

TABLE 1
GROUNDWATER ANALYTICAL AND FIELD RESULTS
DUBACH 16-4, THESING 9-4
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
GW01	2/10/2011	4800	2100	850	12000	7	NA
MW01	3/24/2011	<1.0	<1.0	1100	12000	8.22	89.38
	6/9/2011	3900	2.5	190	6200	8.60	89.00
	9/2/2011	4500	1.6	180	8400	10.16	87.38
	12/2/2011	3200	2.8	760	7000	9.98	87.56
	3/6/2012	2400	1.5	530	5700	10.60	86.94
	6/19/2012	3600	<1.0	690	8200	9.63	87.91
	9/26/2012	2200	<1.0	620	5400	13.19	84.35
	12/21/2012	1800	1.5	660	7200	10.89	86.65
	3/29/2013	2200	1.5	410	4900	8.80	88.74
	6/27/2013	1800	1.0	590	5600	10.50	87.04
	9/10/2013	2600	<1.0	980	6900	10.79	86.75
	12/11/2013	1260	<200	416	3190	9.77	87.77
	12/17/2013	Surveyed - Not Sampled				9.88	87.75
	3/11/2014	1870	<10.0	908	2560	10.20	87.34
	6/6/2014	1370	<20.0	779	5540	6.19	91.44
	9/22/2014	1270	<20.0	812	3920	NM	NA
	12/2/2014	1030	<5.0	954	4160	8.26	89.37
	3/16/2015	668	<20.0	601	2520	8.95	88.68
	6/16/2015	735	<20.0	790	4140	10.07	87.56
	9/10/2015	66.6	<4.0	109	298	10.95	86.68
	12/17/2015	815	<4.0	643	2060	6.05	91.58
	3/30/2016	63.9	<1.0	74.0	183	7.72	89.91
	6/6/2016	556	1.31	762	1,670	10.28	87.35
	9/8/2016	582	<1.00	1,000	2,480	11.28	86.35
	12/5/2016	281	<4.00	821	1,650	9.00	88.63
	3/2/2017	421	<20.0	466	773	10.71	86.92
	6/16/2017	262	<4.00	253	550	9.25	88.38
	9/5/2017	DTW - Not Sampled				10.83	86.80
	9/12/2017	223	<4.00	349	920	10.93	86.70
	12/8/2017	108	<4.00	152	839	12.04	85.59
	3/2/2018	86.0	<4.00	177	927	10.62	87.01
MW02	3/24/2011	200	<1.0	25	4.1	8.10	89.40
	6/9/2011	23	<1.0	2.9	<1.0	8.47	89.03
	9/2/2011	69	<1.0	4.2	<1.0	10.03	87.47
	12/2/2011	170	<1.0	29	<1.0	9.92	87.58



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Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
	3/6/2012	29	<1.0	5.4	210	10.65	86.85
	6/19/2012	15	<1.0	19	1.5	9.76	87.74
	9/26/2012	5.4	<1.0	2.1	<1.0	13.20	84.30
	12/21/2012	4.6	<1.0	<1.0	<1.0	10.75	86.75
	3/29/2013	24	<1.0	<1.0	<1.0	8.50	89.00
	6/27/2013	<1.0	<1.0	<1.0	<1.0	10.35	87.15
	9/10/2013	3.2	<1.0	2.0	2.6	10.77	86.73
	12/11/2013	<1.0	<1.0	<1.0	<1.0	9.65	87.85
	12/17/2013	Surveyed - Not Sampled				9.73	87.81
	3/11/2014	<1.0	<1.0	<1.0	<1.0	10.09	87.41
	6/6/2014	<1.0	<1.0	<1.0	<1.0	5.98	91.56
	9/22/2014	<1.0	<1.0	<1.0	<1.0	NM	NA
	12/2/2014	<1.0	<1.0	<1.0	<1.0	8.04	89.50
	3/16/2015	<1.0	<1.0	<1.0	<1.0	8.80	88.74
	6/16/2015	<1.0	<1.0	<1.0	<1.0	9.85	87.69
	9/10/2015	<1.0	<1.0	<1.0	<1.0	10.75	86.79
	12/17/2015	<1.0	<1.0	<1.0	<1.0	5.93	91.61
	3/30/2016	<1.0	<1.0	<1.0	<1.0	7.62	89.92
	6/6/2016	<1.00	<1.00	<1.00	<1.00	10.16	87.38
	9/8/2016	<1.00	<1.00	<1.00	<1.00	11.18	86.36
	12/5/2016	<1.00	<1.00	<1.00	<1.00	9.14	88.40
	3/2/2017	<1.00	<1.00	<1.00	<1.00	10.59	86.95
	6/16/2017	<1.00	<1.00	<1.00	<1.00	9.00	88.54
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.74	86.80
	12/8/2017	<1.00	<1.00	<1.00	<1.00	11.88	85.66
	3/2/2018	<1.00	<1.00	<1.00	<1.00	10.55	86.99
MW03	3/24/2011	4900	<1.0	780	8700	7.08	NA
	6/9/2011	240	<1.0	82	710	7.28	NA
	9/2/2011	7900	<1.0	230	3100	9.27	NA
	12/2/2011	4900	<1.0	670	7300	8.86	NA
	3/6/2012	5900	<1.0	630	8500	9.45	NA
	6/19/2012	3700	<1.0	570	7700	8.52	NA
	9/26/2012	3900	<1.0	480	5700	12.38	NA
	12/21/2012	2600	<1.0	250	2600	9.68	NA
	3/29/2013	380	<1.0	18	440	8.13	NA
	6/27/2013	Damaged - Not Sampled				Damaged	NA
	MW03 destroyed as of 6/27/2013						



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Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)	
MW03R	9/10/2013	2900	<1.0	510	5200	9.57	86.82	
	12/11/2013	1470	<10.0	324	2620	8.97	87.42	
	12/17/2013	Surveyed - Not Sampled					8.83	87.58
	3/11/2014	2320	<10.0	490	2590	9.24	87.15	
	6/6/2014	1700	<50.0	314	2010	5.16	91.25	
	9/22/2014	1480	<10.0	347	1870	NM	NA	
	12/2/2014	1950	<10.0	474	1710	7.34	89.07	
	3/16/2015	331	<20.0	29.4	158	7.87	88.54	
	6/16/2015	931	<10.0	99.1	364	10.15	86.26	
	9/10/2015	1740	<1.0	107	321	10.07	86.34	
	12/17/2015	112	<10.0	31.1	78.1	4.31	92.10	
	3/30/2016	176	<1.0	42.2	109	5.99	90.42	
	6/6/2016	512	<1.00	234	588	9.43	86.98	
	9/8/2016	572	<1.00	136	500	10.49	85.92	
	12/5/2016	1,370	<4.00	67.6	152	6.16	90.25	
	3/2/2017	148	<10.0	78.6	69.2	PVC Blocked	NA	
	6/16/2017	108	<4.00	11.8	34.8	PVC Blocked	NA	
	9/5/2017	194	<1.00	14.1	51.7	PVC Blocked	NA	
	12/8/2017	124	<1.00	4.71	15.1	PVC Blocked	NA	
	3/2/2018	306	<1.00	7.25	23.6	PVC Blocked	NA	
MW04	3/24/2011	15	<1.0	160	2600	7.41	89.07	
	6/9/2011	17	<1.0	25	260	7.58	88.90	
	9/2/2011	46	<1.0	92	650	9.45	87.03	
	12/2/2011	110	<1.0	260	2900	9.32	87.16	
	3/6/2012	110	<1.0	120	410	9.78	86.70	
	6/19/2012	400	<1.0	450	2200	8.82	87.66	
	9/26/2012	150	<1.0	100	220	12.65	83.83	
	12/21/2012	7.5	<1.0	11	12	9.90	86.58	
	3/29/2013	<1.0	<1.0	<1.0	10	8.24	88.24	
	6/27/2013	2.6	<1.0	9.7	30	9.85	86.63	
	9/10/2013	29	<1.0	98	250	9.71	86.77	
	12/11/2013	2.0	<1.0	77.4	206	8.99	87.49	
	12/17/2013	Surveyed - Not Sampled					9.50	87.64
	3/11/2014	4.1	<1.0	111	181	9.25	87.23	
	6/6/2014	<1.0	<1.0	60.1	158	5.54	91.60	
	9/22/2014	4.3	<1.0	172	413	NM	NA	



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	12/2/2014	4.3	<2.0	55.5	112	8.31	88.83
	3/16/2015	<1.0	<1.0	21.8	35.8	8.57	88.57
	6/16/2015	<4.0	<4.0	20.4	34.5	9.80	87.34
	9/10/2015	2.1	<1.0	83.8	122	10.69	86.45
	12/17/2015	<1.0	<1.0	1.8	3.8	4.95	92.19
	3/30/2016	<1.0	<1.0	5.3	8.3	6.70	90.44
	6/6/2016	<1.00	<1.00	4.12	8.89	10.14	87.00
	9/8/2016	<1.00	<1.00	3.27	7.52	11.23	85.91
	12/5/2016	<1.00	<1.00	2.25	21.8	6.82	90.32
	3/2/2017	<1.00	<1.00	<1.00	<1.00	10.58	86.56
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.30	88.84
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.74	86.40
	12/8/2017	<1.00	<1.00	<1.00	<1.00	11.86	85.28
	3/2/2018	<1.00	<1.00	<1.00	<1.00	10.40	86.74
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MW05	3/24/2011	<1.0	<1.0	<1.0	3.3	7.99	89.12
	6/9/2011	<1.0	<1.0	<1.0	<1.0	8.19	88.92
	9/2/2011	<1.0	<1.0	<1.0	<1.0	10.14	86.97
	12/2/2011	<1.0	<1.0	<1.0	<1.0	9.91	87.20
	3/6/2012	<1.0	<1.0	<1.0	<1.0	10.43	86.68
	6/19/2012	<1.0	<1.0	<1.0	2.0	9.50	87.61
	9/26/2012	<1.0	<1.0	<1.0	<1.0	13.50	83.61
	12/21/2012	<1.0	<1.0	<1.0	<1.0	10.45	86.66
	3/29/2013	<1.0	<1.0	<1.0	<1.0	8.77	88.34
	6/27/2013	<1.0	<1.0	<1.0	<1.0	10.45	86.66
	9/10/2013	<1.0	<1.0	<1.0	<1.0	10.33	86.78
	12/11/2013	<1.0	<1.0	<1.0	<1.0	9.60	87.51
	12/17/2013	Surveyed - Not Sampled				9.64	87.66
	3/11/2014	<1.0	<1.0	<1.0	<1.0	9.88	87.23
	6/6/2014	<1.0	<1.0	<1.0	<1.0	5.81	91.49
	9/22/2014	<1.0	<1.0	<1.0	<1.0	NM	NA
	12/2/2014	<1.0	<1.0	<1.0	<1.0	8.12	89.18
	3/16/2015	<1.0	<1.0	<1.0	<1.0	8.72	88.58
	6/16/2015	<1.0	<1.0	<1.0	<1.0	9.98	87.32
	9/10/2015	<1.0	<1.0	<1.0	<1.0	10.84	86.46
	12/17/2015	<1.0	<1.0	<1.0	<1.0	5.13	92.17
	3/30/2016	<1.0	<1.0	<1.0	<1.0	6.86	90.44
	6/6/2016	<1.00	<1.00	<1.00	<1.00	9.75	87.55



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Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
	9/8/2016	<1.00	<1.00	<1.00	<1.00	11.39	85.91
	12/5/2016	<1.00	<1.00	<1.00	<1.00	7.10	90.20
	3/2/2017	<1.00	<1.00	<1.00	<1.00	10.71	86.59
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.50	88.80
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.89	86.41
	12/8/2017	<1.00	<1.00	<1.00	<1.00	12.25	85.05
	3/2/2018	<1.00	<1.00	<1.00	<1.00	10.61	86.69
MW06	3/24/2011	1.4	<1.0	25	310	7.19	88.59
	6/9/2011	<1.0	<1.0	1.3	9.6	6.89	88.89
	9/2/2011	31	<1.0	18	120	8.96	86.82
	12/2/2011	15	<1.0	42	270	8.69	87.09
	3/6/2012	320	<1.0	25	310	9.08	86.70
	6/19/2012	350	<1.0	37	870	8.21	87.57
	9/26/2012	190	<1.0	54	410	12.03	83.75
	12/21/2012	11	<1.0	45	150	9.50	86.28
	3/29/2013	<1.0	<1.0	<1.0	<1.0	8.80	87.70
	6/27/2013	4.7	<1.0	19	68	9.21	86.57
	9/10/2013	34	<1.0	29	130	8.88	86.90
	12/11/2013	1.4	<1.0	11.6	41.1	8.49	87.29
	12/17/2013	Surveyed - Not Sampled				8.21	87.58
	3/11/2014	42.9	<1.0	32.7	137	8.66	87.12
	6/6/2014	<1.0	<1.0	<1.0	<1.0	4.27	91.52
	9/22/2014	619	<1.0	46.3	192	NM	NA
	12/2/2014	1440	<2.0	54.8	153	6.38	89.41
	3/16/2015	<1.0	<1.0	<1.0	4.1	7.67	88.12
	6/16/2015	2580	<4.0	19.5	34.0	8.65	87.14
	9/10/2015	1370	<20.0	42.6	<20.0	9.53	86.26
	12/17/2015	1.5	<1.0	<1.0	<1.0	3.50	92.29
	3/30/2016	17.5	<1.0	<1.0	<1.0	5.19	90.60
	6/6/2016	1,130	<1.00	38.5	5.34	8.90	86.89
	9/8/2016	795	<1.00	7.00	133	9.82	85.97
	12/5/2016	<4.00	<4.00	<4.00	<4.00	4.79	91.00
	3/2/2017	63.1	<10.0	<10.0	<10.0	9.25	86.54
	6/16/2017	8.22	<1.00	<1.00	<1.00	6.84	88.95
	9/5/2017	8.34	<1.00	<1.00	<1.00	9.37	86.42
	12/8/2017	9.97	<1.00	<1.00	<1.00	10.48	85.31
	3/2/2018	2.31	<1.00	<1.00	<1.00	9.10	86.69



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Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)	
MW07	7/27/2011	<1.0	<1.0	<1.0	<1.0	7.88	87.72	
	9/2/2011	<1.0	<1.0	<1.0	2.4	9.60	85.90	
	12/2/2011	<1.0	<1.0	<1.0	<1.0	9.63	85.87	
	3/6/2012	<1.0	<1.0	<1.0	<1.0	10.01	85.49	
	6/19/2012	<1.0	<1.0	<1.0	<1.0	9.06	86.44	
	9/26/2012	<1.0	<1.0	<1.0	<1.0	12.58	82.92	
	12/21/2012	<1.0	<1.0	<1.0	<1.0	9.90	85.60	
	3/29/2013	<1.0	<1.0	<1.0	<1.0	8.00	87.50	
	6/27/2013	<1.0	<1.0	<1.0	<1.0	10.01	85.49	
	9/10/2013	<1.0	<1.0	<1.0	<1.0	9.84	85.66	
	12/11/2013	<1.0	<1.0	<1.0	<1.0	9.31	86.19	
	12/17/2013	Surveyed - Not Sampled					9.26	86.34
	3/11/2014	<1.0	<1.0	<1.0	<1.0	9.44	86.06	
	6/6/2014	<1.0	<1.0	<1.0	<1.0	4.63	90.97	
	9/22/2014	<1.0	<1.0	<1.0	<1.0	NM	NA	
	12/2/2014	<1.0	<1.0	<1.0	<1.0	7.13	88.47	
	3/16/2015	<1.0	<1.0	<1.0	<1.0	7.91	87.69	
	6/16/2015	<4.0	<4.0	<4.0	<4.0	9.43	86.17	
	9/10/2015	<1.0	<1.0	<1.0	<1.0	10.05	85.55	
	12/17/2015	<1.0	<1.0	<1.0	<1.0	4.75	90.85	
	3/30/2016	<1.0	<1.0	<1.0	<1.0	6.34	89.26	
	6/6/2016	<1.00	<1.00	<1.00	<1.00	9.77	85.83	
	9/8/2016	<1.00	<1.00	<1.00	<1.00	11.10	84.50	
	12/5/2016	<1.00	<1.00	<1.00	<1.00	7.73	87.87	
	3/2/2017	<1.00	<1.00	<1.00	<1.00	11.04	84.76	
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.96	86.84	
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.96	84.84	
12/8/2017	<1.00	<1.00	<1.00	<1.00	11.32	84.48		
3/2/2018	<1.00	<1.00	<1.00	<1.00	10.78	85.02		
MW08	7/27/2011	<1.0	<1.0	<1.0	<1.0	7.89	87.70	
	9/2/2011	<1.0	<1.0	<1.0	<1.0	9.75	85.79	
	12/2/2011	<1.0	<1.0	<1.0	<1.0	9.62	85.86	
	3/6/2012	<1.0	<1.0	<1.0	<1.0	10.00	85.48	
	6/19/2012	<1.0	<1.0	<1.0	<1.0	9.05	86.43	
	9/26/2012	<1.0	<1.0	<1.0	<1.0	12.51	82.97	
	12/21/2012	<1.0	<1.0	<1.0	<1.0	10.00	85.48	



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Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
	3/29/2013	<1.0	<1.0	<1.0	<1.0	7.99	87.49
	6/27/2013	<1.0	<1.0	<1.0	<1.0	10.14	85.34
	9/10/2013	<1.0	<1.0	<1.0	<1.0	9.84	85.64
	12/11/2013	<1.0	<1.0	<1.0	<1.0	9.32	86.16
	12/17/2013	Surveyed - Not Sampled				9.40	86.30
	3/11/2014	<1.0	<1.0	<1.0	<1.0	9.44	86.04
	6/6/2014	<1.0	<1.0	<1.0	<1.0	5.21	90.49
	9/22/2014	<1.0	<1.0	<1.0	<1.0	NM	NA
	12/2/2014	<1.0	<1.0	<1.0	<1.0	7.31	88.39
	3/16/2015	<1.0	<1.0	<1.0	<1.0	8.09	87.61
	6/16/2015	<1.0	<1.0	<1.0	<1.0	9.54	86.16
	9/10/2015	<1.0	<1.0	<1.0	<1.0	10.24	85.46
	12/17/2015	<1.0	<1.0	<1.0	<1.0	4.87	90.83
	3/30/2016	<1.0	<1.0	<1.0	<1.0	6.44	89.26
	6/6/2016	<1.00	<1.00	<1.00	<1.00	9.86	85.84
	9/8/2016	<1.00	<1.00	<1.00	<1.00	10.70	85.00
	12/5/2016	<1.00	<1.00	<1.00	<1.00	7.31	88.39
	3/2/2017	<1.00	<1.00	<1.00	<1.00	10.41	85.29
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.35	87.35
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.35	85.35
	12/8/2017	<1.00	<1.00	<1.00	<1.00	11.48	84.22
	3/2/2018	<1.00	<1.00	<1.00	<1.00	10.16	85.54
<hr/>							
MW09	7/27/2011	<1.0	<1.0	<1.0	<1.0	7.83	87.77
	9/2/2011	<1.0	<1.0	<1.0	<1.0	9.69	85.85
	12/2/2011	<1.0	<1.0	<1.0	<1.0	9.58	85.96
	3/6/2012	<1.0	<1.0	<1.0	<1.0	9.95	85.59
	6/19/2012	<1.0	<1.0	<1.0	<1.0	9.03	86.51
	9/26/2012	14	<1.0	<1.0	<1.0	12.45	83.09
	12/21/2012	<1.0	<1.0	<1.0	<1.0	10.07	85.47
	3/29/2013	<1.0	<1.0	<1.0	<1.0	8.14	87.40
	6/27/2013	<1.0	<1.0	<1.0	<1.0	10.05	85.49
	9/10/2013	<1.0	<1.0	<1.0	<1.0	9.79	85.75
	12/11/2013	<1.0	<1.0	<1.0	<1.0	9.33	86.21
	12/17/2013	Surveyed - Not Sampled				9.25	86.37
	3/11/2014	<1.0	<1.0	<1.0	<1.0	9.44	86.10
	6/6/2014	<1.0	<1.0	<1.0	<1.0	5.13	90.49
	9/22/2014	<1.0	<1.0	<1.0	<1.0	NM	NA



TABLE 1
GROUNDWATER ANALYTICAL AND FIELD RESULTS
DUBACH 16-4, THESING 9-4
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)	
	12/2/2014	<1.0	<1.0	<1.0	<1.0	7.16	88.46	
	3/16/2015	<1.0	<1.0	<1.0	<1.0	8.02	87.60	
	6/16/2015	<1.0	<1.0	<1.0	<1.0	9.40	86.22	
	9/10/2015	<1.0	<1.0	<1.0	<1.0	10.13	85.49	
	12/17/2015	<1.0	<1.0	<1.0	<1.0	4.67	90.95	
	3/30/2016	<1.0	<1.0	<1.0	<1.0	6.26	89.36	
	6/6/2016	<1.00	<1.00	<1.00	<1.00	9.69	85.93	
	9/8/2016	5.92	<1.00	<1.00	<1.00	10.57	85.05	
	12/5/2016	<1.00	<1.00	<1.00	<1.00	7.12	88.50	
	3/2/2017	<1.00	<1.00	<1.00	<1.00	10.23	85.39	
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.12	87.50	
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.21	85.41	
	12/8/2017	<1.00	<1.00	<1.00	<1.00	11.33	84.29	
	3/2/2018	<1.00	<1.00	<1.00	<1.00	9.99	85.63	
<hr/>								
MW10	9/10/2015	<1.0	<1.0	<1.0	<1.0	12.43	86.38	
	12/17/2015	<1.0	<1.0	<1.0	<1.0	6.61	92.20	
	3/8/2016	Surveyed - Not Sampled					8.75	87.10
	3/30/2016	<1.0	<1.0	<1.0	<1.0	5.31	90.54	
	6/6/2016	<1.00	<1.00	<1.00	<1.00	8.87	86.98	
	9/8/2016	<1.00	<1.00	<1.00	<1.00	9.76	86.09	
	12/5/2016	<1.00	<1.00	<1.00	<1.00	4.98	90.85	
	3/2/2017	<1.00	<1.00	<1.00	<1.00	9.26	86.57	
	6/16/2017	<1.00	<1.00	<1.00	<1.00	6.90	88.93	
	9/5/2017	<1.00	<1.00	<1.00	<1.00	9.39	86.44	
	12/8/2017	<1.00	<1.00	<1.00	<1.00	10.60	85.23	
	3/2/2018	<1.00	<1.00	<1.00	<1.00	9.13	86.70	
<hr/>								
MW11	9/10/2015	90.9	<1.0	<1.0	<1.0	9.73	85.64	
	12/17/2015	Frozen - Not Sampled					Frozen	NA
	12/31/2015	<1.0	<1.0	<1.0	<1.0	4.19	91.18	
	3/8/2016	Surveyed - Not Sampled					9.07	86.46
	3/30/2016	1.0	<1.0	<1.0	<1.0	5.87	89.66	
	6/6/2016	3.55	<1.00	<1.00	<1.00	9.41	86.12	
	9/8/2016	128	<1.00	<1.00	<1.00	10.26	85.27	
	12/5/2016	6.02	<1.00	<1.00	<1.00	6.97	89.08	
	3/2/2017	<4.00	<4.00	<4.00	<4.00	10.46	85.59	
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.23	87.82	



TABLE 1
GROUNDWATER ANALYTICAL AND FIELD RESULTS
DUBACH 16-4, THESING 9-4
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth Water/ (Product Thickness) (ft bgs)	Relative GW Elev. (ft)
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.45	85.60
	12/8/2017	<1.00	<1.00	<1.00	<1.00	11.76	84.29
	3/2/2018	<1.00	<1.00	<1.00	<1.00	10.23	85.82
MW12	9/10/2015	3.6	<1.0	<1.0	<1.0	9.73	85.75
	12/17/2015	Frozen - Not Sampled				Frozen	NA
	12/31/2015	<1.0	<1.0	<1.0	<1.0	4.22	91.26
	3/8/2016	Surveyed - Not Sampled				9.25	86.50
	3/30/2016	<1.0	<1.0	<1.0	<1.0	6.00	89.75
	6/6/2016	<4.00	<4.00	<4.00	<4.00	9.54	86.21
	9/8/2016	<1.00	<1.00	<1.00	<1.00	10.38	85.37
	12/5/2016	<1.00	<1.00	<1.00	<1.00	6.73	89.21
	3/2/2017	<1.00	<1.00	<1.00	<1.00	10.23	85.71
	6/16/2017	<1.00	<1.00	<1.00	<1.00	8.04	87.90
	9/5/2017	<1.00	<1.00	<1.00	<1.00	10.22	85.72
	12/8/2017	<1.00	<1.00	<1.00	<1.00	11.47	84.47
	3/2/2018	<1.00	<1.00	<1.00	<1.00	10.00	85.94
MW13	6/27/2017	<1.00	<1.00	<1.00	<1.00	NM	NA
	9/5/2017	<1.00	<1.00	<1.00	<1.00	6.35	84.79
	12/8/2017	<1.00	<1.00	<1.00	<1.00	7.52	83.62
	3/2/2018	<1.00	<1.00	<1.00	<1.00	6.09	85.05
COGCC Allowable Level		5	1000	700	1400		

Notes: COGCC - Colorado Oil and Gas Conservation Commission
Elev. - elevation
ft bgs - feet below ground surface
GW - groundwater
NA - not analyzed/not available

NM - not measured
µg/L - micrograms per liter
< - less than laboratory reporting limit
Bold indicates result exceeds allowable level
Excavation groundwater depth is approximate



TABLE 2
SURFACE WATER ANALYTICAL RESULTS
DUBACH 16-4, THESING 9-4
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
SW01	03/06/2012	Dry - Not Sampled			
	06/19/2012	Dry - Not Sampled			
	09/26/2012	Dry - Not Sampled			
	12/21/2012	Dry - Not Sampled			
	03/29/2013	<1.0	<1.0	<1.0	<1.0
	06/27/2013	Dry - Not Sampled			
	09/10/2013	Dry - Not Sampled			
	12/11/2013	Dry - Not Sampled			
	03/11/2014	Dry - Not Sampled			
	06/06/2014	Dry - Not Sampled			
	09/21/2014	Dry - Not Sampled			
	12/02/2014	Dry - Not Sampled			
	03/16/2015	<1.0	<1.0	<1.0	<1.0
	06/16/2015	<1.0	<1.0	<1.0	<1.0
	12/17/2015	<1.0	<1.0	<1.0	<1.0
	03/30/2016	<1.0	<1.0	<1.0	<1.0
	6/6/2016	<1.00	<1.00	<1.00	<1.00
	9/8/2016	Dry - Not Sampled			
	12/5/2016	<1.00	<1.00	<1.00	<1.00
	3/2/2017	<1.00	<1.00	<1.00	<1.00
	6/16/2017	<1.00	<1.00	<1.00	<1.00
	9/5/2017	<1.00	<1.00	<1.00	<1.00
	12/8/2017	Frozen - Not Sampled			
3/2/2018	<1.00	<1.00	<1.00	<1.00	
SW02	03/06/2012	Dry - Not Sampled			
	06/19/2012	Dry - Not Sampled			
	09/26/2012	Dry - Not Sampled			
	12/21/2012	Dry - Not Sampled			
	03/29/2013	<1.0	<1.0	<1.0	<1.0
	06/27/2013	Dry - Not Sampled			
	09/10/2013	Dry - Not Sampled			
	12/11/2013	Dry - Not Sampled			
	03/11/2014	Dry - Not Sampled			
	06/06/2014	Dry - Not Sampled			
	09/21/2014	Dry - Not Sampled			
	12/02/2014	Dry - Not Sampled			
	03/16/2015	<1.0	<1.0	<1.0	<1.0



TABLE 2
SURFACE WATER ANALYTICAL RESULTS
DUBACH 16-4, THESING 9-4
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
	06/16/2015	<1.0	<1.0	<1.0	<1.0
	12/17/2015	<1.0	<1.0	<1.0	<1.0
	03/30/2016	<1.0	<1.0	<1.0	<1.0
	6/6/2016	<1.00	<1.00	<1.00	<1.00
	9/8/2016	Dry - Not Sampled			
	12/5/2016	<1.00	<1.00	<1.00	<1.00
	3/2/2017	<1.00	<1.00	<1.00	<1.00
	6/16/2017	<1.00	<1.00	<1.00	<1.00
	9/5/2017	<1.00	<1.00	<1.00	<1.00
	12/8/2017	Frozen - Not Sampled			
	3/2/2018	<1.00	<1.00	<1.00	<1.00
<hr/>					
SW03	03/11/2014	Dry - Not Sampled			
	06/06/2014	Dry - Not Sampled			
	09/21/2014	Dry - Not Sampled			
	12/02/2014	Dry - Not Sampled			
	03/16/2015	<1.0	<1.0	<1.0	<1.0
	06/16/2015	<1.0	<1.0	<1.0	<1.0
	12/17/2015	<1.0	<1.0	<1.0	<1.0
	03/30/2016	<1.0	<1.0	<1.0	<1.0
	6/6/2016	<1.00	<1.00	<1.00	<1.00
	9/8/2016	Dry - Not Sampled			
	12/5/2016	<1.00	<1.00	<1.00	<1.00
	3/2/2017	<1.00	<1.00	<1.00	<1.00
	6/16/2017	<1.00	<1.00	<1.00	<1.00
	9/5/2017	<1.00	<1.00	<1.00	<1.00
	12/8/2017	Frozen - Not Sampled			
	3/2/2018	<1.00	<1.00	<1.00	<1.00
<hr/>					
SW04	03/11/2014	Dry - Not Sampled			
	06/06/2014	Dry - Not Sampled			
	09/21/2014	Dry - Not Sampled			
	12/02/2014	Dry - Not Sampled			
	03/16/2015	<1.0	<1.0	<1.0	<1.0
	06/16/2015	<1.0	<1.0	<1.0	<1.0
	12/17/2015	<1.0	<1.0	<1.0	<1.0
	03/30/2016	<1.0	<1.0	<1.0	<1.0
	6/6/2016	<1.00	<1.00	<1.00	<1.00



TABLE 2
SURFACE WATER ANALYTICAL RESULTS
DUBACH 16-4, THESING 9-4
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Well Name	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
	9/8/2016	Dry - Not Sampled			
	12/5/2016	<1.00	<1.00	<1.00	<1.00
	3/2/2017	<1.00	<1.00	<1.00	<1.00
	6/16/2017	<1.00	<1.00	<1.00	<1.00
	9/5/2017	<1.00	<1.00	<1.00	<1.00
	12/8/2017	Frozen - Not Sampled			
	3/2/2018	<1.00	<1.00	<1.00	<1.00

Notes: µg/L - micrograms per liter
 < - less than laboratory reporting limit





March 09, 2018

LT Environmental, Inc.

Brian Sulzberger

4600 West 60th Avenue

Arvada CO 80003

Project Name - KMG - Dubach 16-4, Thesing 9-4 Project Number - 014211027/WO #881192

Attached are your analytical results for KMG - Dubach 16-4, Thesing 9-4 received by Origins Laboratory, Inc. March 02, 2018. This project is associated with Origins project number Y803068-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014211027/WO #88119262
Project: KMG - Dubach 16-4, Thesing 9-4

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01	Y803068-01	Water	March 2, 2018 11:00	03/02/2018 15:42
MW02	Y803068-02	Water	March 2, 2018 11:05	03/02/2018 15:42
MW03R	Y803068-03	Water	March 2, 2018 11:10	03/02/2018 15:42
MW04	Y803068-04	Water	March 2, 2018 11:15	03/02/2018 15:42
MW05	Y803068-05	Water	March 2, 2018 11:20	03/02/2018 15:42
MW06	Y803068-06	Water	March 2, 2018 11:25	03/02/2018 15:42
MW07	Y803068-07	Water	March 2, 2018 11:30	03/02/2018 15:42
MW08	Y803068-08	Water	March 2, 2018 11:35	03/02/2018 15:42
MW09	Y803068-09	Water	March 2, 2018 11:40	03/02/2018 15:42
MW10	Y803068-10	Water	March 2, 2018 11:45	03/02/2018 15:42
MW11	Y803068-11	Water	March 2, 2018 11:50	03/02/2018 15:42
MW12	Y803068-12	Water	March 2, 2018 11:55	03/02/2018 15:42
MW13	Y803068-13	Water	March 2, 2018 12:00	03/02/2018 15:42
SW01	Y803068-14	Water	March 2, 2018 12:05	03/02/2018 15:42

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014211027/WO #88119262
Project: KMG - Dubach 16-4, Thesing 9-4

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SW02	Y803068-15	Water	March 2, 2018 12:10	03/02/2018 15:42
SW03	Y803068-16	Water	March 2, 2018 12:15	03/02/2018 15:42
SW04	Y803068-17	Water	March 2, 2018 12:20	03/02/2018 15:42

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

ORIGINS
 LABORATORY, INC

1603068

1725 Elk Place, Denver, CO 80211
 Laboratory # - 303.433.1322

Client: LT Environmental, Inc. Project Manager: Brian Sulzberger
 Project: KMG - Dubach 16-4, Thesing 9-4 Project Number: 014211027/WO #88119262
 Number Sample Identification Matrix Sample Date Sample Time Sampled By Container Qty Analyses
 Phil Hamill

Number	Sample Identification	Matrix	Sample Date	Sample Time	Sampled By	Container	Qty	Analyses
01-001	MM01	Water	3/2/18	1100	CT	12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
02-001	MM02	Water		1105		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
03-001	MM03R	Water		1110		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
04-001	MM04	Water		1115		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
05-001	MM05	Water		1120		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
06-001	MM06	Water		1125		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
07-001	MM07	Water		1130		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
08-001	MM08	Water		1135		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
09-001	MM09	Water		1140		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
10-001	MM10	Water		1145		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
11-001	MM11	Water		1150		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C

Relinquished By: [Signature] Date / Time: 3/2/18 1542
 Received By: [Signature] Date / Time: 3/2/18 1542
 Temperature on Receipt: 4.2
 Turn Around Time: 72-hr Standard 24-hr 48-hr

Origins Laboratory, Inc.

Jefe Pellegrini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4



ORIGINS
 LABORATORY, INC


1603068

1725 Elk Place, Denver, CO 80211
 Laboratory # - 303.433.1322

12-001	MW12	Water	3/2/18	1155	CT	12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
13-001	MW13	Water		1200		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
14-001	SW01	Water		1205		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
15-001	SW02	Water		1210		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
16-001	SW03	Water		1215		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C
17-001	SW04	Water		1220		12_40mL Amber VOA Vial - HCL	3	BTEX by EPA 8260C

Temperature on Receipt: 4.2
 Turn Around Time: 72-hr Standard
 Same Day: 24-hr 48-hr

Relinquished By:  Date / Time: 3/2/18 1542
 Received By:  Date / Time: 3/2/18 1542

Relinquished By:  Date / Time: 3/2/18 1542
 Received By: _____ Date / Time: _____

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: Y5030E

Client: LTE

Client Project ID: KMG - Dubach 16-4, Thesing 9-4

Checklist Completed by: D. Miller

Shipped Via: Pick-up
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 3-4-18

Airbill #: PL NA

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____

Cooler Number/Temperature: 14.2 °C / _____ °C / _____ °C / _____ °C (Describe)

Thermometer ID: 1052

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 3/6/18

Origins Laboratory, Inc.

Jefe Pellegrini

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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW01
3/2/2018 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-01 (Water)

BTEX by EPA 8260C

Benzene	86.0	4.00	ug/L	4	B8C0709	03/07/2018	03/08/2018	
Toluene	ND	4.00	"	"	"	"	"	U
Ethylbenzene	177	4.00	"	"	"	"	"	
Xylenes, total	927	4.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	110 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.1 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW02
3/2/2018 11:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.7 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW03R
3/2/2018 11:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-03 (Water)

BTEX by EPA 8260C

Benzene	306	10.0	ug/L	10	B8C0709	03/07/2018	03/09/2018	
Toluene	ND	1.00	"	1	"	"	03/08/2018	U
Ethylbenzene	7.25	1.00	"	"	"	"	"	
Xylenes, total	23.6	1.00	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4	114 %	84-121			"	"	"	
Surrogate: Toluene-d8	104 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.6 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW04
3/2/2018 11:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	115 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.0 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW05
3/2/2018 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	114 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	90.4 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW06
3/2/2018 11:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-06 (Water)

BTEX by EPA 8260C

Benzene	2.31	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	108 %	84-121			"	"	"	
Surrogate: Toluene-d8	115 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.4 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW07
3/2/2018 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-07 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	116 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW08
3/2/2018 11:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-08 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	112 %	84-121			"	"	"	
Surrogate: Toluene-d8	106 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	85.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW09
3/2/2018 11:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-09 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Brian Sulzberger
Project Number: 014211027/WO #88119262
Project: KMG - Dubach 16-4, Thesing 9-4

MW10
3/2/2018 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-10 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	117 %	84-121			"	"	"	
Surrogate: Toluene-d8	118 %	85-115			"	"	"	S-07
Surrogate: 4-Bromofluorobenzene	91.7 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW11
3/2/2018 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-11 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	
Surrogate: Toluene-d8	108 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	89.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW12
3/2/2018 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-12 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	114 %	84-121			"	"	"	
Surrogate: Toluene-d8	118 %	85-115			"	"	"	S-07
Surrogate: 4-Bromofluorobenzene	79.1 %	84-114			"	"	"	S-04

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

MW13
3/2/2018 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-13 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	
Surrogate: Toluene-d8	85.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

SW01
3/2/2018 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-14 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	115 %	84-121			"	"	"	
Surrogate: Toluene-d8	92.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.5 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

SW02
3/2/2018 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-15 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.3 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

SW03
3/2/2018 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-16 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	78.4 %	84-114			"	"	" S-04	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

SW04
3/2/2018 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y803068-17 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B8C0709	03/07/2018	03/08/2018	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8C0709 - EPA 5030B (Water)

Blank (B8C0709-BLK1)

Prepared: 03/07/2018 Analyzed: 03/08/2018

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	72		"	62.5		116	84-121			
Surrogate: Toluene-d8	63		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		93.7	84-114			

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8C0709 - EPA 5030B (Water)

LCS (B8C0709-BS1)

Prepared: 03/07/2018 Analyzed: 03/08/2018

Benzene	52.9	1.00	ug/L	50.0		106	73.3-129			
Toluene	51.7	1.00	"	50.0		103	76.2-123			
Ethylbenzene	52.8	1.00	"	50.0		106	73.6-130			
m,p-Xylene	106	2.00	"	100		106	76.1-126			
o-Xylene	53.2	1.00	"	50.0		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	73		"	62.5		117	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.9	84-114			

Origins Laboratory, Inc.



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LT Environmental, Inc.
 4600 West 60th Avenue
 Arvada CO 80003

Brian Sulzberger
 Project Number: 014211027/WO #88119262
 Project: KMG - Dubach 16-4, Thesing 9-4

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8C0709 - EPA 5030B (Water)

Matrix Spike (B8C0709-MS1)	Source: Y803068-02			Prepared: 03/07/2018 Analyzed: 03/08/2018						
Benzene	56.0	1.00	ug/L	50.0	ND	112	74-130			
Toluene	55.5	1.00	"	50.0	ND	111	73-131			
Ethylbenzene	56.3	1.00	"	50.0	ND	113	76-132			
m,p-Xylene	112	2.00	"	100	ND	112	69-139			
o-Xylene	55.2	1.00	"	50.0	ND	110	74-131			
Surrogate: 1,2-Dichloroethane-d4	75		"	62.5		119	84-121			
Surrogate: Toluene-d8	65		"	62.5		104	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.4	84-114			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8C0709 - EPA 5030B (Water)

Matrix Spike Dup (B8C0709-MSD1)	Source: Y803068-02			Prepared: 03/07/2018 Analyzed: 03/08/2018						
Benzene	54.2	1.00	ug/L	50.0	ND	108	74-130	3.39	20	
Toluene	54.7	1.00	"	50.0	ND	109	73-131	1.34	20	
Ethylbenzene	55.6	1.00	"	50.0	ND	111	76-132	1.39	20	
m,p-Xylene	112	2.00	"	100	ND	112	69-139	0.554	20	
o-Xylene	53.3	1.00	"	50.0	ND	107	74-131	3.52	20	
Surrogate: 1,2-Dichloroethane-d4	72		"	62.5		115	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.1	84-114			

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Notes and Definitions

U Sample is Non-Detect.

S-07 High surrogate in sample, however sample is non-detect. High surrogate indicates result values are biased high.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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