthylene	ND	0.19	0.048	ug/l	
120-12-7	Anthracene	ND	0.19	0.048	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.095	0.048	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.095	0.067	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.095	0.076	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.19	0.057	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.095	0.048	ug/l	
218-01-9	Chrysene	0.17	0.095	0.048	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.095	0.048	ug/l	
206-44-0	Fluoranthene	ND	0.19	0.076	ug/l	
86-73-7	Fluorene	1.6	0.19	0.048	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.071	0.095	0.048	ug/l	J
90-12-0	1-Methylnaphthalene	ND	0.19	0.071	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.19	0.071	ug/l	
91-20-3	Naphthalene	ND	0.19	0.13	ug/l	
85-01-8	Phenanthrene	0.63	0.19	0.048	ug/l	
129-00-0	Pyrene	ND	0.19	0.048	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%		12-130%
321-60-8	2-Fluorobiphenyl	70%		18-130%
1718-51-0	Terphenyl-d14	52%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW1		
Lab Sample ID:	D62633-1	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD35711.D	1	09/26/14	JJ	09/26/14	OP10702	GFD1635
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	8.57	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	63%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW1		
Lab Sample ID:	D62633-1	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	30100	20	ug/l	2	09/26/14	10/01/14	NT	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA5308
(2) Prep QC Batch: MP14121

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW1		
Lab Sample ID:	D62633-1	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2.7	0.50	mg/l	1	09/25/14 13:53	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	470	10	mg/l	1	09/25/14	AK	SM 2540C-2011
Sulfate	2.6	0.50	mg/l	1	09/25/14 13:53	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW2		
Lab Sample ID:	D62633-2	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V28655.D	1	09/25/14	EV	n/a	n/a	V7V1559
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics+ GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	99%		62-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	99%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW2		
Lab Sample ID:	D62633-2	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G21576.D	1	09/30/14	AR	09/26/14	OP10707	E3G1072
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.19	0.048	ug/l	
208-96-8	Acenaphthylene	ND	0.19	0.048	ug/l	
120-12-7	Anthracene	ND	0.19	0.048	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.095	0.048	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.095	0.067	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.095	0.076	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.19	0.057	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.095	0.048	ug/l	
218-01-9	Chrysene	ND	0.095	0.048	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.095	0.048	ug/l	
206-44-0	Fluoranthene	ND	0.19	0.076	ug/l	
86-73-7	Fluorene	ND	0.19	0.048	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.095	0.048	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.19	0.071	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.19	0.071	ug/l	
91-20-3	Naphthalene	ND	0.19	0.13	ug/l	
85-01-8	Phenanthrene	ND	0.19	0.048	ug/l	
129-00-0	Pyrene	ND	0.19	0.048	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		12-130%
321-60-8	2-Fluorobiphenyl	75%		18-130%
1718-51-0	Terphenyl-d14	47%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW2		
Lab Sample ID:	D62633-2	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD35713.D	1	09/26/14	JJ	09/26/14	OP10702	GFD1635
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.31	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	68%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW2		
Lab Sample ID:	D62633-2	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	29200	20	ug/l	2	09/26/14	10/01/14	NT	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA5308
(2) Prep QC Batch: MP14121

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW2		
Lab Sample ID:	D62633-2	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	1.0	0.50	mg/l	1	09/25/14 14:08	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	230	10	mg/l	1	09/25/14	AK	SM 2540C-2011
Sulfate	4.0	0.50	mg/l	1	09/25/14 14:08	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW3		
Lab Sample ID:	D62633-3	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V28656.D	1	09/25/14	EV	n/a	n/a	V7V1559
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics+ GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		62-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	100%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW3		
Lab Sample ID:	D62633-3	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G21577.D	1	09/30/14	AR	09/26/14	OP10707	E3G1072
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.19	0.048	ug/l	
208-96-8	Acenaphthylene	ND	0.19	0.048	ug/l	
120-12-7	Anthracene	ND	0.19	0.048	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.096	0.048	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.096	0.067	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.096	0.077	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.19	0.058	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.096	0.048	ug/l	
218-01-9	Chrysene	ND	0.096	0.048	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.096	0.048	ug/l	
206-44-0	Fluoranthene	ND	0.19	0.077	ug/l	
86-73-7	Fluorene	ND	0.19	0.048	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.096	0.048	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.19	0.072	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.19	0.072	ug/l	
91-20-3	Naphthalene	ND	0.19	0.13	ug/l	
85-01-8	Phenanthrene	ND	0.19	0.048	ug/l	
129-00-0	Pyrene	ND	0.19	0.048	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		12-130%
321-60-8	2-Fluorobiphenyl	76%		18-130%
1718-51-0	Terphenyl-d14	49%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW3
Lab Sample ID: D62633-3
Matrix: AQ - Ground Water
Method: SW846-8015B SW846 3510C
Project: CM Production-Lone Pine Excav.

Date Sampled: 09/23/14
Date Received: 09/24/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD35715.D	1	09/26/14	JJ	09/26/14	OP10702	GFD1635
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	0.399	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	51%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW3		
Lab Sample ID:	D62633-3	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	49100	20	ug/l	2	09/26/14	10/01/14	NT	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA5308
(2) Prep QC Batch: MP14121

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW3		
Lab Sample ID:	D62633-3	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	0.51	0.50	mg/l	1	09/25/14 14:22	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	130	10	mg/l	1	09/25/14	AK	SM 2540C-2011
Sulfate	2.3	0.50	mg/l	1	09/25/14 14:22	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW4		
Lab Sample ID:	D62633-4	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V28657.D	1	09/25/14	EV	n/a	n/a	V7V1559
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics+ GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		62-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	100%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW4		
Lab Sample ID:	D62633-4	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G21578.D	1	09/30/14	AR	09/26/14	OP10707	E3G1072
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.19	0.048	ug/l	
208-96-8	Acenaphthylene	ND	0.19	0.048	ug/l	
120-12-7	Anthracene	ND	0.19	0.048	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.096	0.048	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.096	0.067	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.096	0.077	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.19	0.057	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.096	0.048	ug/l	
218-01-9	Chrysene	ND	0.096	0.048	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.096	0.048	ug/l	
206-44-0	Fluoranthene	ND	0.19	0.077	ug/l	
86-73-7	Fluorene	ND	0.19	0.048	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.096	0.048	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.19	0.072	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.19	0.072	ug/l	
91-20-3	Naphthalene	ND	0.19	0.13	ug/l	
85-01-8	Phenanthrene	ND	0.19	0.048	ug/l	
129-00-0	Pyrene	ND	0.19	0.048	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	72%		12-130%
321-60-8	2-Fluorobiphenyl	76%		18-130%
1718-51-0	Terphenyl-d14	63%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW4		
Lab Sample ID:	D62633-4	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD35700.D	1	09/26/14	JJ	09/26/14	OP10702	GFD1634
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.21	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	50%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW4		
Lab Sample ID:	D62633-4	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	64700	20	ug/l	2	09/26/14	10/01/14	NT	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA5308
(2) Prep QC Batch: MP14121

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW4		
Lab Sample ID:	D62633-4	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	0.84	0.50	mg/l	1	09/25/14 14:36	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	144	10	mg/l	1	09/25/14	AK	SM 2540C-2011
Sulfate	4.2	0.50	mg/l	1	09/25/14 14:36	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW5		
Lab Sample ID:	D62633-5	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V28658.D	1	09/25/14	EV	n/a	n/a	V7V1559
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics+ GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	100%		62-130%
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	100%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW5
Lab Sample ID: D62633-5
Matrix: AQ - Ground Water
Method: SW846-8015B SW846 3510C
Project: CM Production-Lone Pine Excav.

Date Sampled: 09/23/14
Date Received: 09/24/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD35702.D	1	09/26/14	JJ	09/26/14	OP10702	GFD1634
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2.63	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	60%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW5		
Lab Sample ID:	D62633-5	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	27700	20	ug/l	2	09/26/14	10/01/14	NT	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA5308
(2) Prep QC Batch: MP14121

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW5		
Lab Sample ID:	D62633-5	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	1.0	0.50	mg/l	1	09/25/14 17:12	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	150	10	mg/l	1	09/25/14	AK	SM 2540C-2011
Sulfate	8.8	0.50	mg/l	1	09/25/14 17:12	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW6		
Lab Sample ID:	D62633-6	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7V28659.D	1	09/25/14	EV	n/a	n/a	V7V1559
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics+ GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	
	TPH-GRO (C6-C10)	ND	200	200	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	101%		62-130%
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	100%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW6		
Lab Sample ID:	D62633-6	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
Method:	SW846-8015B SW846 3510C	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD35704.D	1	09/26/14	JJ	09/26/14	OP10702	GFD1634
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.57	0.19	0.17	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	51%		10-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW6		
Lab Sample ID:	D62633-6	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Iron	74800	20	ug/l	2	09/26/14	10/01/14	NT	EPA 200.8 [1]	EPA 200.8 [2]

(1) Instrument QC Batch: MA5308
(2) Prep QC Batch: MP14121

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW6		
Lab Sample ID:	D62633-6	**Date Sampled:**	09/23/14
Matrix:	AQ - Ground Water	**Date Received:**	09/24/14
		Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2.1	0.50	mg/l	1	09/25/14 17:26	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	168	10	mg/l	1	09/25/14	AK	SM 2540C-2011
Sulfate	6.8	0.50	mg/l	1	09/25/14 17:26	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	D62633-7	**Date Sampled:**	09/23/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	09/24/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V32795.D	1	09/24/14	BR	n/a	n/a	V3V1904
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.80	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.31	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.89	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	103%		62-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	92%		69-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY- COGCC Rule 609/318A

PAGE 1 OF 1

ACCUTEST LABORATORIES

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL. 303-425-6021 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking #

Bottle Order Control #

Accutest Quote # JM5_2014_498

Accutest Job # D62633

Client / Reporting Information

Company Name: Olsson
Street Address:
City:
Project Contact: James Hix
Phone #: 303-374-3139
Sampler(s) Name(s): Nikki Graber

Project Information

Project Name: Lone Pine
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager: James Hix

Billing Information (if different from Report to)

Company Name:
Street Address:
City:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	BTEX	GRO	DRO	Total Iron	TDS	Chloride	Sulfate	PAH	LAB USE ONLY
	MW1		9/23/14	1324	NG	GW	14									X	X	X	X	X	X	X	X	01
	MW2			1644			14									X	X	X	X	X	X	X	X	02
	MW3			1453			14									X	X	X	X	X	X	X	X	03
	MW4			1416			14									X	X	X	X	X	X	X	X	04
	MW5			1544			12									X	X	X	X	X	X	X		05
	MW6			1619			12									X	X	X	X	X	X	X		06
	Trip blank															X								07

Turnaround Time (Business days)

- [X] 7 Business Day Turn
- [ ] 5 Business Day Turn
- [ ] 4 Day Emergency
- [ ] 3 Day Emergency
- [ ] 2 Day Emergency
- [ ] 1 Day Emergency
- [ ] Emergency & Rush T/A date available VIA Lablink

Approved By (Accutest PM): / Date:

7 Bus. Day Std. turn approved by JGM

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [X] COMMBN
- [ ] COMMBN+
- [ ] State Forms Required
- [ ] Send Forms to State
- [ ] Report by Fax
- [X] Report by PDF
- [X] EDD Format (EnviroData 2010)

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial BN = Results/QC Summary (+ = chromatograms)

Comments / Special Instructions

Lab Filter dissolved metals (200.7/200.8)
Run Dissolved Methane within 48 hours of sample collection-
Process appropriate rush based on sample receipt date/time
Reprt to: ngraber@olssonassociates.com
PAH by 8310, SAR, SLM
Hold Isotopic/comp. analysis pending Methane results-
Subcontract analysis if Methane > 1mg/L

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		9/24 1312	1	9/24/14 1312	2 9/24/14 1500	2 9/24/14 1507
3	Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
	Relinquished by:	Date Time:	Received By:	Custody Seal #	Intact	Preserved where applicable

On Ice: Cooler Temp: 2 4.8C

D62633: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D62633 **Client:** OLSSON **Project:** LONE PINE

Date / Time Received: 9/24/2014 3:07:00 PM **Delivery Method:** **Airbill #'s:** CO

Cooler Temps (Initial/Adjusted): 0

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

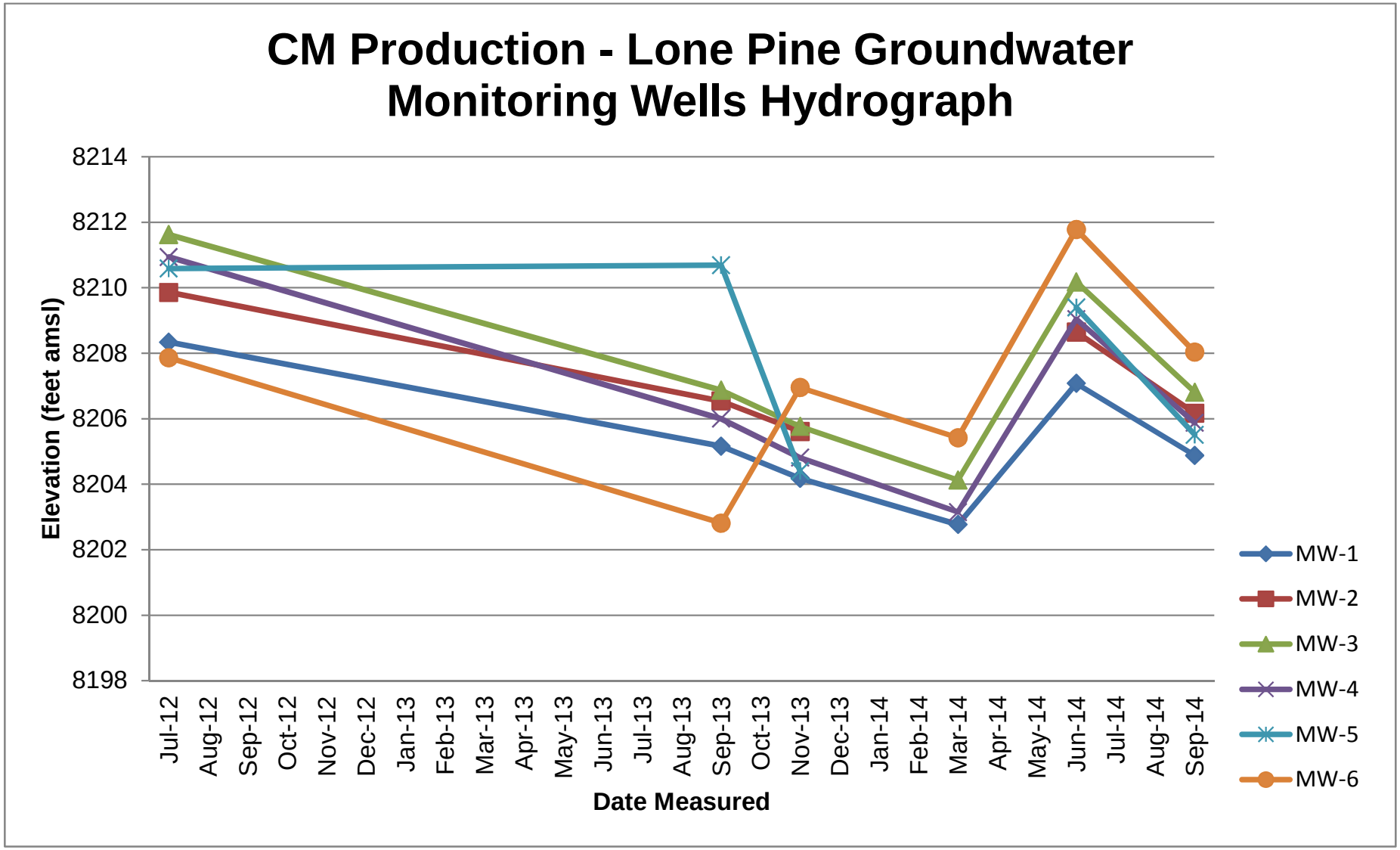
Comments

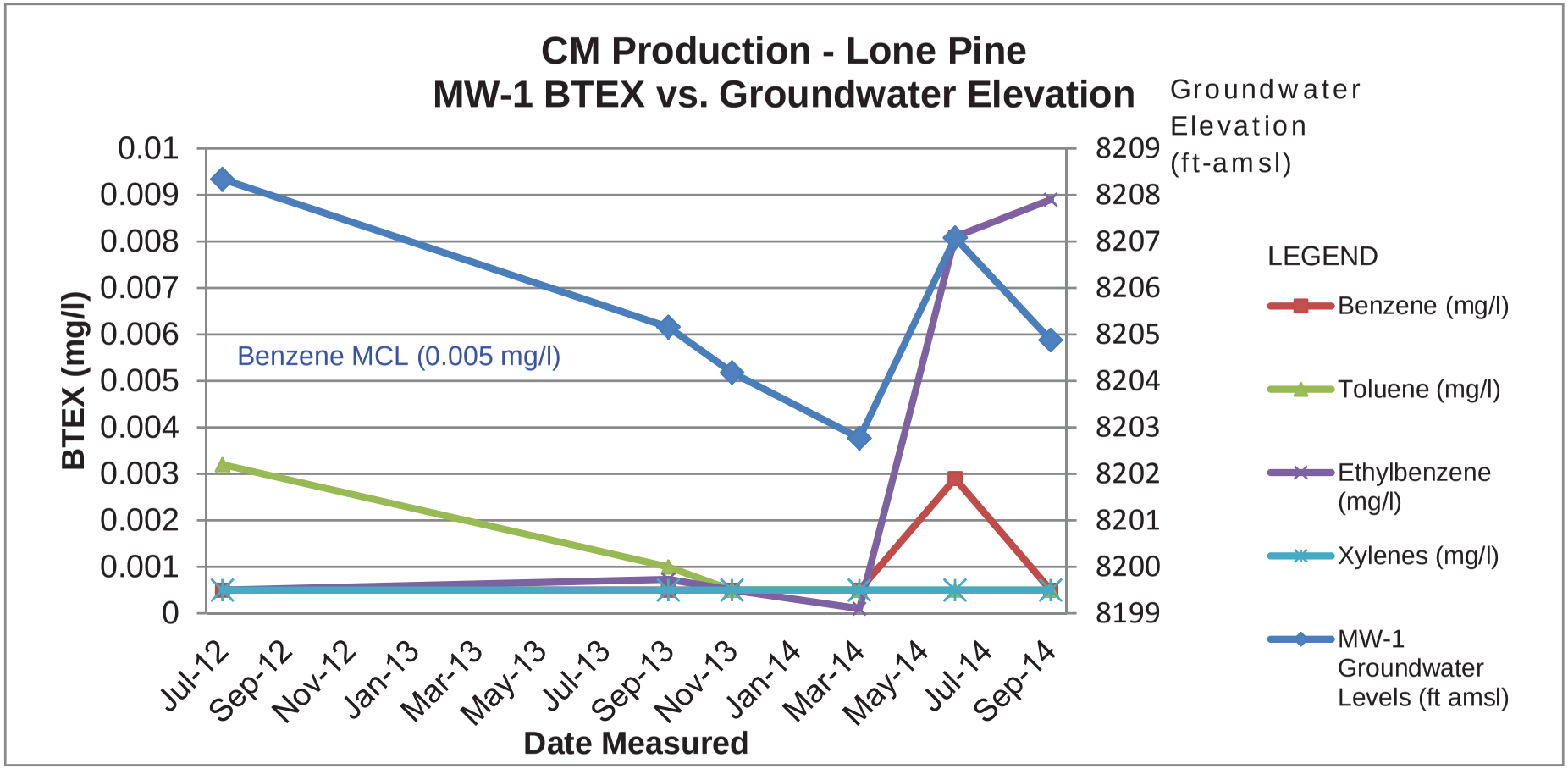
Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

APPENDIX B
Monitoring Well Hydrographs


CM Production - Lone Pine Groundwater Monitoring Wells Hydrograph
Elevation (feet amsl)
8214
8212
8210
8208
8206
8204
8202
8200
8198
Jul-12
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
Jul-14
Aug-14
Sep-14
Date Measured
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6


CM Production - Lone Pine
MW-1 BTEX vs. Groundwater Elevation
BTEX (mg/l)
0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
Benzene MCL (0.005 mg/l)
Groundwater Elevation (ft-amsl)
8209
8208
8207
8206
8205
8204
8203
8202
8201
8200
8199
Jul-12
Sep-12
Nov-12
Jan-13
Mar-13
May-13
Jul-13
Sep-13
Nov-13
Jan-14
Mar-14
May-14
Jul-14
Sep-14
Date Measured
LEGEND
Benzene (mg/l)
Toluene (mg/l)
Ethylbenzene (mg/l)
Xylenes (mg/l)
MW-1 Groundwater Levels (ft amsl)